



Beyond boundaries: A history of Gauteng's Dinokeng Game
Reserve as public-private partnership and conservation
initiative, 1995-2018



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DECLARATION

I, Laurence Devereaux Archer Shee declare herewith that the thesis, titled “Beyond boundaries: A history of Gauteng’s Dinokeng Game Reserve as public-private partnership and conservation initiative 1995-2018”, and which I herewith submit to the North-West University, is in compliance with the requirements set for the degree: Doctor of Philosophy. I declare that it is my own work, has been text-edited in accordance with the requirements, and has not been submitted to any other university.

Signature:



Date: 2024-03-22

Place: Irene, Pretoria

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When first contemplating a doctoral topic on the history of Dinokeng Game Reserve (DGR), I was fortunate to meet Adri Schwarz, a Dinokeng resident involved in Dinokeng's landowner structures at the time. Adri supplied me with key names of personalities involved in DGR's development and set up several orientation meetings for me with important role-players. She truly was instrumental in getting my research off the ground by way of identifying sources. I recall Adri taking me to meet her friend, Tienie Graf, of iKhaye LamaDube Game Lodge, at the beginning of my study, who introduced me to the southern section of DGR, a beautifully undulating landscape with billowing grass high enough to conceal any tawny-coloured predator. Later, as I communicated increasingly with Adri, she supplied me with a tranche of founding documents allowing me to begin piecing together the arcane DGR boundary puzzle.

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¹ Anthony Paton, grandson of Alan Paton, is an experienced and qualified field guide and a Deputy Director, Marketing, Cradle of Humankind World Heritage Site & Dinokeng Projects with the Gauteng Provincial Government.

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ABSTRACT

Dinokeng Big 5 Game Reserve (DGR), east of the N1 Hammanskraal off-ramp, and 43 km north of Pretoria, was established in the impoverished northeastern quadrant of Gauteng in 2011 as a provincial government, Blue IQ spatial project. By 2018, a full complement of the Big 5 animals had been re-established where they once roamed naturally. The appropriateness of this study within environmental history and boundary studies is explored. The reason for DGR's development was to improve socio-economic conditions through employment opportunities in ecotourism and conservation. In the mid-1990s, Gauteng conservation officials envisioned a large wildlife haven in the region and had hoped to link up existing reserves and conservancies, both state and private, across Gauteng's provincial boundary into Limpopo and Mpumalanga. Inevitably this would require discussions and negotiations over the finalisation of boundaries in a fragmented landscape. There is little alignment between the current boundaries and those originally envisaged as the current ones enclose a much smaller area than desired.

The game reserve landscape architects and planners were imbued with the ideals of linking conservancies for the greater good of conservation. Therefore, they went to great lengths to persuade landowners to contribute their land to extend the reserve boundaries to the north, south, and east. They took their cue from such game reserve models as Vhembe and Atherstone, while planning to compete commercially against more distant and larger reserves such as Kruger National Park and Pilanesberg Game Reserve. The Gauteng Provincial Government planned to implement the game reserve as a public-private partnership, which is what it is today. Many obstacles arose, including from landowners, peripheral communities and, at times, a dilatory provincial government itself. Some landowners, asked to contribute their land to a trans-provincial game reserve by government conservation officials of the newly elected ANC government, were apprehensive. The prevailing zeitgeist of suspicion stemmed from uncertainty about land expropriation in South Africa, particularly as the neighbouring Zimbabwean ZANU government's post-independence expropriation programme had quickly transmogrified into violent, opportunistic, and chaotic land grabs to which the ZANU government eventually capitulated. The DGR, its boundaries now encompassing 19 500 ha, was initially planned to incorporate a larger area of over 200 000 ha. Reasons are explored for this not being achieved.

Several feasibility studies confirmed ecotourism as the most worthwhile land use for regional benefits. Despite the reserve's diminished size, Dr P. (Trish) Hanekom, former CEO of the Cradle of Humankind World Heritage Site and Dinokeng Projects, credited "...the cooperation of communities and land owners, politicians and bureaucrats, scientists and experts, inspired

planners and meticulous administrators” for its materialisation.² It is argued here that the game reserve model, based on wildlife ecotourism, has successfully contributed to the region’s socio-economic upliftment, thanks to the establishment of a legitimate Community Trust. Evidence is provided to counter the arguably overly harsh socio-economic assessments of DGR’s success. Research revealed a history of altruistic efforts by DGR management, the corporate world, NGOs, provincial government, and private landowners to improve the economy and eco-health of communities on the periphery of DGR. The reserve’s official opening was, as argued in this thesis, the culmination of approximately 16 years of protracted, broad-based consultation between the Gauteng Provincial Government, landowners, and northeast Gauteng communities. Attention is paid to examining the changing patterns of land use in the region from the mid-19th century until the present. There is a tradition of scientific research in the region and efforts have been made to record these and to assess their global relevance. As the reserve’s boundaries depend on the addition or withdrawal of land, it is hoped that the granting of Protected Area Status, as applied for by Dinokeng Game Reserve Management in 2023, will encourage further expansion so necessary for conservation, biodiversity, and the general socio-economic health of the region.

Key terms

Boundaries, Community trusts, Conservation, Dinokeng Game Reserve, Ecotourism, Environmental history, Game reserve model, Land rehabilitation, Public-private partnerships, Species reintroduction

² A. Paton, (ed.), D. Cochran, M. Daymond, L. Helm, C. Pretorius, S. Prins, A. Ramcharan, K.V. Soate & V. Van der Merwe, *Dinokeng Game Reserve, the First Decade* (HPH Publishing, Johannesburg, 2022), p. 14.

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LIST OF ACRONYMS AND ABBREVIATIONS

AI	Artificial Intelligence
AGM	Annual General Meeting
Agricor	Agricultural Development Corporation
ANC	African National Congress
ANN	Artificial Neural Networks
APU	Anti-Poaching Unit
ARC-HPH	Agricultural Research Council's Plant Health and Protection (PHP) group
BaSSREC	Basic and Social Sciences Research Ethics Committee
B-BBEE	Broad-Based Black Economic Empowerment
BPC	Black People's Convention
BPOP	Business Process Outsourcing Park
BRREP	Black Rhino Range Expansion Project
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CBC	Community-Based Conservation
CBO	Community-Based Organisation
CDO	Community Development Organisation
CDT	Community Development Trust
CEO	Chief Executive Officer
CoT	City of Tshwane
CSP	Cities Support Programme
DA	Democratic Alliance
DACEL	Department of Agriculture, Conservation, Environment and Land Affairs
DBSA	Development Bank of Southern Africa
DDT	Dichlorodiphenyltrichloroetha
DFEA	Department of Finance and Economic Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DGE	Dinokeng Game Enterprises (Pty) Ltd
DGR	Dinokeng Game Reserve
DGRMA	Dinokeng Game Reserve Management Association/Authority
DITDF	Dinokeng Integrated Tourism Development Framework
DLIO	Dinokeng Land Incorporation Offer
DMA	Dinokeng Management Association
DPA	Dinokeng Project Area
DTI	Department of Trade and Industry
DVRs	Dinokeng Voluntary Rangers
DWAF	Department of Water Affairs and Forestry
EFF	Economic Freedom Fighters
EMF	Environmental Management Framework
EMI	Environmental Manager Inspector
EMP	Economic Management Plan
EPA	Environmental Protection Agency
EWT	Endangered Wildlife Trust
Exco	Executive Committee
FEDUSA	Federation of Unions of South Africa
FGASA	Field Guide Academy of South Africa
FZS	Frankfurt Zoological Society
Gameco	Manages all DGR game-related activities
GCT	Gonarezhou Conservation Trust
GDACE	Gauteng Department of Agriculture, Conservation and Environment
GDACEL	Gauteng Department of Agriculture, Conservation, Environment and Land Affairs
GDARD	Gauteng Department of Agriculture and Rural Development
GDDED	Gauteng Department of Economic Development

GIS	Geographic Information System
GNP	Gonarezhou National Park
GPA	Game Purchase Agreement
GPG	Gauteng Provincial Government
HDIs	Historically Disadvantaged Individuals who were South African Citizens before 1994, who did not have the vote.
HEC	Human Elephant Conflict
HWC	Human Wildlife Conflict
HWI	Human Wildlife Interaction
I&AP	Interested and Affected Party
IBP	Integrated Business Plan
IDP	Individual Development Plan
IISD	International Institute for Sustainable Development
ILCs	Industrial Linear Corridors
IPLA	Intellectual Property License Agreement
ITDF	Integrated Tourism Development Framework
IUCN	The International Union for the Conservation of Nature
JMB	Joint Management Board
KAZA TFCA	Kavango-Zambezi Transfrontier Conservation Area
KNP	Kruger National Park
KRF	Kevin Richardson Foundation
LCNR	Leeuwfontein Collaborative Nature Reserve
LDA	Linear Discriminant Analysis
LED	Local Economic Development
LEDET	Limpopo Department of Economic Development, Environment and Tourism
LEK	Local Ecological Knowledge
LFGA	Limpopo Field Guide Academy
LIO	Land Incorporation Offer
LOA	Landowners Association
LPR	Leeuwfontein Provincial Reserve
MA	Millennium Ecosystem Assessment
Manco	A Section 21 management company which is the major management structure coordinating all DGR activities
MBA	Master of Business Administration
MEC	Member of the Executive Council
MGR	Madikwe Game reserve
MMSEZ	Musina Makhado Special Economic Zone
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MSS	Moonraises Strategic Solutions
MTPA	Mpumalanga Tourism and Parks Agency
MZEP	Mid-Zambezi Elephant Project
NDP	National Department of Agriculture
NEGI	North East Gauteng Initiative
NEMA	National Environmental Management Act
NEMPA	National Environment Protected Areas Act
NG	National Government
NGO	Non-Governmental Organisation
NPAES	National Protected Area Expansion Strategy
NT	National Treasury
NWPTB	North West Parks and Tourism Board
OIC	Officer in Charge

PAC	Problem animal control
PACA	Protected Areas and Conservation Areas
PAR	Protected Areas Register
PAS	Protected Area Status
PES	Payment for Environmental Services
PGR	Pilanesberg Game Reserve
PNP	Pilanesberg National Park
PoA	Pride of Africa
P&P	People and Parks
PPP	Public-Private Partnership
PRUDEC	Perseverance Rural Development Centre
RDP	Reconstruction and Development Programme
RdeW	Rust de Winter
RdeWNR	Rust de Winter Nature Reserve
RESILIM	Resilience in the Limpopo Basin Programme
RLCC	Regional Land Claims Commission
RSA	Republic of South Africa
RSDF	Regional Spatial Development Framework
SANAF	South African National Air Force
SANBI	South African National Biodiversity Institute
SANDF	South African National Defense Force
SANParks	South African National Parks
SASO	South African Students' Organisation
SATSA	South African Tourism Services Association
SDI	Spatial Development Initiative
SEIIP	Strategic Economic Infrastructure Investment Project
SEMP	Strategic Environmental Management Plan
SET	Social Exchange Theory
Setplan	Settlement Planning Services (Pty) Ltd
SMMEs	Small, Medium and Micro Enterprises
SSEIA	Synthesised Socio-Economic Assessment Report
STE	Save the Elephant's Human-Elephant Co-Existence Program
TED	Township Economy Development
THETA	Tourism Hospitality and Sport Education and Training Authority
TIES	The International Ecotourism Society
TLC	Tender Loving Care Old Age Home
TOMSA	Tourism Marketing South Africa
TPA	Transvaal Provincial Administration
TUT	Tshwane University of Technology
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UP	University of Pretoria
UXOs	Unexploded ordnance
VBR	Vhembe Biosphere Reserve
WfW	Working for Water
WITS	University of the Witwatersrand
WOF	Working on Fire
WPS	Wildlife Protection Solutions
WWF	World Wide Fund for Nature
Zimparks	Zimbabwe Parks and Wildlife Management Authority
ZPWMA	Zimbabwe Parks and Wildlife Management Authority

CHAPTER ONE

A RESEARCH FRAMEWORK FOR THE ENVIRONMENTAL AND REGIONAL HISTORY OF THE DINOKENG BIG 5 GAME RESERVE

1.1 Introduction

This chapter explains the research framework that was followed for the study of the Dinokeng Big 5 Game Reserve as an informal public-private partnership (PPP) model aimed at uplifting Northeastern Gauteng economically and socially through wildlife ecotourism and conservation. It provides a research framework to the study region and a background history of wildlife depletion that far precedes the development of this game reserve in the late 20th century. The problem statement, research questions, and research objectives, which are covered from Section 1.5, were formulated and methodologically scrutinised using qualitative-approached semi-structured interviews and literature sources.

The researcher declares that he is not a landowner in or near Dinokeng Game Reserve and has no commercial interest vested in the game reserve. What interest he has lies in the hope that as the reserve develops, it contributes significantly to the eco-health of Gauteng and neighbouring provinces; that it makes a significantly positive impact on the conservation of biodiversity; and that its commercial and ecological success contributes to an improved quality of life for those communities both in and on the perimeter of the reserve. In this thesis, the researcher attempts historically to gauge the extent to which Dinokeng Game Reserve has achieved these goals.

Northeastern Gauteng's Dinokeng Game Reserve (hereafter, DGR), despite what some may see as having an unprepossessing appearance, offers the possibility to enjoy the attractions of the bushveld for those who might want an escape from the hustle and bustle of its proximate metropolises, Johannesburg and Pretoria. With the dropping of landowners' fences, as required of DGR participants, and the official opening in 2011, the reserve aims to boost the marginalised economy of the surrounding areas by providing employment opportunities in the tourism and conservation sectors. The DGR, at the time of writing (2024), is known to be a 19 000 ha, free-roaming, Big 5 game reserve, 43 km north-east of Pretoria and easily accessible from the N1 national route.

The development of DGR adhered to the South African government's policies on conservation, economic development, and ecotourism during the post-apartheid era, and its existence reflects the hard work and sacrifices made by those role-players whose determination made the game reserve see the light of day. The environmental historian, William Cronon, has emphasised the need to honour the past by doing justice to those who preceded us. Considering this wisdom, it is important to record the institutions, landscapes, and ideas that led to DGR's formation from

embryonic ideas: “Let us take a past that would otherwise be dead and forgotten and tell stories to make it live again. In remembering it, we remember ourselves”.¹

In this opening chapter, a historical background provides insights to the devastating impact that hunters, naturalists, and farmers had on the region's flora and fauna. As one aspect of DGR's reason for being is the reintroduction of endemic species, it is fitting that some historical insight is provided into those responsible for the despoliation that took place in the mid-19th century. Early discussions about the viability of a game reserve, however, only began in 1995, which marks the formal starting point of this thesis. The end year of the thesis is 2018, when black rhinos were reintroduced, achieving the full complement of the Big 5 mammals so attractive to tourists and so important for conservation and biodiversity. To assist in understanding something of the present-day demographics of the region and its changing land use, an overview of the period during, and after, the mass slaughter of game is provided.

1.2 A brief regional orientation and historical background of Northeastern Gauteng

1.2.1 The origin of and approach to a Northeastern Gauteng regional thesis

In the mid-1990s, the researcher, living in Pretoria, heard talk of a proposed game reserve in Northeastern Gauteng, an area where he had visited farms and lodges, often traveling via the D48, the main tarred road that now divides the DGR into its northern and southern sections (Figure 1-1). While his interest was piqued at the time, it was about 15 years later that the possibility of his conducting an interesting environmental history study of the DGR began to emerge.

This thesis is the culmination of over five years of research on the history of the DGR from its origins in 1995 to its implementation in 2011. Disheartened by seemingly endless negative tropes on the state of the environment in general, the researcher saw the innovative approach to rewilding a part of Northeastern Gauteng as a refreshing rebuttal of an all-too-often wholly declensionist historical narrative of human destruction of ecosystems and land degradation. The DGR's development faced seemingly insurmountable challenges, ones which were identified as the research process unfolded. Research revealed that the creative ideas and the actions of DGR's resolute trailblazers led, in this writer's view, to its emergence against heavy odds as a conservation and economic miracle.

¹ W. Cronon, “Why the Past Matters”, *Wisconsin Magazine of History*, 84(1), 2000, p. 13.

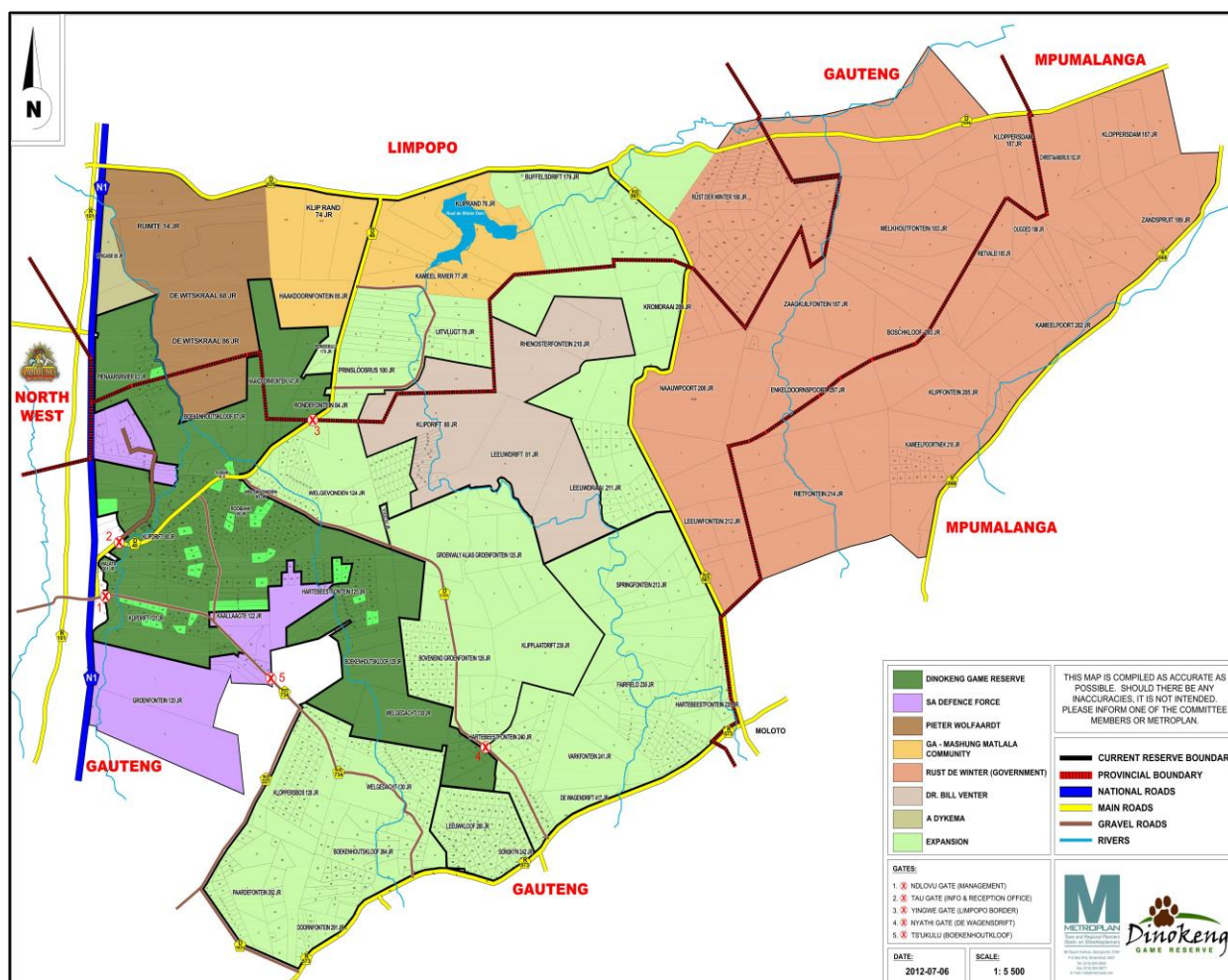


Figure 1-1: DGR. Permission for map use was granted by DGR Management and Dinokeng Projects on 2019-11-12.

Attempts were made to improve the readability of this detailed map. However, it is best read when zoomed.

This researcher was aware that by entering the academic milieu of environmental issues, one enters a controversial arena. Biology teacher Stephen J. Zipko has said of his science students that they are often unaware "... of the complexity and interdisciplinary nature of today's environmental problems". He added that one will come across many different beliefs and attitudes as to how problems should be solved and concluded that: "There are no easy solutions to many environmental issues because neither side has the perfect answer".² Fortunately, this study of the DGR has been relatively benign, yet the researcher is fully aware of the volatile milieu in which some defenders of global environmental sustainability work.

Environmental conflicts have been researched by, for example, Scheidel *et al.* who wrote in support of protection for environmental defenders. Their evidence has shown that conflicts

² S.J. Zipko, "The Pros and Cons of Environmental Debates", *The American Biology Teacher*, 53(3), 1991, p. 172.

involving violence and criminalisation occur notably more often in conflicts relating to mining and land, particularly when indigenous communities are involved. They promoted the need for the protection and recognition of indigenous communities and their territories, as well as the need to accelerate their "... right to self-determination as enshrined in the United Nations Declaration on the Rights of Indigenous peoples".³

Canadian historian, Mark McLaughlin, suggested that the declensionist approach to environmentalism, characterised by negative scenarios of colonial exploitation of land and resources, should take on the challenge of presenting more subtle and complex narratives. To do this, he argued, environmental historians should make subject matter complicated to avoid a pessimistic, declensionist narrative. To illustrate his point, he cited the Mactaquac Dam's chequered history, usually presented as a negative narrative.⁴ The Mactaquac was a modern, multi-purpose hydroelectric mega-project built along New Brunswick's St. John River in the 1960s.⁵ McLaughlin had previously seen the project negatively as "... a story of an unwanted dam and misguided state planning, of locals forced from their homes, farms and Indigenous lands flooded, ways of life lost, promises of employment not met, ecosystems greatly altered, salmon migrations being blocked, hatchery programs put in place, and so on". While acknowledging all these negative attributes, McLaughlin began to realise the positives, one of which was that the dam provided the momentum for establishing "... the first comprehensive pollution abatement program along the St. John River".⁶ The debate continues between those who want to retain the dam and those who want the original river course restored. As McLaughlin concluded: "It's easy to explain the issue of the Mactaquac dam as a simple declensionist narrative, but it's not, nor has it ever been. Sometimes, an extra effort has to be made to counterbalance the declensionist in our histories".⁷

Cronon's approach to environmental history aligned with McLaughlin's in that, "... if the environmental past teaches the hopelessness of the environmental future", then it is a "...

³ A. Scheidel, D. Del Bene, J. Liu, G. Navas, S. Mingorría, F. Demaria, S. Avila, B. Roy, I. Ertör, L. Temper & J. Martinez-Alier, "Environmental Conflicts and Defenders: A Global Overview", *Global Environment Change*, 63, 102104, 2020, p. 10.

⁴ M. McLaughlin, "Counterbalancing Declensionist Narratives in Environmental History Network", Network in Canadian History and Environment (NICHE), 2016-02-03, <https://niche-canada.org/2016/02/03/counterbalancing-declensionist-narratives-in-environmental-history/>, accessed 2023-10-16.

⁵ J.L. Kenny & A.G. Secord, "Engineering Modernity: Hydroelectric Development in New Brunswick, 1945-1970", *Acadiensis*, XXXIX(1), 2010, p. 1.

⁶ M. McLaughlin, "Counterbalancing Declensionist Narratives in Environmental History Network", Network in Canadian History and Environment (NICHE), 2016-02-03.

⁷ M. McLaughlin, "Counterbalancing Declensionist Narratives in Environmental History Network", Network in Canadian History and Environment (NICHE), 2016-02-03.

profoundly disempowering lesson – albeit a potentially self-fulfilling one”.⁸ While the researcher has kept these tenets in mind for his DGR narrative, he has also remained realistic about what can be achieved in game reserve development. If one written work should keep one grounded in this regard, it would be John Pringle’s, *The Conservationists and the Killers*, which outlines the complexities of game reserve development and policies in South Africa.⁹ Finalising game reserve structures may take a long time, in fact, it could be argued that their designs are ongoing as they are adapted as circumstances change, which is certainly true of the DGR. Critics of DGR might say it falls short of initial expectations. Even if that is so, its realisation remains an extraordinary achievement for conservation and ecotourism.

The vast range of conservation literature on the development of game reserves suggests there is no one-fits-all model. Be it a transfrontier park as described by Wolmer¹⁰; or Limpopo’s Masebe Nature Reserve, described by Boonzaaier and Wels¹¹ as “exclusionary”; or King’s examination of the Mahushe Shongwe Game Reserve, a collaboration between the Mpumalanga Parks Board and the Mzinti community; each is unique.¹² The DGR too, is a unique multi-ownership model whose approximately 170 landowners live within the reserve’s boundaries. Those visiting it should not expect a Kruger Park or a Masai Mara experience, but rather a unique DGR experience. Dinokeng Game Reserve is a complex development involving landowners, conservationists, community leaders, and government officials. It showcases the power of collaboration and determination in shaping conservation attitudes and approaches, even though progress may not be immediately and dramatically apparent. With the above in mind, one needs to examine more closely the historical background, topography, and demography of the area under study in this thesis.

1.2.2 Hammanskraal’s origins in the lion veld

Hammanskraal, located 40 km north of Pretoria, rose in the “lion-veld” and is the largest town adjacent to DGR. The postal code (0400) and address of the game reserve and of many game lodges inside the reserve, are those of Hammanskraal, indicating their proximity and close relationship with the town. It is named after a farmer, Hamman, who built a thorn stockade to

⁸ W. Cronon, “The Uses of Environmental History”, (Presidential Address, American Society for Environmental History), *Environmental History*, 1993, 17(3), p. 2.

⁹ J.A. Pringle, *The Conservationists and the Killers* (T.V. Bulpin and Books of Africa (Pty) Ltd., 1982).

¹⁰ W. Wolmer, “Africa Transboundary Conservation: The Politics of Ecological Integrity in the Great Limpopo Transfrontier Park”, *Sustainable Livelihoods in Southern Africa: Institutions, Governance and Policy Processes*, Research Paper 4, March 2003.

¹¹ C. Boonzaaier & H. Wels, “Juxtaposing a Cultural Reading of Landscape with Institutional Boundaries: The Case of the Masebe Nature Reserve, South Africa”, *Landscape Research*, 41(8), 2016, pp. 922-933, doi.org/10.1080/0146397.2016.1184630.

¹² B.H. King, “Conservation and Community in the New South Africa: A Case Study of the Mahushe Shongwe Game Reserve”, *Geoforum*, 38, (2007), pp. 207-219.

protect his cattle from marauding lions while driving them to winter grazing in the Bushveld. *The Dictionary of Southern African Place Names* offers little else on Hamman.¹³ Referring to the countryside around Hammanskraal in the 1880s, T.V. Bulpin described it as a thinly populated area, which "... was the real lion-veld of the old Transvaal", and "... noted more for its stick-fast mud and its lions than anything else". He described these lions of the Springbok Flats as among the most notorious in the whole of Africa, and the cause of many close calls and wild adventures.¹⁴ During the late 1830s until the mid-1840s, naturalist, Adulphe Delegorgue, certainly travelled close to where Hammanskraal is today. There, he complained of the roaring of the carnivores at night, a sound he described as terrifying and disturbing as if the lions were asserting their supremacy in the wilderness. He added that there was nothing the campers could do. Not even the burning of fires, cracking of whips, blasts on kudu horns, and the firing of shots could silence them.¹⁵ Today, visitors to DGR can once again, if lucky, hear the roar of lions as the latter go about their nocturnal venery, in both senses of an archaic word.

The town of Hammanskraal itself was portrayed by Bulpin as a rustic landmark used by early travellers for its canteen and store. He wryly remarked: "The fact that this trivial event was sufficient to occasion a place name, *Hammanskraal*, is sufficient indication of the absence of any feature of importance in the history or topography of the locality". Today it is a substantial residential town, a far cry from the first hostelry established there, which Bulpin described as "... so miserable that, when a party of filibusters looted it while on their way to Zimbabwe", all they came across "... were two roosters, both very tough, and a pig suffering from measles".¹⁶

Both Hammanskraal and the DGR fall within the Springbok Flats, an extensive plain that runs north-east from Pretoria, in Gauteng Province, for about 160 km to the town of Zebediela in Limpopo Province. The name suggests the historically abundant springbuck ("springbok" in Afrikaans), which have now all but disappeared, other than in some small game reserves. The Flats are, as the name suggests, flat and rather featureless. The average elevation is approximately 1000 m, and the climate is hot with an average rainfall of about 600 mm per annum. The dominant vegetation is broadly categorised as thornveld and grassland, and in places, the black turf, soil derived from basalt, is fertile. The plains are generally suitable for cattle, maize,

¹³ P.E. Raper, L.A. Moller, L.T. du Plessis & The Human Sciences Research Council, *The Dictionary of Southern African Place Names* (Jonathan Ball, Jeppesfontein, 2014).

¹⁴ T.V. Bulpin, *Lost Trails of the Transvaal* (Books of Africa (Pty) Ltd, Johannesburg, 1989), p. 222.

¹⁵ A. Delegorgue, *Travels in Southern Africa, Volume 2*, translated by Fleur Webb and introduced and annotated by S. Alexander and B. Guest, Killie Campbell Afrikaner Library, Durban (University of Natal Press, Pietermaritzburg, 1997), p. 186.

¹⁶ T.V. Bulpin, *Lost Trails of the Transvaal*, p. 222.

and groundnuts.¹⁷ The Elands and Pienaars Rivers mark both the southern boundary of the DGR and the southern boundary of the Springbok Flats.

Very close to two of DGR's entrances, Tau Gate (main gate) and Ndlovu Gate, both accessible from the N1 highway's Hammanskraal off-ramp, is a relatively new informal settlement known as Kekana Gardens, in which 67% of the community is considered poor. Recent research conducted by Van de Water *et al.*, revealed a sense of exclusion and mistrust regarding DGR within this community.¹⁸ Reactions of this and other local communities to the presence of DGR are detailed in Chapter Eight.

Prior to considering Hammanskraal's current circumstances, it is apposite to focus briefly on the historical presence of the indigenous people recorded as having been there in the 19th and 20th centuries. For this information, one relies on the texts of N.J. van Warmelo, despite that his contributions have been subjected to some criticisms.¹⁹ From his work, specifically his interviews in and around Hammanskraal and Pienaars River in the first half of the 20th century, one at least can provide a general observation on the region's historical population.

1.2.3 A demography of Hammanskraal and Dinokeng Game Reserve environs

Whereas little is known about Hamman himself, the eponymously named town was well ensconced in government records by 1905. For example, in *The Native Tribes of the Transvaal*, the two most prominent districts listed in the chapter titled, "The Tribes of the Central Division", were Pretoria and Hammanskraal. Based on the 1904 census return, the total African population of Hammanskraal was 27 874, whereas Pretoria's was 47 049. Most of these people were classified as Bechuana-Basuto; however, the author's emphasis was on the majority being of Bechuana descent, although the term Basuto had more traction. At this point a few words from this historical record will provide at least a background to the forebears of many of today's African population in the region.

¹⁷ Encyclopaedia Britannica, The Editors of Encyclopaedia, "plain", *Encyclopedia Britannica*, October 2023, <https://www.britannica.com/science/plain>, viewed 2023-11-11.

¹⁸ A. van de Water, S. Doornwaard, L. Sluiter, M. Henley, C. Sutherland & R. Slotow, "Resolving Conservation Conflicts Through Shared Vision, Collective Benefits and Relevant Values", *Diversity*, 15, 1041, 2023, p. 4, doi.org/10.3390/d15101041.

¹⁹ UNION OF SOUTH AFRICA, Department of Native Affairs, N.J. van Warmelo, No. 17, "The Bakgatla ba ga Mosetlha", (Ethnological Publications, Pretoria, 1944), and UNION OF SOUTH AFRICA, Department of Native Affairs, N.J. van Warmelo, No. 19, "The Bahwaduba", (Ethnological Publications, Pretoria, 1944).

The category, Bechuana-Basuto, included in order of numbers, the Bakgatla followed by the Bakwena and Baralong, respectively, as well as the people generally known as the Ndebele (Zulu or Amandebele groups). Whereas some descendants claim an earlier arrival, most were descended from the Amahlubi who were driven out of Zululand by Chaka in the early 19th century. The sons of a chief named Musi quarrelled over prominence resulting in a split into four sections under the sons, Manala, Keka, M'Hwaduba, and Nzunza.²⁰ It is noteworthy that an informal development located on the approach to DGR's Tau Gate is known today as Kekana Gardens.

Sekibakiba Lekgoathi offers some help in identifying who the Transvaal Ndebele are. By the mid-1990s they were known as the "Transvaal Ndebele", distinguishing them from the Zimbabwean Ndebele, who entered the Transvaal in 1816 as they fled Mzilikazi. The Transvaal Ndebele had settled in the region well before the new arrivals and were already well integrated with the Sotho-speaking people. They were attacked by the Zimbabwean Ndebele. Lekgoathi confirmed that the notion of Transvaal Ndebele fell into disuse with the advent of democracy in 1994. Sources have since referred to them as Ndebele, whereas they refer to themselves as Amandebele or Matabele. The Amandebele are made up of dispersed Nguni communities (branches of Nguni origin) and offshoots of a large Hlubi society who settled in groups in parts of the Transvaal after migrating from the KwaZulu-Natal Midlands 300 to 500 years ago. Lekgoathi points out that there is much scholarly work still required on the history of the local Ndebele.²¹

Regarding the four sections mentioned previously, Nyumba Mabena, who was chief of the Manala section in 1904, settled with 4 000 followers at Hammanskraal and at Wallmannsthal, south-east of Hammanskraal. He had another 2 000 followers on farms closer to Pretoria. The chief of the Keka section, Karel Keka, who had fewer followers, settled in the Hammanskraal District. M'Hwaduba, who led the Bahwaduba group, appears to have avoided conflict with his brothers by moving to various locations around the Pretoria area.

In the northeastern part of the Pretoria district, the Bahwaduba had suffered the impact of Mzilikazi's raids in the 1820s and 1830s. By 1905 the chief, Amos Mathibe, had settled with 3 000 followers near Hammanskraal. The Nzunza section had also suffered at the hands of Mzilikazi leading to a further split in the distribution of the people in this group.²² In current times it is more

²⁰ Great Britain War Office, *The Native Tribes of the Transvaal 1905*, Prepared for the General Staff, War Office (Harrison and Sons, London, 1905), p. 32.

²¹ S.P. Lekgoathi, "'Colonial' Experts, Local Interlocutors, Informants and the Making of an Archive on the 'Transvaal Ndebele', 1930-1989", *Journal of African History*, 50 (2009), pp. 63-64, [doi:10.1017/S0021853708003976](https://doi.org/10.1017/S0021853708003976).

²² Great Britain War Office, *The Native Tribes of the Transvaal 1905*, pp. 33-34.

acceptable to refer to the Bechuana-Basuto as the Batswana whose presence in the northern area of today's Gauteng was recorded as early as the 13th century.

Drawing from the Statistics South Africa 2011 Survey, and from Brodie²³ and Van Huyssteen²⁴ as references, it is estimated that nearly half of the population of the Hammanskraal region are descendants of the Batswana nation, and the Amandebele, who originated in the eastern part of the country, today form an integral part of the region's community. In 1944, N.J. van Warmelo, a government ethnologist, recorded that the Bahwaduba, whom he also referred to as Matabele, were living in the Hammanskraal district of the Transvaal. The Bahwaduba totem was the buffalo (*nare*) which seems appropriate considering there is a Big 5 game reserve in the area today. Van Warmelo said of the Bahwaduba language that, although of Ndebele origin, its speakers had "... long ago lost their original language, and now speak a *Kgatla* type of *Tswana*".²⁵ Van Warmelo also recorded the presence of the Bakgatla ba ga Mosetlha in the Hammanskraal District, but more specifically at Makapanstad (approximately 35 km north-west of Hammanskraal), which is today (2024) a part of the Northwest Province. According to Van Warmelo, the Bakgatla, whose totem is the monkey (*kgabo*), spoke Sekgatla, an eastern form of Tswana.²⁶

Lekgoathi has challenged Van Warmelo's classifications on the basis that as the latter was employed by the South African Native Affairs Department to compile a taxonomy of African "tribes", his work was politically motivated. In fact, Lekgoathi claimed that Van Warmelo's work was useful for both the social engineering of the apartheid state, and for use by Ndebele interlocutors who were entangled in chieftain struggles at the time. Lekgoathi has made it clear that Van Warmelo's work needs further scrutiny by future scholars:

Van Warmelo's knowledge, with all its misconceptions of the cultural features of the Ndebele chiefdoms in the Transvaal, is as much shaped by the local interlocutors' perceptions of their identities as by his understanding of Africans as 'tribal' subjects under the authority of chiefs. Ultimately, his writing and collection of vernacular manuscripts were, politically, neither innocent nor inconsequential. His work provided material both for the apartheid state's scheme of ethnic separatism and the ambitions of

²³ N. Brodie, *The Joburg Book* (South Africa, Pan Macmillan, 2014), p. 20.

²⁴ E. van Huyssteen, "Borders, Boundaries and Barriers: A Narrative on Hammanskraal/Temba", *Masters in Town and Regional Planning*, University of Pretoria, 1997.

²⁵ Union of South Africa, Department of Native Affairs, N.J. van Warmelo, No. 19, "The Bahwaduba", (Ethnological Publications, Pretoria, 1944), p. 23.

²⁶ Union of South Africa, Department of Native Affairs, N.J. van Warmelo, No. 17, "The Bakgatla ba ga Mosetlha", (Ethnological Publications, Pretoria, 1944), p. 3.

Africans engaged in struggles over chieftainship to claim scientific support for their desires. His archival contribution awaits the critical engagement of future scholars.²⁷

That said, one realises from Van Warmelo's work that there are significant descendants of the Batswana and Ndebele today living in proximity to both Hammanskraal and the DGR. Having provided some historical context to the African population in the region, the researcher acknowledges that it is best left to professional ethnographers and anthropologists to delve further into the minutiae of the complicated regional demography of Hammanskraal.

Other historical events have impacted the demography of the region. With the Great Trek into the interior, the Dutch began to settle north of Pretoria in the 1850s, dispossessing indigenous ethnic groups in the process. Other factors such as the discovery of diamonds in 1867 at Hopetown in the Northern Cape, and more particularly, gold in the Transvaal, together with the boom in agriculture and industry, further unsettled the Batswana population. With the advent of the 1913 Natives Land Act, followed by the application of apartheid laws in the 1940s, which included forced removals around Pretoria and the Witwatersrand, the population of Hammanskraal began to grow.

Over 100 years before discussions began on the DGR's formation (in 1994), the Scramble for Africa was underway. This involved a competitive struggle among European powers for African territories between 1885 and 1914. In the late 19th century, Africa was randomly carved up in a manner that showed little or no regard for existing African communities. As noted by the historian, Martin Meredith, maps were inaccurate, half of Africa's borders were artificial, and often straight lines were drawn cutting through established communities. The long-term consequences were that ethnic groups were either split or amalgamated leading to perennial instability in much of Africa, including Chad and Sudan.²⁸

In South Africa, the Boers (settlers of Dutch origin) had been in conflict with African populations in the Transvaal in the middle of the 19th century. Conflict also developed between the Boers and the British. The First Boer War, or the Transvaal War, for example, took place between 1880 and 1881. Five years later, in 1886, gold was discovered in the Transvaal. By the end of the 19th century, Britain, wanting control of the Transvaal Goldfields needed to provoke the Boers into

²⁷ S.P. Lekgoathi, "'Colonial' Experts, Local Interlocutors, Informants and the Making of an Archive on the 'Transvaal Ndebele', 1930-1989", *Journal of African History*, 50 (2009), p. 80, [doi:10.1017/S0021853708003976](https://doi.org/10.1017/S0021853708003976).

²⁸ M. Meredith, Video, "Diamonds, Gold and War: The British, the Boers and the Making of South Africa", *Books and Beyond*, Center for the Book, General Collections, Library of Congress Online Catalogue, <http://hdl.loc.gov/loc.gdcwebcasts.071011ctb1200>, accessed 2023-11-28.

fighting a war, one they believed would be over quickly.²⁹ The appalling consequences of what became a protracted war included the deaths of 26 000 Boer women and children from famine and disease in British concentration camps. Full records of the deaths among the 107 000 Africans in concentration camps were not kept. Pakenham stated that according to incomplete records, 7 000 died, although he thought a total of 12 000 African deaths was more likely.³⁰ Scholars have since suggested that as many as 20 000 Africans had died in concentration camps.³¹

Another consequence of the Boer War was the rise of Afrikaner nationalism, leading to two white groups, British and Boer, competing for supremacy. While South Africa's demographic history is not necessarily directly related to DGR's history, the policy of apartheid had an insidious way of influencing all aspects of South African life, meaning that even towns and villages proximate to DGR were socially engineered to provide cheap labour to the urban economy of Gauteng.

Apartheid was later euphemistically idealised by the National Party, as "separate development". The Reunited National Party (Herenigde Nasionale Party), the National Party from 1951, narrowly defeated Jan Smuts' United Party on 28 May 1948, after which the government policy "... would be framed around a single immutable goal – the preservation of white power in general and of Afrikaner power in particular".³² Despite increasingly organised black resistance, apartheid, although overcome by 1994, grew in strength into the 1970s.

To be noted is that Hammanskraal played a role in the anti-apartheid struggle where ideas of the Black Consciousness Movement were propagated. Between 1972 and 1983, for example, Hammanskraal was, according to Dr Udo Küsel of African Heritage Consultants, central to several notable struggle meetings. For example, in June 1972, a South African Students' Organisation (SASO) General Students Council meeting was held where homeland leaders were labelled "puppets" of the apartheid regime. Some SASO members then left South Africa to continue anti-apartheid activities in Botswana. Küsel listed other political events in Hammanskraal such as the first annual congress of the Black People's Convention (BPC) on 16 December 1972. In December 1974, a four-day convention called the Black Renaissance Convention, organised by Smangaliso Mkhathshwa and Maurice Ngakane, was characterised by rather chaotic proceedings,

²⁹ M. Meredith, Video, "Diamonds, Gold and War: ...", *Books and Beyond*, Center for the Book, General Collections, Library of Congress Online Catalogue.

³⁰ T. Pakenham, *The Illustrated Boer War*, (Jonathan Ball Publishers, Johannesburg, 2014), p. 287.

³¹ G.C. Benneyworth, "Land, Labour, War and Displacement: A History of Four Black Concentration Camps in the South African War (1899-1902)", *Historia* 64(2), 2019, p. 6.

³² Saunders, C. (ed.), *Readers Digest Illustrated History of South Africa* (The Readers' Digest Association of South Africa Pty Ltd, Cape Town, 1989), p. 367.

which as the minutes show, came out harshly against suspected apartheid collaborators.³³ The venue for this and other anti-apartheid activities was St. Peter's Catholic Major Seminary in Hammanskraal, which had been established to train African priests. In June 1983, the National Forum was held in Hammanskraal, which called for the establishment of a socialist state. It represented 170 Black organisations from different sectors.³⁴ Political activity in the region did not end with the demise of apartheid.

Since the arrival of democracy in 1994, Hammanskraal has been regularly plagued by civil unrest and protests over poor ANC government service delivery, potholed roads, housing, electricity, and difficulties with accessing potable water.³⁵ In July 2018, for example, residents complained that they were experiencing gastric ailments after drinking local water from the tap. Tshwane health officials investigated claims of a cholera outbreak but found no evidence of the bacterial disease.³⁶ As recently as May 2023, the Federation of Unions of South Africa (FEDUSA) called for the government to urgently address the water crisis in Hammanskraal following the deaths of 15 people and hospitalisation of others as a result of cholera. They stated that little had come from the government's previous commitments and that South Africa was a failing state. That in 2023 South Africa was experiencing a cholera outbreak was a fact, FEDUSA said, that should send "... shivers down the spines of all South Africans about the government's incapability and unwillingness to prioritise its mandate".³⁷ These protests illustrate the need for job creation and economic upliftment, and they reinforce the importance of projects like DGR as economic generators in an impoverished region in need of social stability.

1.2.4 The modern growth of Hammanskraal

In 2011, the year in which the DGR officially opened, the population of the general Hammanskraal area neighbouring the game reserve in the west was 94 273. The majority first language spoken

³³ S.P. Mkhathshwa (Secretary of the Black Renaissance Convention), "Report on the Black Renaissance Convention Held at Hammanskraal, 13-16 December 1974", https://disa.ukzn.ac.za/sites/default/files/pdf_files/rep19741200.032.009.289.pdf, accessed 2024-01-06.

³⁴ U.S. Küsel, African Heritage Consultants cc., Phase 1 Cultural Heritage Resources Impact Assessment, 2017-06-12, pp. 6-7, <https://sahris.sahra.org.za/sites/default/files/heritagereports/Heritage%20impact%20assessment.pdf>, accessed 2023-11-12.

³⁵ A. Mitchley, "Hammanskraal: If Gauteng protests are orchestrated, we'll arrest culprits – SAPS", *News 24*, 2019-04-11, <https://www.news24.com/news24/hammanskraal-if-gauteng-protests-are-orchestrated-well-arrest-culprits-saps-20190411>, accessed 2024-01-07.

³⁶ M. Sefularo, "Hammanskraal residents protest over 'unclean' water", *Eyewitness News*, 2018-07-10, <https://ewn.co.za/2018/07/10/hammanskraal-residents-protest-over-unclean-water>, accessed 2024-01-07.

³⁷ B. Moleya, FEDUSA Media Statement on Hammanskraal Water Crisis and Cholera Outbreak, 2023-05-23, <https://www.fedusa.org.za/2023/05/23/fedusa-media-statement-on-hammanskraal-water-crisis-and-cholera-outbreak/>, accessed 2024-01-07.

in the area was Tswana followed by Northern Sotho.³⁸ By 2023, the population was estimated to have risen to 120 513.³⁹ The estimate of the population of the urban agglomeration of Hammanskraal included its adjacent suburban areas.

Modern-day Hammanskraal includes a former apartheid homeland town (Temba), a former border industrial town (Babelegi), and a small, and until recently, predominantly white town (Hammanskraal), which were all developed in the 1950s. Close to Hammanskraal is an informal settlement that was converted into the township of Mandela Village.⁴⁰ In the 1960s, Hammanskraal became a major centre for the settlement of Africans as a labour source for Pretoria.⁴¹ In 1972, the Bantustan, Bophuthatswana, gained its independence from South Africa to become a self-governing state.⁴² The Hammanskraal region was split into a South African part and a Bophuthatswanan part, thus disrupting the course of its development, the negative consequences of which remain today. However, the Bophuthatswana government did boost economic development in the 1980s and early 1990s despite its lack of international and local endorsement. This included the creation of the Babelegi Industrial Zone in the 1970s as well as investments in schools and services. After the 1994 election, the Hammanskraal region experienced a general decline in service delivery, infrastructure, and social development. Already disadvantaged as a legacy of apartheid, townships across South Africa lacked the facilities and services that the more affluent white suburbs had. However, due to various reasons, including corruption, local government across the country has seriously deteriorated since 1994. Already in 2012, Hanyane and Naidoo had warned: "Institutional and financial challenges at the local government level, coupled with a lack of political will, are causes for concern, and contribute to continued compromised access to sanitation by millions of people living in South Africa".⁴³ Nevertheless, Hammanskraal has since grown to include a major mall, along with well-known South African retail concerns. The development of DGR was intended to contribute towards the social and economic invigoration of the broader Dinokeng area including that of Hammanskraal.

³⁸ City Population, https://www.citypopulation.de/en/southafrica/gauteng/_/799003001_hammanskraal/, accessed 2023-11-11.

³⁹ World Population Review, <https://worldpopulationreview.com/world-cities/hammanskraal-population>, accessed 2023-11-11.

⁴⁰ E. van Huyssteen, "Other Experiences of Planning for Reconstruction and Transformation: A Narrative of Planning and Development Histories in Hammanskraal-Temba", *Acta Structilia*, 8(1), 2001, p. 36.

⁴¹ U.S. Küsel, African Heritage Consultants cc., Phase 1 Cultural Heritage Resources Impact Assessment, 2017-06-12, p. 6.
<https://sahris.sahra.org.za/sites/default/files/heritagereports/Heritage%20impact%20assessment.pdf>, accessed 2023-11-12.

⁴² The Bophuthatswana Homeland (colloquially known as the Bophuthatswana Bantustan) was never recognised by the international community as an independent country.

⁴³ B. Hanyane and G. Naidoo, "Progress and Challenges of Service Delivery in South Africa Since 1994", *Mediterranean Journal of Social Sciences*, 3(12), 2012, <https://doi:10.5901/mjss.2012.v3n12p243>.

Despite government interventions, including the R42 million Babelegi Industrial Park project (opened in May 2017), unemployment remains a serious regional concern as does poor service delivery. The Babelegi project (a Department of Trade and Industry Revitalisation of Industrial Parks Programme) was, according to Rob Davies, Minister of Trade and Industry, initiated to stimulate arrested regional economies by attracting businesses to these areas, as well as to support job creation in manufacturing and related sectors.⁴⁴ However, the project foundered, and employment expectations were not met. The project was to include the Business Process Outsourcing Park (BPOP) to provide on-site training and technical support for micro-enterprises, but it continues to stall while political parties blame each other for its failure.

In 2021, the African National Congress (ANC) Gauteng Premier, David Makhura, undertook to revive the R525 million BPOP in Hammanskraal after it failed to provide the anticipated 3 000 jobs on its expected completion in 2021. Makhura blamed the Democratic Alliance (DA)-led administration for not seeing the project through after gaining administrative control of the Hammanskraal region in 2016. Makhura then instructed Parks Tau (ANC), the Member of the Executive Council (MEC) for Economic Development, Agriculture and Rural Development, to complete the building by the end of 2022.⁴⁵ This was not achieved, resulting in criticism of both the DA and the ANC by the Economic Freedom Fighters (EFF) whose constitution states that it adheres to “the Marxist-Leninist and Fanonian schools of thought”.⁴⁶ The EFF accused both parties of neglecting the project, which they described after a site visit as a ghost town. Accusing the DA as governors of the City of Tshwane (CoT), of presiding over the project’s collapse, the EFF identified a variety of causal factors including corruption, legal battles between contractors and the municipality, and vandalism. Its parting shot was that the ANC Provincial Government had condemned the local youth to permanent despair and vulnerability to drugs and crime.⁴⁷ The media release did not give details on how the EFF would turn the project around if it found itself in the position to do so. Arguably, the failure of large government-appointed projects such as the BPOP enhances the status of the DGR as a Public-Private Partnership (PPP) in that it, at least, functions efficiently while providing much needed regional employment.

⁴⁴ South African Government News Agency, SAnews.gov.za, “R42 million industrial park to stimulate Hammanskraal economy”, 2017-05-29, <https://www.sanews.gov.za/business/r42m-industrial-park-stimulate-hammanskraal-economy>, n.p., accessed 2020-01-02.

⁴⁵ R. Moatshe, “David Makhura to revive R525 million Business Processing Outsourcing park in Hammanskraal”, *Pretoria News*, 2021-11-02, <https://www.iol.co.za/pretoria-news/news/david-makhura-to-revive-r525-million-business-processing-outsourcing-park-in-hammanskraal-e105f927-4f90-49c6-99d6-1474174a95d3>, accessed 2023-12-28.

⁴⁶ EFF Constitution Adopted in Second National Peoples Assembly, p. 4, <https://effonline.org/wp-content/uploads/2020/11/FINAL-EFF-CONSTITUTION-02.03.2020.pdf>, accessed 2023-12-28.

⁴⁷ EFF Gauteng Media release, “Economic Freedom Fighters Statement on the Stalled Hammanskraal Business Processing Outsourcing Park”, 2023-05-14, <https://twitter.com/EFFGautengProv/status/1657712166932283393>, accessed 2023-12-28.

It is difficult to quantify the extent to which Hammanskraal, as the closest town to DGR, benefits directly or indirectly from any tourism opportunities the neighbouring game reserve might offer. A study of a report on the Cities Support Programme (CSP) of National Treasury (NT), which has been in an agreement with the CoT since 2019 to assist with technical support for a three-year Township Economy Development (TED) project in Hammanskraal, offers little information in this regard, but does show a commitment to developing future commercial links and small-business opportunities with DGR. While the 298-page, 2022 report focuses predominantly on infrastructural development and business opportunities within the town itself, it does state that opportunities for township businesses within the (game park) tourism sector should be enhanced and that Tshwane should "... identify potential tourism products, services, and market opportunities for township businesses, including tours, artisanal crafts, and leisure venues".⁴⁸ A single reference is made to an inspection of the "Crafters Market, Dinokeng Reserve", without any report on the findings.⁴⁹ Under the heading "Creative Economies", a sentence reads that local manufacturing of tourist curios and artwork find sales outlets "... to tourists visiting nearby nature reserves (such as neighbouring Dinokeng Nature Reserve) and other local attractions".⁵⁰ However, a more substantial commitment to leveraging off the DGR appears under the heading "Enhance Business Development Support for the Township Tourism and Creative Economies Sector".

In this section of the report, a "high-level" statement is made committing the CoT to enhance "... the competitiveness, productivity and sustainability of SMMEs in the township economy". Among the vibrant community sectors identified by the CoT as having latent potential and untapped tourism markets for creative entrepreneurs, is the DGR. However, the report gives no specific details on the intended approach to unlocking access to markets linked to the tourism sector in Hammanskraal's vicinity.⁵¹ The significance of this report is, however, that it confirms the importance each to the other of the DGR and the town of Hammanskraal.

The extent to which the DGR has provided employment opportunities and met socio-economic expectations is discussed fully in Chapter Eight. At this point, it is necessary to provide some clarity on the history of the region's suitability as a site for an ecotourism game reserve, and for the re-introduction of endemic species after over a century of wildlife despoliation. Following this,

⁴⁸ Republic of South Africa (RSA), Department National Treasury, Cities Support Programme, City of Tshwane, TED Project Team, "Hammanskraal Township Economic Development Strategy", 2022, p. 7, <https://csp.treasury.gov.za/DocumentsToolbox/Hammanskraal%20Township%20Economic%20Development%20Strategy.pdf>, viewed 2023-11-13.

⁴⁹ RSA, Department National Treasury, Cities Support Programme, City of Tshwane, TED Project Team, "Hammanskraal Township Economic Development Strategy", 2022, p. 36.

⁵⁰ RSA, Department National Treasury, Cities Support Programme, City of Tshwane, TED Project Team, "Hammanskraal Township Economic Development Strategy", 2022, p. 92.

⁵¹ RSA, Department National Treasury, Cities Support Programme, City of Tshwane, TED Project Team, "Hammanskraal Township Economic Development Strategy", 2022, p. 263.

a brief exposition is provided of land use in the Transvaal from the hunting days of the lion veld to the planning of DGR in the mid-1990s.

1.3 Colonial influence on the region's flora and fauna – a critical historiography

1.3.1 The unfettered assault on Transvaal wildlife

Prior to abrupt Covid-19 restrictions, the librarian of the University of Pretoria's Merensky Special Collections⁵² had managed to track down rare, Transvaal-specific publications from which a short historical panorama has been constructed of a small portion of the old Transvaal in the mid-19th century. The study area was abundant with game before the flora and fauna decline attributed to hunters and collectors in the 19th century as well as subsequent land use changes. A few examples of the activities of explorers and scientists interested in hunting and collecting specimens were selected for illustrative purposes.

The Magaliesberg and surrounds, less than 50 km from DGR, have yielded an abundance of fossils confirming that hominids lived in this area at least 3,5 million years ago. Known as the Cradle of Humankind (CoH), this area was declared a World Heritage Site on 2 December 1999.⁵³ A secondary source recording the history of the region is *The Magaliesberg* by Vincent Carruthers, while J.S. Bergh's *Geskiedenis atlas van Suid-Afrika: Die vier noordelike provinsies*, contains maps of the study region as it appeared in the 19th century.⁵⁴ Carruthers traced the history from early humankind through the Palaeolithic (Old Stone Age, 30 000 BCE, although some estimates are considerably earlier, to 10 000 BCE); the Mesolithic (Middle Stone Age, 10 000 BCE to 8 000 BCE); and the Neolithic (New Stone Age, approximately from 8 000 BCE to 2 500 BCE) periods; and the subsequent Iron Age (1 200 BCE to 500 BCE). He then considered the upheavals of the early 19th century, notably the 1827 invasion by Mzilikazi whose influence soon spread throughout the Magaliesberg. European hunters, missionaries, and traders started arriving in notable numbers in 1829. Carruthers additionally recorded the colonial era, the arrival of the Voortrekkers, the history of the Boer Republics, and the Boer-British conflicts.⁵⁵

Some arrivals, like William Cornwallis Harris and Carl Mauch, left valuable written natural history records. Mauch recorded a visit to the Pienaars and Elands Rivers, both of which are part of the

⁵² Notification of suspension of visits to University of Pretoria's Special Collections due to Covid-19 arrived in a personal email from librarian, Nikki Haw, on 2020-03-19.

⁵³ D. Fleminger, *World Heritage Sites: The Cradle of Humankind* (30° Degrees South Publishers (Pty) Ltd, Johannesburg, 2006), p. 11.

⁵⁴ J.S. Bergh, *Geskiedenis Atlas van Suid-Afrika: Die Vier Noordelike Provinsies* (J.L. van Schaik, Pretoria, 1999).

⁵⁵ V. Carruthers, *The Magaliesberg* (Protea Book House, Pretoria, 2000), pp. 210-333.

broader Dinokeng Project today and contribute to Dinokeng's name meaning "Place of Rivers".⁵⁶ Carruthers is of the view that hunters such as Roualeyn Gordon-Cumming inflicted enormous damage to the fauna on the "Cashan Mountains",⁵⁷ the historical name for the Magaliesberg until 1840.⁵⁸ C.J. Becker wrote in his 1878 *Guide to the Transvaal* that animals in the areas in which he travelled in the Transvaal, including in the vicinity of Pretoria, included elephant, hippopotamus, crocodile, giraffe, zebra, buffalo, baboon, antelope, and "... over thirty species of wild deer". He spoke of rivers abounding with fish, and of a rich birdlife including wild water fowl, adding that owing to the abundance of animals and fowl, a "... good rifle will prove not only an enjoyable, but useful and profitable companion".⁵⁹ Bekker noticed that larger game such as lion and elephant were rarely met as the colonising of the country progressed, suggesting that the spoilation of wild game was occurring on what Harris referred to in 1840 as "... the broad bosom of the flower-decked prairies of southern Africa", the "... hunter's Elysium".⁶⁰

The 1986 edition of Harris' lithographs claimed that Victorian explorers slaughtered game on an unprecedented scale, denuding the subcontinent of animals. Harris remarked on a noticeable decline in game, singling out the migratory springbok herds as the only abundant animals. The springbok, South Africa's national animal, was, according to Harris, hunted by the *venator*⁶¹ and "... slaughtered in vast numbers by the Dutch Boers both on account of the pleasant pastime its pursuit affords, and for the sake of the venison, which although lean, is delicate and well tasted".⁶² Some 19th century hunters and explorers slaughtered game not solely for the thrill, but also for the pot and scientific collections. According to the publisher of the 1986 version of *Portraits of the game and wild animals of Southern Africa*, Harris significantly contributed to art, literature, and zoology, recording textual and visual information while also contributing to scientific knowledge through his hunting.⁶³

Another notable explorer was Johan August Wahlberg, an archetypal naturalist of the 19th century. While not a qualified scientist, he was broadly educated in the natural sciences with some expertise in entomology, physics, chemistry, natural history, and agronomy. In their introduction

⁵⁶ E.E. Burke (ed.), *The Journals of Carl Mauch: His Travels in the Transvaal and Rhodesia 1869-1872* (National Archives of Rhodesia, Salisbury, 1969, p. 42.

⁵⁷ R. Gordon-Cumming, *A Hunter's Life in South Africa*, African Hunting Reprint Series, Vols 1 & 2, (Books of Zimbabwe, Bulawayo, 1980).

⁵⁸ V. Carruthers, *The Magaliesberg*, pp. 233-234.

⁵⁹ C.J. Becker, *Guide to the Transvaal*, (J. Dollard, Printer, Dublin, 1878), The State Library Reprints, No 71, 1976, p. 34.

⁶⁰ W.C. Harris, *Portraits of the Game and Wild Animals of Southern Africa* (Sable Publishers, Cape Town, 1986), p. vi.

⁶¹ The hunter (archaic).

⁶² W.C. Harris, *Portraits of the Game and Wild Animals ...*, p. 11.

⁶³ W.C. Harris, *Portraits of the Game and Wild Animals ...*, p. viv.

to Wahlberg's *Travel Journals*, Adrian Craig and Chris Hummel noted that while enjoying the hunt, his guns were primarily to assist him in his collecting of specimens.⁶⁴

Wahlberg travelled extensively throughout the nearby Magaliesberg arriving there mid-November 1841 and was at least in the proximity of the DGR. Between mid-November 1841 and 22 December 1841, he and his companion, Willem, while moving towards the Apies River,⁶⁵ shot a buffalo (*Syncerus caffer*); a hartebeest (*Alcelaphus buselaphus*); several impala (*Aepyceros melampus*); a strix (possibly a reference to the African Wood Owl, *Strix woodfordii*); a Rooye Rheebock (a mountain reedbuck, *Redunca fulvorufula*); and a Bastard Gemsbok (a roan antelope, *Hippotragus equinus*). He recorded the presence of lion (*Panthera leo*), at Oliphants' Neck; giraffe (*Giraffa camelopardalus*); rhino (White rhino, *Ceratotherium simum*, and Black rhino, *Diceros bicornis*); and herds of quagga, probably Burchell's zebra, *Equus burchellii*. On 22 December 1841, Wahlberg recorded that he had arrived at the strongly flowing Apies River characterised by beautiful acacia forests where he put up a lion.⁶⁶ He remained near the Apies River shooting birds and animals throughout January and February and into March 1842. His work along the Apies River completed, he headed to Natal, before which he likely crossed the westerly flowing Pienaars River (on DGR's western boundary) on his way to the Elands River (on the eastern side of DGR) which flows east to join the Kruger Park's Olifants River.

Wahlberg referred to the "Salt Pan", which was likely the Tswaing Crater, 40 km north-west of Pretoria.⁶⁷ At Tswaing, Wahlberg came across an enraged rhinoceros while hunting near the Salt Pan. He heard an oxpecker (*Buphagus*) call, and simultaneously a rhinoceros, nostrils flared, charged him. Seeking refuge behind a fallen tree, he looked round and saw the rhino where he had been standing "... blowing and snorting, casting in all directions and striking out with his terribly armed head".⁶⁸

Wahlberg was invited by the Swedish Academy of Sciences to collect flora and fauna from Southern Africa for the Natural History Museum in Stockholm. Recognised for his curiosity, dedication, and conscientiousness, he carried out his African duties, often facing personal discomfort due to limited financial support. Aged 46, Wahlberg was killed by a wounded elephant in Botswana in 1856. He had developed great ornithological skills, and having no taxidermist,

⁶⁴ J.A. Wahlberg, *Travel Journals (and Some Letters) South Africa and Namibia/Botswana 1838 – 1856*, A. Craig & C. Hummel, (eds.), An Riebeeck Society, Second Series, No. 23, Cape Town, 1994 for 1992, p. xvi.

⁶⁵ The Apies River is just west of the Pienaars River which flows through DGR.

⁶⁶ J.A. Wahlberg, *Travel Journals (and Some Letters) South Africa and Namibia/Botswana 1838 – 1856...*, pp. 67-76.

⁶⁷ "Place of salt" in Tswana.

⁶⁸ J.A. Wahlberg, *Travel Journals (and Some Letters) ...*, p. 79.

personally preserved and labelled numerous specimens, mainly housed today in Stockholm's Natural History Museum. The vast collection of Southern African fauna attributed to Wahlberg included birds, mammals, reptiles, amphibians, and insects.⁶⁹

A colourful travelling companion of Wahlberg's was a Frenchman named Adulphe Delegorgue. The latter's travels in the late 1830s until the mid-1840s were covered in a two-volume book, *Travels in Southern Africa*. The idea to produce and translate the work into English was the initiative of historian Colin Webb, who died before its completion.⁷⁰ Delegorgue travelled through the Magaliesberg, north through the Pilanesberg to Thabazimbi, then in a southerly direction parallel to, but some distance from the Limpopo, and finally south west along the Crocodile River to Rustenburg.⁷¹ One can assume, owing to the reasonable proximity of the Magaliesberg to DGR, that many of the species he collected on his travels were also present in the DGR region.

Stephanie Alexander detected in Delegorgue "... an inner disquiet, even remorse" for the slaughter he committed. She understood the difficulty for a modern reader "... to reconcile Delegorgue the killer with Delegorgue the naturalist".⁷² His regret is suggested by his reflection upon killing an impala, a timid and charming creature. He wondered what else he could do as a naturalist "... but observe them in the state of nature and then accept that their skins will provide the evidence which he owes to science and to public curiosity".⁷³ Alexander noted Delegorgue's industry in building a bush laboratory; curing skins and skeletons; packing skins, skulls and horns; and, as an accomplished entomologist, gathering and preserving insects in pest-proofed insect boxes.⁷⁴

When W.L. Distant⁷⁵ published *A Naturalist in the Transvaal* in 1892, he noticed the changing nature of the wild. During a twelve-month business visit to the Transvaal, he spent his leisure time in "... zoological recreation". While admiring the modernisation of transport facilities servicing the Transvaal, he lamented the "... curtailed view of the naturalist" and the loss to the sportsman of a hunting-ground. In the insensitive diction of his day, he commented that large herds of ruminants no longer inhabited the plains. He placed the blame on Boers hunting for "... the skins of the buck

⁶⁹ J.A. Wahlberg, *Travel Journals (and Some Letters)* ..., pp. xvi, xviii & xxi.

⁷⁰ Volume 2 was translated by Fleur Webb and introduced and meticulously annotated by Stephanie Alexander and Bill Guest.

⁷¹ A. Delegorgue, *Travels in Southern Africa, Volume 2*, Delegorgue's Travels (redrawn from the original map), n.p.

⁷² A. Delegorgue, *Travels in Southern Africa, Volume 2*, p. xxiii.

⁷³ A. Delegorgue, *Travels in Southern Africa, Volume 2*, p. 182.

⁷⁴ A. Delegorgue, *Travels in Southern Africa, Volume 2*, p. xxiv.

⁷⁵ W.L. Distant was a London-born entomologist who made two long visits to the Transvaal. The first visit of one year resulted in *A Naturalist in the Transvaal* (1892), and the second, a four-year visit, yielded *Insecta Transvaaliensia* compiled between 1900 and 1911.

and antelope” and Africans armed with guns, for losing what was once the most remarkable zoological characteristic of this portion of Southern Africa.⁷⁶ The author nostalgically observed the Transvaal's changing landscape. He missed the fauna and the resilient hunter-pastoralist farmers. He foresaw a growing Transvaal based on auriferous reefs and European influences, and predicted “... a race for wealth”, where lawyers would flourish. Townships, he said, would emerge on areas where farmers hunted big game. He also noted, by 1892, the disappearance of large herds of ruminants and carnivora, including lion.⁷⁷

This historical sketch has highlighted the decimation of fauna in the research area, while emphasizing the importance of recording regional fauna for historical and zoological purposes. Less information is available on the extent to which hunters and explorers of the 19th century might have impacted the flora of the Transvaal. Scientific exploration continued in the 20th and 21st centuries, something that is a feature of DGR's development. As University of Pretoria's Dr Jacques O'Dell predicted, “... Dinokeng has huge potential for environmental, ecological, veterinary, and one-health research”, adding that this research “... will greatly assist the reserve management to make decisions on how to best run the reserve” and that the “... power of research has not yet been fully implemented in the reserve”.⁷⁸ So far, a background to the effects the big game hunters in the Transvaal had on the endemic fauna has been provided. Hunting was also carried out by local Boer and African populations to the extent that something had to be done about the assault on the country's wildlife resources. The answer lay in legislation.

1.3.2 Early legislative attempts to stem the slaughter of wildlife

In 1988, historian, Jane Carruthers, set about remedying the dearth of critical histories of wildlife protection in Southern Africa. She chose to concentrate on the regional history of the Transvaal by critically tracing “... the development of a protective policy towards wild animals in the Transvaal from about the mid nineteenth century when white settlement there commenced, until the mid-1920s when the first national park in South Africa was established”. She saw the Transvaal as ideally situated for such a study because “... wildlife formed a focus for the divergent interests of blacks, Afrikaners and British”.⁷⁹ She established that rudimentary and largely ineffective attempts to control hunting had been introduced as early as 1846, which was a time when the teeming wildlife seemed limitless as sources of commercial business and recreational pleasure. The principles on which these controls were based were those of “... conservation or

⁷⁶ W.L. Distant, *A Naturalist in the Transvaal* (R.H. Porter, London, 1892), pp. vii-viii.

⁷⁷ W.L. Distant, *A Naturalist in the Transvaal*, pp. viii & 157.

⁷⁸ Laurence Shee Personal Collection (LSPC), J. O'Dell, Email, Veterinarian, Faculty of Veterinary Science, University of Pretoria/L. Shee, 2022-12-02.

⁷⁹ E.J. Carruthers, “Game Protection in the Transvaal, 1846 to 1926”, a Thesis Presented in the Department of History, University of Cape Town, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy, 1988, p. 19.

'wise usage' rather than preservationist principles".⁸⁰ Without merely repeating Carruthers' original and professional observations, the approach she took to examining the introduction of preservation legislation was compelling. Her chronological sequences were linked to the political motives of those in government at each stage.

Carruthers classified three wildlife protection phases prior to 1926. The first was that of the South African Republic's prohibitive policies prior to 1900 in which the Transvaal saw increasing numbers of European immigrants arrive as well as advances in industry and a move towards recreational hunting. The second phase Carruthers classified was that of the Transvaal as a British Colony from 1900 to 1910, a period during which protectionism was influenced by imperialism, capitalist development, and urbanisation, and guided by attempts to limit commercial and subsistence hunting. The third phase aligned with the advent of the Union of South Africa in 1910, game protection in the Transvaal was linked to the national state. By the mid-1920s, game reserves, notably in the Eastern Transvaal, were exploited for Afrikaner nationalist purposes, and became white recreational areas.⁸¹

Legislative attempts in the Transvaal to conserve threatened species resulted when it became clear that something had to be done. By 1905, game legislation appeared in an ordinance passed under the Crown Colony Government with the purpose of reducing and controlling the annihilation of wild animals and birds. The ordinance was revised by acts passed under Responsible Government in 1907 and 1909.⁸²

The Handbook of the Game and Fish Preservation Laws of the Transvaal Province, 1912, revealed that larger game, such as elephant, rhinoceros, hippopotamus, buffalo, and eland, were practically unknown in the Transvaal Province by 1912. The Administrator of the Transvaal, using game licences, enforced restrictions on the shooting of all game. A special "big game" license was required for big game hunting, issuable only by the Administrator. Other restrictions included direct restrictions, which allowed legitimate sporting pursuits while protecting natural Transvaal game in satisfactory numbers, and indirect restrictions, which protected game from commercial motives while still allowing genuine sport. Special permits were required for the export of game and game products, such as tusks, skins, and hides.⁸³

⁸⁰ E.J. Carruthers, "Game Protection in the Transvaal, 1846 to 1926", 1988, p. 23.

⁸¹ E.J. Carruthers, "Game Protection in the Transvaal, 1846 to 1926", 1988, pp. 21-22.

⁸² Provincial Government of the Transvaal, *Handbook of the Game and Fish Preservation Laws of the Transvaal Province, 1912*, (The Government Printing and Stationary Office, Pretoria, 1912), p. 5.

⁸³ Provincial Government of the Transvaal, *Handbook of the Game and Fish Preservation Laws ...*, pp. 6-7.

Game laws in the Transvaal aimed to foster genuine sport and preserve wild animal life. Enforcing these laws in wilderness areas was logistically challenging, but the Transvaal Provincial Government emphasised the importance of conservation. Breaking game laws required "... more than passive reprobation at the hands of right-thinking people", so, private participation was crucial in ensuring the preservation of nature's abundant wildlife.⁸⁴ No matter how flawed, efforts had at least begun to turn back the tide of rampant exploitation of the Transvaal plains, and to identify solutions.

Carruthers said that one of the aims of her historical investigation of Transvaal game protection structures was to help explain how present structures came about in an era where global concern over the excessive exploitation of natural resources was on the rise. Of unquestionable value to modern society, she said, was the need to understand "... the origins of specific resource husbandry in any country" to guide a future direction, and to retain "... stable, natural ecosystems - such as that nurtured within the Kruger National Park".⁸⁵ These values identified by Carruthers arguably apply equally to the development of DGR, where human interventions were made to rewild and restock an area once depleted of its natural flora and fauna. A final reflection on the historical background to the formation of Gauteng's DGR, which is situated in the former Transvaal, follows. There were, concurrent with prominent hunting activities in the 19th and 20th centuries, many other important activities, largely agrarian, which influenced the state of South Africa's flora and fauna. A final reflection on the historical background to the formation of Gauteng's DGR, which is situated in the former Transvaal, follows.

1.3.3 Economic activities in the DGR region of Gauteng in the 19th and 20th centuries

While hunting has historically been part of Transvaal history, it continues today as a significant contributor to the country's economy by way of the game biltong (dried meat) industry and trophy hunting. In 2018, the NWU's prolific tourism expert, the late Professor Melville Saayman, set out to fill a research gap on the economic benefits of wildlife hunting in Africa and particularly South Africa. Saayman said of the thousands of people participating in wildlife hunting activities in the country, that they benefited local economies in several ways: "Besides spending on the game that is hunted as well as on their accommodation, the hunters also spend money on hunting equipment, guns, ammunition, telescopic sights, clothing, meat processing and food and beverages".⁸⁶ Saayman's research in 2018 showed that the combined income from trophy hunting contributed more than ZAR5,4 billion (US\$341 million) to the South African economy at the time

⁸⁴ Provincial Government of the Transvaal, *Handbook of the Game and Fish Preservation Laws* ..., p. 7.

⁸⁵ E.J. Carruthers, "Game Protection in the Transvaal, 1846 to 1926", 1988, p. 378.

⁸⁶ M. Saayman, P. Van der Merwe & A. Saayman, "The Economic Impact of Trophy Hunting in the South African Wildlife Industry", *Global Ecology and Conservation*, 16, 2018, p. 1.

and that it supported more than 17 000 employment opportunities with room left for growth.⁸⁷ In 2023, the DGR Management began to sell biltong produced from its own resources to generate income for the reserve. In context of Saayman's research findings, DGR's current entry into the biltong market as a means to help fund the reserve in a sustainable way, makes financial and ecological sense.

That said, it is appropriate to reflect historically on other economic pursuits additional to hunting that characterised the Transvaal in general and the DGR area in particular. Whereas the above remarks on biltong hunting apply to hunting in South Africa generally, the intention in this section is to focus geographically on the region broadly referred to as the Transvaal. Gauteng today, is a post-1994 province, which is a part of what was the previous Northern Transvaal. As late as 1953, attempts were still being made to classify the Transvaal's boundaries and its land use, and a hundred years earlier, maps of the Transvaal were non-existent.

One can say, however, that a new Boer state, the Transvaal, existed since 1852 by the Sand River Convention⁸⁸, even though it had no clearly defined boundaries.⁸⁹ Carruthers has expounded upon the suspicions that the Boers had for maps in the mid-19th century:

As the Boers settled into their new territory north of the Vaal, their numbers augmented by many Voortrekkers from Natal and independence from Britain in the air in the late 1840s, like their counterparts in Natal they were wary of maps that might encircle them within British-controlled territory again. Map making was anathema to the infant Boer settlement and any stranger who attempted to map the inchoate area of the 'emigrant Boers' was regarded as a spy.⁹⁰

Maps help organise information, give direction, show relief by way of contours, and they represent visually an area on a smaller visual scale. They have political, economic, and agricultural value. In fact, their value is limitless. In the case of the DGR research presented in this thesis, map use was essential to gain a spatial understanding of DGR's shifting boundaries, to set the research area into a specific place in Northeastern Gauteng, and to show its relationship to the surrounding

⁸⁷ M. Saayman, *et al.*, "The Economic Impact of Trophy Hunting ...", *Global Ecology and Conservation*, 16, 2018, p. 8.

⁸⁸ Through the Sand River Convention, Britain recognised the right of Voortrekkers north of the Vaal River to govern themselves without Great Britain's interference, which in turn allowed for the establishment of the South African Republic, or the Transvaal.

⁸⁹ E.J. Carruthers, "Friedrich Jeppe: Mapping the Transvaal c. 1850-1899", *Journal of Southern African Studies*, 29(4), p. 960, doi.org/10.1080/0305707032000135914.

⁹⁰ E.J. Carruthers, "Friedrich Jeppe: ...", *Journal of Southern African Studies*, 29(4), p. 959.

areas. In the bigger picture, maps have played an important role in the history and economic and political development of the Transvaal since the mid-19th century.

Friedrich Jeppe, cartographer, and immigrant from the Baltic was a focus of Carruthers' research into the mapping of the Transvaal. A natural bureaucrat, through his postal services and stamps, Jeppe did much to advertise the Transvaal to the wider world. As Carruthers put it, Jeppe's career emphasised the importance of maps in promoting nationalism because he provided independent Transvaal with visible boundaries that "... defined the limits of Transvaal control in relation to British and Portuguese territory and in relation to African polities".⁹¹ Jeppe's 1877 map of the Transvaal coincided with Britain's annexation of the Transvaal Republic, which became known as the British Colony of the Transvaal. It was the first map to delineate the Transvaal's internal boundaries and its 12 districts or provinces.⁹² Jeppe continued working on maps until his death in Pretoria in 1898. These maps, particularly his last ones, provided invaluable information for the mining and agricultural industries.

Notable among these was his *Map of the Transvaal or South African Republic and Surrounding Territories* in 1889, which was later added to by Gustav Troye, who attempted to show all land properties, including farms, in the Republic.⁹³ Barry Lawrence Ruderman, specialists in antique maps and based in California, have described Troye's 1892 *Map of the Transvaal or South African Republic*, as his most important cartographic contribution. Barry Lawrence Ruderman noted that Troye had used as sources, farm diagrams and inspectors' records from the surveyor-general's office. With these, he had been able to map farm boundaries and list the names of the farms.⁹⁴ Carruthers has said of Jeppe's most important work, *Map of the Transvaal or S.A. Republic and Surrounding Territories*, 1899, published posthumously, that it was widely used and sought after, including by the British in the Transvaal during the South African War. Crucially, "... apart from a small part of the north-western Limpopo Province and along the Lebombo mountains, the entire Transvaal had been neatly allocated to settler farms".⁹⁵

Geographer, Elrie Liebenberg, has pointed out that throughout the 19th century, title deed diagrams for farms were very inaccurate; surveyors were scarce and poorly trained. An absence of a trigonometric base meant that "... there was no standard against which the accuracy of the farm surveys could be tested", which resulted in surveys overlapping and title deed diagrams not

⁹¹ E.J. Carruthers, "Friedrich Jeppe: ...", *Journal of Southern African Studies*, 29(4), p. 963.

⁹² E.J. Carruthers, "Friedrich Jeppe: ...", *Journal of Southern African Studies*, 29(4), p. 970.

⁹³ E.J. Carruthers, "Friedrich Jeppe: ...", *Journal of Southern African Studies*, 29(4), p. 974.

⁹⁴ Barry Lawrence Ruderman (BLR), Antique Maps Inc, https://www.raremaps.com/mapmaker/8872/Gustav_A_Troye, accessed 2023-11-20.

⁹⁵ E.J. Carruthers, "Friedrich Jeppe: ...", *Journal of Southern African Studies*, 29(4), p. 974.

reflecting accurately the topography of the area concerned.⁹⁶ During the Boer War, several maps were prepared, including what are known as Major Jackson's Transvaal and Natal Series.

Major Jackson's Transvaal and Natal Series was initiated by Major H M Jackson, head of the Topographical Section of the Field Intelligence Department (FID) after the occupation of Pretoria in June 1900. The First Transvaal Series consisted of 74 map sheets, folded to pocket size for use by riders. Liebenberg says of them that they were hurriedly assembled for military purposes and were of a poor standard. She noted that "According to Jackson himself, these maps were based on a mere 'patch-work' of farm diagrams and as such included much information that was of dubious value – [if] not positively misleading".⁹⁷ During the war the most reliable maps drawn up were the Degree Sheets, which had a colonial administrative function, unlike Jackson's military-purposed maps. After the war, the Degree Sheets played a part in the administration of both the Transvaal and the Orange River Colony. They were, according to Liebenberg, to remain the best maps of Transvaal until the South African Trigonometrical Office was reorganised in 1936.⁹⁸

These cartographers, among others, had, through their maps and European connections, presented the Transvaal to a wider audience. However, to get close to the value of maps for economic land use, it is helpful to move to the second quarter of the 20th century. By 1927, geographer, John Wellington, had done a tentative survey to delimit the natural regions of the Transvaal while simultaneously demarcating hyetal, thermal, and geological regions.⁹⁹ However, it was his 1953 classification of land use in Southern Africa that gave some clue as to the land use that was underway into the mid-20th century in the area that includes the DGR today.

He classified the area of what is today Northeastern Gauteng as category 3 land use, bordering categories 1 and 4. Category 3 land use was broadly defined as semi-intensive, pastoral, and arable; category 1 as intensive arable; and category 4 as extensive pastoral and arable. Wellington's map narrowed these categories into three sub-categories, namely 1A, 3C, and 4A.

⁹⁶ E. Liebenberg, "The Cartographic Legacy of the Anglo-Boer War, 1899-1902", Proceedings of the 21st International Cartographic Conference (ICC) Durban, South Africa", 10 to 16 August 2003, *Cartographic Renaissance*, p. 932, https://icaci.org/files/documents/ICC_proceedings/ICC2003/Papers/114.pdf, accessed 2024-03-05.

⁹⁷ E. Liebenberg, "The Cartographic Legacy of the Anglo-Boer War, 1899-1902", Proceedings of the 21st International Cartographic Conference (ICC) Durban, South Africa", 10 to 16 August 2003, *Cartographic Renaissance*, p. 932.

⁹⁸ E. Liebenberg, "The Cartographic Legacy of the Anglo-Boer War, 1899-1902", Proceedings of the 21st International Cartographic Conference (ICC) Durban, South Africa", 10 to 16 August 2003, *Cartographic Renaissance*, p. 932.

⁹⁹ J.H. Wellington, "The Natural Regions of the Transvaal", *The South African Geographical Journal*, 10(1), 1927, p. 5.

Sub-category 1A indicated that summer crops were grown, and cattle were ranched in an area free of tsetse fly (*Glossinidae*); 3C indicated that crops were grown under irrigation, and cattle were ranched in a tsetse fly free area; whereas 4A indicated cattle ranching as a dominant land use. As Wellington's observations in 1953 were based on established land practice, it is reasonable to assume that these activities had been developing over many decades prior to his classifications.¹⁰⁰ Thus, the importance of cartographers' contributions to making geographic and situational sense of landscapes becomes apparent. This is particularly so here where maps provide historical evidence of human activities in the current research area of Northeastern Gauteng, previously included in what was the Transvaal.

It is mentioned by J.S. Bergh that by the mid-19th century, agricultural activities had already commenced. White farmers were finding it difficult to attract black labourers to meet their farming demands. This called for tough measures and field cornets (civilian officials with military rank and certain judicial powers) were required to recruit labourers for the farmers in their respective wards. If farmers were unable to contract African labourers for a minimum period of a year, farmers had permission to "... use African labourers for a maximum period of fourteen days without compensation, but with enough food". A contract period of one year in 1850 only earned an African labourer one heifer. Africans who apparently refused without reason to make their labour available were liable to a punishment of a maximum of 25 lashes, says Bergh.¹⁰¹ He went on to present a detailed study of indentured labour in the Transvaal which is beyond the scope of this thesis. Further evidence of agricultural activities in the late 19th to early 20th centuries was provided by J. Burt-Davy in 1905.

Burt-Davy, reading a paper before the British Association for the Advancement of Science, at Johannesburg on 30th August 1905, compared the potential agricultural output of the Transvaal with that of California at the time. People who had not visited the Transvaal may have been under the misapprehension that the British Colony's production was limited to gold and diamonds, and cattle, maize, potatoes, and sorghum:

In reality, however, the variety of crops which it is possible to grow with success here is greater, perhaps, than in any other region of similar extent (106,642 square miles [approximately 276 201 square kilometres]). Even California, which is one of the most fertile countries on earth, and which now grows a greater quantity of each of a larger

¹⁰⁰ J.H. Wellington, "A Tentative Land Classification of Southern Africa", *South African Geographical Journal*, 35(1), 1953, p. 22, doi.org/10.1080/03736245.1953.10559296.

¹⁰¹ J.S. Bergh, "White Farmers and African Labourers in the Pre-Industrial Transvaal", *Historia*, 55(1), 2010, p. 20.

number of crops than perhaps any other, cannot produce as great a variety as the Transvaal, even though the area and range of latitude, longitude, altitude and rainfall; are greater in California than with us. California's vast output of agricultural produce, approaching a valuation of £23,000,000 per annum, is only rendered possible by the great variety of her crops.¹⁰²

About 50 years after Burt-Davy's observation, Wellington's land classifications were based on the degree of productivity and the use of land. Within his 1A category, Wellington included the Springbok Flats whose southern boundary is marked by the Pienaars River which flows through the western portion of DGR. In the mid-20th century then, Wellington confirms that of the land in or close to DGR, 27% was crop land and 30% grazing.¹⁰³ The mid-20th century also marked the start of serious experimentation with game farming either along with or in place of stock farming. About the time that Wellington was working on his land use classification, experimentation was beginning with the domestication of wild animals, as well as with crossbreeding. Carruthers has written extensively on the evolution of scientific game ranching in South Africa between the 1940s and 1970s. Gradually, during this period, the mindsets of the old-style conservationists gave way to more innovative thinking. One such advance resulting from experimentation with game farming was that the economic value of wild animals increased both on private land and in formal protected areas. This resulted in a dramatic increase in the number of wild animals and a decrease in the threat of extinction that was of such concern in the 1960s. So positive was the situation that Carruthers could confidently say of South Africa in 2008 that there was "... more game than there was forty years ago, and perhaps even as much as there was when early traders, trekboers, explorers and travellers ventured into the interior in the early nineteenth century".¹⁰⁴

Van der Merwe *et al.* testified to this growth in terms of the social, economic, and ecological advantages of conserving wildlife. As a result of this growth, the wildlife and hunting industry expanded in South Africa providing concomitant opportunities for rural development. Van der Merwe *et al.* reported an approximate conversion rate of cattle farms to game farms of approximately 500 000 ha each year until 2002, which was about 200 000 ha more than the average for 1998 to 1999.¹⁰⁵ By the mid-1990s, with several prosperous exceptions, agricultural

¹⁰² J. Burt-Davy, "The Climate and Life Zones of the Transvaal", *Sabinet African Journals*, 1905-01-01, p. 513, [doi/pdf/10.10520/AJA00382353_10374](https://doi.org/10.10520/AJA00382353_10374).

¹⁰³ J.H. Wellington, "A Tentative Land Classification of Southern Africa", *South African Geographical Journal*, 35 (1), 1953, p. 17, doi.org/10.1080/03736245.1953.10559296.

¹⁰⁴ E.J. Carruthers, "Wilding the Farm or Farming the Wild? The Evolution of Scientific Game Ranching in South Africa from the 1960s to the Present", *Transactions of the Royal Society of South Africa*, 63(2), 2008, p. 177, <https://doi.org/10.1080/00359190809519220>.

¹⁰⁵ P. van der Merwe, M. Saayman, R. Warren & W. Krugell, "Socio-Demographic Profile and Travel Behaviour of Biltong Hunters in South Africa", *Acta Academica*, 42(3), 2010, p. 62.

and cattle farmers, were faced with increasing farming costs, political uncertainty, and fear of losing land to land restitution. In the Northeastern quadrant of Gauteng many landowners had small, unproductive plots. It dawned on many of them that were advantages to contributing their land to a Big 5 game reserve while keeping their title deeds. The more viable prospect of switching from agriculture and cattle to game farming in some form or other began to hold some appeal. How the boundaries of the game reserve would eventually be configured is a central theme of this thesis.

The value of maps of Dinokeng for research purposes has been immense. A constant companion of the doctoral journey has been a full size 1: 5 500 Dinokeng Game Reserve map dated the 6th of July 2012 and prepared for DGR by Metroplan, Town and Regional Planners in Groenkloof, Pretoria. Without this map, which appears in full, or in sections throughout this thesis, it would have been impossible to make sense of DGR's boundary history and to place it in its context of the northeastern quadrant of Gauteng.

1.4 Literature review

1.4.1 Reflections on environmental history literature

Environmental historians, together with researchers from other disciplines, have made significant contributions towards creating context and revealing challenges that arise when developing game reserves and protected areas. As game reserves may differ enormously from each other in design, purpose, and situation, researchers from a variety of disciplines explore and share ideas on best game reserve practice.

In a South African context, for example, the research of Jane Carruthers¹⁰⁶ and Richard Davies on PNP and Madikwe Game Reserve, respectively, offers valuable case studies for comparisons with DGR's design. Other sources include Davies' *Madikwe Game Reserve: A Partnership in Conservation*.¹⁰⁷ Davies' perspectives came from his positions as Parks Board resource economist and co-ordinator of Madikwe's development.¹⁰⁸ Madikwe's development is also recorded by Relly,¹⁰⁹ and The Royal Madikwe luxury lodge website provides information on

¹⁰⁶ E.J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: Uniting Economic Development with Ecological Design – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, [doi:10.4102/koedoe.v53i1.1028](https://doi.org/10.4102/koedoe.v53i1.1028).

¹⁰⁷ R. Davies, "Madikwe Game Reserve: A Partnership in Conservation", in H. Prins, J. Grootenhuis & T. Dolan, (eds.) *Wildlife Conservation by Sustainable Use. Conservation Biology Series*, 12, (Springer, Dordrecht, 2000).

¹⁰⁸ P.A. Johnson (ed.), *Madikwe Development Series*, No.3, (North West Parks Board, Rustenburg, 1997).

¹⁰⁹ P. Relly "Madikwe Game Reserve, South Africa – Investment and Employment" in A. Spenceley (ed.) *Responsible Tourism* (Earthscan, London, January 2009), pp. 267-282.

Operation Phoenix which began the translocation of game to Madikwe in 1991.¹¹⁰ Davies discussed Madikwe's development in terms of partnerships, local communities, the private sector, and formal parks' structures.¹¹¹ Other Pilanesberg works are Bokaba's study¹¹² of economic benefits in local communities, and Mochechela's study¹¹³ on the economic impact of tourism in the PNP.

Asheim and Gertler who, in explanation of innovation processes, argued "... that one simply cannot understand innovation properly if one does not appreciate the central role of spatial proximity and concentration in this process".¹¹⁴ The research questions of this study reflect in part on the following innovation issues raised by Asheim and Gertler: the reason why location matters when it comes to innovative activity; the part played by these regional innovative systems in "... generating and circulating new knowledge leading to innovation"; "... the relationship between regional systems of innovation and institutional frameworks", which in this study will be at provincial level; and, lastly, "... the relationship between local and global knowledge flows".¹¹⁵ Knowledge-related issues have received close attention in Chapter Seven.

In respect of spatial matters, Carruthers' contribution in *Perspectives: The Edges of Environmental History*, is particularly useful.¹¹⁶ Further, a source explaining South Africa's policies regarding spatial development is the South African Economic Development Department's South African Cities Network report, "The Space Economy: An important consideration in Spatial Development Planning".¹¹⁷ The report also identified strengths, weaknesses, and lessons learnt

¹¹⁰ The Royal Madikwe luxury safari lodge website, <http://www.royalmadikwe.com/history/>, accessed on 2018-07-24.

¹¹¹ R. Davies, Madikwe Game Reserve: A Partnership in Conservation, in H. Prins, J. Grootenhuys & T. Dolan, (eds.) *Wildlife Conservation by Sustainable Use*.

¹¹² P. Bokaba, *The Economic Benefits of World (sic) Life Tourism in Local Communities: A Case Study of Pilanesberg National Park*, a research report in partial fulfilment of the requirement for the Degree of Master of Science in Development Planning, University of the Witwatersrand, 2003, <http://wiredspace.wits.ac.za/bitstream/handle/10539/7395/Dissertation.pdf?sequence=2&isAllowed=y>, accessed 2017-01-29.

¹¹³ M. Mochechela, "The Socio-Economic Impact of Tourism on Communities around the Pilanesberg National Park, North-West Province, South Africa", Master of Administration in Development Studies, University of Limpopo, 2010, http://ul.netd.ac.za/bitstream/handle/10386/913/mochechela_m_2010.pdf?sequence=1, accessed 2017-01-29.

¹¹⁴ B.T. Asheim & M.S. Gertler, "The Geography of Innovation: Regional Innovation Systems", in J. Fagerberg & D.C. Mowery (eds.), *The Oxford Handbook of Innovation*, (OUP, 2006), p. 292.

¹¹⁵ B. Asheim & M.S. Gertler, "The Geography of Innovation...", *The Oxford Handbook of Innovation*, p. 292.

¹¹⁶ J. Carruthers, *Environmental History with an African Edge*, in C. Mauch and L. Robin, (eds.), *Perspectives: The Edges of Environmental History* (Rachel Carson Center, Munich, 2014), pp. 9-16.

¹¹⁷ Republic of South Africa (RSA), Economic Development Department, "The Space Economy: An important consideration in spatial development planning", Economic Development-South African Cities Network (EDD-SACN) Social Dialogue Report, 2013-04-19, <https://www.sacities.net/wp->

from Spatial Development Initiatives (SDIs) over a period largely coinciding with DGR's development (1995-2013). In Chapter Two, both South Africa's spatial development ideals and challenges in relation to the DGR are examined in greater detail.

Worster's view on the role of Rachel Carson's seminal study, *Silent Spring* (1962) as having had an early influence on the direction of environmental history, suggests that humankind's history is integral to the history of the planet and that humans and the environment are mutually important for "health".¹¹⁸ This applies to DGR's reason for being, as health fits with DGR's goals of regenerating a partially degraded environment; conserving the environment; and in so doing, contributing to the local economy, all for the betterment of lives in Northeastern Gauteng.

Van Eeden noted that the definition of regional history studies in South Africa over the past half century was rather broad.¹¹⁹ A definition of regional history that does fit the approach to this DGR research work is one reached by regional historians and recorded in the first edition of *New Contree*. The authors found that small communities and the activities of the people within their familiar environment were interesting because "... true history is the story of change which occurs through the interaction of major determining events and the rhythm of the small, prosaic, almost unobtrusive course of daily life".¹²⁰ Interviews conducted for the current study in DGR revealed the interesting everyday life activities of Dinokeng landowners living close to each other within the reserve boundaries. One landowner, Celeste Scheepers, a counsellor, emphasised the value of community projects and helping African clients understand the reserve's benefits. She would take clients from Hammanskraal for coffee at Kwalata Lodge, an outing that proved memorable for those visiting a game reserve for the first time.¹²¹ The same respondent, when questioned about difficult relationships with island landowners, identified some tenants as a bigger problem as they paid little attention to conservation and rules of the road. Responsible landowners, on the other hand, dutifully contributed towards scraping corrugated gravel roads for everyone's benefit.¹²²

Bokaba's research on wildlife tourism's economic benefits in Pilanesberg communities provided a comparison for identifying logistical similarities and differences in labour conditions for PNP and

[content/uploads/2020/03/the_space_economy-an_important_consideration_in_spatial_development_planning.pdf](content/uploads/2020/03/the_space_economy-an_important_consideration_in_spatial_development_planning.pdf), accessed 2023-09-19.

¹¹⁸ Worster, D., KTH Environmental Humanities Laboratory, "Donald Worster: Environmental History", <https://www.youtube.com/watch?v=BJfwVXWP6X4>, accessed 2023-04-24.

¹¹⁹ E.S. van Eeden, "Regional, Local, Urban and Rural History as Nearby Spaces and Places: Historiographical and Methodological Reflections", *New Contree*, 63, 2012, p. 11.

¹²⁰ E.S. van Eeden, "Regional, Local, Urban and Rural History ...", *New Contree*, 63, 2012. Van Eeden was quoting editorial comments by CM Bakkes, *New Contree*, 1, 1977, p. 2.

¹²¹ LSPC, SOA2, C. Scheepers & E. Scheepers, Non-commercial landowners, DGR, 2021-04-21.

¹²² LSPC, SOA2, 2021-04-21.

DGR.¹²³ Mochechela's research examined the positive and negative impacts of tourism on Pilanesberg communities, focusing on the manufactured game reserve industry.¹²⁴ Van Rooyen explored partnership project challenges from a public management and administration perspective, suggesting a methodology that helps understand the DGR project's dynamics. His approach to understanding DGR's dynamics was to examine DGR's business plan as it stood in 2005, six years prior to DGR's eventual official opening. He emphasised the need for careful and inclusive negotiations between the various stakeholders based on a common vision to establish an outstanding conservation area and tourism destination in Gauteng Province.¹²⁵ Van Rooyen understood the important role that provincial governments can play in national conservation. The relevance of Van Rooyen's methodology, with its emphasis on negotiations and feasibility studies, is discussed in detail in Chapter Six.

Dovers suggested that environmental history should guide sustainable development policy and discussion by connecting it to pressing issues, promoting its flourishing and relevance. Environmental history examines the biophysical environment and human impacts on non-human settings, focusing on past states of the biophysical environment and evolving landscapes. Dovers' Australian perspective, like a South African and Dinokeng-specific perspective, aimed to interpret future challenges and opportunities. Dovers suggested a typology of sustainability problems, categorised into micro-problems, which, in the case of the DGR, would be daily issues faced by DGR managers and landowners, and meso-problems, which in DGR's case would involve broader public issues such as access to public roads and game management policies. Macro-problems are multi-faceted, uncertain, diffuse, and linked to national issues like biodiversity loss. These problems can be solved internally through existing mechanisms, such as landowners' meetings and environmental impact studies.¹²⁶ Although this typology is a useful descriptor of problems, one still needs to dig deeper into the value and contribution of environmental history to society and to environmental policies.

While not disparaging of "nature history", Dovers acknowledged both its limits and its constructive role in environmental history. However, he stated the need to take the discipline further by suggesting that "... history, through its potential comprehension of the social, political and

¹²³ P. Bokaba, "The Economic Benefits of World (sic) Life Tourism in Local Communities: A Case Study of Pilanesberg National Park ...", 2003, <http://wiredspace.wits.ac.za/bitstream/handle/10539/7395/Dissertation.pdf?sequence=2&isAllowed=y>, accessed 2017-01-29.

¹²⁴ P. Bokaba, "The Economic Benefits of World (sic) Life Tourism in Local Communities: A Case Study of Pilanesberg National Park ...", 2003.

¹²⁵ E.J. van Rooyen, "The Dinokeng Big Five Game Reserve: Envisaging a Socio-Economic Development Partnership", *Journal of Public Administration*, 40(4.1), 2005, pp. 609-610.

¹²⁶ S.R. Dovers, "On the Contribution of Environmental History to Current Debate and Policy", *Environment and History* 6(2), 2000, pp. 131-135.

economic past, can make a unique contribution to thinking about sustainability". He humorously added that while "... historians are not always ecologically literate, ecologists and other natural scientists could usually do with some historical and social instruction". The achievement of sustainability (one of the challenges of DGR) is, he argued, long term with roots that go very deep and "... that the longer view into the future demanded by sustainability needs to be matched by a longer view back". This suggested that historical context helps us understand the past to make sense of the present and future and might be particularly applicable to the case for sustainability.¹²⁷

Oosthoek has defined environmental history as "... the interaction between humans and the environment in the past".¹²⁸ Brügge-meier examined the influence of nature on humans, how humans intervene in nature, and how the two interact. Nature and environment, he argued, were synonymous and he stressed the need for environmental history to adopt an interdisciplinary approach.¹²⁹ Carruthers noted that African environmental history informs and influences appropriate policies around economic development, including agriculture, land restitution and ecotourism, and exploitation of natural resources.¹³⁰ Chapter Three fulfils the need to examine historical land use patterns in DGR over an extended period. South Africa's new environmental policies were disseminated across all government departments, indicating the government's commitment to showing progress and respecting the welfare of poorer communities. These DGR developmental policies aligned with Carruthers' view of appropriate policies mentioned above.

South African landscape architects, Willem Van Riet and Ken Tinley, designed PNP, a major restoration project on marginal farmland.¹³¹ Carruthers analysed PNP's land, which had been heavily used and altered by Tswana-speaking groups for centuries before its game reserve development.¹³² Like PNP, DGR's land was not in pristine condition before development of the reserve. Land use modifications included extermination of endemic game species, livestock overgrazing, crop farming, mining, urban expansion, and infrastructural development of roads and power lines.¹³³ Comparing game reserve initiatives with similar economic development and

¹²⁷ S.R. Dovers, "On the Contribution of Environmental History ...", pp. 137-138.

¹²⁸ K.J.W. Oosthoek, "What is Environmental History?", *Environmental History Resources*, 2005-01-03, <https://www.eh-resources.org/what-is-environmental-history/>, n.p., accessed 2019-12-29.

¹²⁹ F.J. Brügge-meier, in *International Encyclopedia of the Social Sciences*, 2001, <https://www.sciencedirect.com/topics/social-sciences/environmental-history/>, accessed 2020-04-24.

¹³⁰ J. Carruthers, "Africa: Histories, Ecologies and Societies", *Environment and History*, 10(4), 10th Anniversary Issue, 2004, p. 387.

¹³¹ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, p. 3.

¹³² J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, p. 2.

¹³³ Republic of South Africa (RSA), Gauteng Provincial Government (GPG), Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL), R. Collinson, W. Boonzaaier, M.

conservation goals highlights the importance of environmental history as a valuable discipline in influencing environmental policies.

To understand these concepts, *Environmental values* by O'Neill, Holland, and Light helps guide the way.¹³⁴ Palmer, reviewing their work, stressed that the flourishing of living beings should be encouraged because the protection of that flourishing, and the constructive caring and interaction with other living things is part of our own flourishing. Arguably, the flourishing to which Palmer referred could be like Worster's idea of "health" discussed earlier. O'Neil *et al.* recognised the value of pluralism and the value of history and narrative.¹³⁵ Before environmental policy is formulated, they argued, broad deliberation is required.¹³⁶ A section of the 1997 *White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity* appears to satisfy the pluralism to which O'Neill *et al.* refer.

South Africa consulted citizens on biodiversity conservation and sustainable use before the White Paper's acceptance. In March 1996, a discussion document called for public comment, with 700 copies distributed to different groups. An educational leaflet on biodiversity was compiled and translated into various languages, and a summary of the discussion was made available. Stakeholder briefings were held, and key issues raised. A national consultative conference was held in Pretoria in May 1996, attended by 160 representatives. The Green Paper, released for public comment on 28 October 1996, was based on the input of these representatives.¹³⁷ Another important consideration is that of environmental ethics and values.

O'Neill and Spash highlighted the ethical dimension of environmental problems, emphasising the need for legitimate, effective decision-making processes that respect all stakeholders. They cautioned against policies that capture individual values through payments and emphasised the importance of sound ethics, public consultation, and incorporating diverse values in policymaking. This required policy-making agencies to ensure their institutional capacity can accommodate diverse outcomes from various institutions.¹³⁸

Brett & M. Magakgala, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 5.

¹³⁴ J. O'Neill, A. Holland & A. Light, *Environmental Values* (Routledge, London and New York, 2007).

¹³⁵ Pluralism in this sense means there are many ways of approaching truths, not just one consistent one.

¹³⁶ C. Palmer, "Review of Environmental Values", *Geographical Journal*, 175(1), 2009, pp. 85-92.

¹³⁷ RSA, Government Gazette, 28 July 1997, No. 18163, White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity, pp. 7-8.

¹³⁸ J. O'Neill and C. Spash, "Conception of Value in Environmental Decision-Making", *Environmental Values*, 9(4), 2000, pp. 533-534, <http://www.environmentandsociety.org/node/5816>.

Environmental history, as Carruthers explained, connects disciplines, and works within disciplinary interstitial spaces, creating partnerships with various disciplines. This co-operative approach leads to increased understanding of the world and a greater appreciation of constancy and change through various disciplinary lenses held together by history. Chapter Seven shows DGR as a valuable game reserve model, connecting disciplines like environmental sciences, historical geography, technology, zoology, and botany to foster a deeper understanding of the world.¹³⁹

The South African Department of Economic Development employs macro-economic and sub-sectoral interventions for economically and environmentally depressed areas.¹⁴⁰ Nel and Rogerson described the latter as including "... support for the informal sector; small-, medium- and micro-sized enterprises; small-scale agriculture; and cooperatives".¹⁴¹ Priority districts are identified for Local Economic Development (LED) strategies intervention. Arguably, DGR development could serve as a testing ground for interventions in other economically marginalised South African regions.¹⁴²

The DGR model addresses a limited wilderness area where humans and wild animals co-inhabit a historically degraded area. It suggests a correlation with US-based Lovejoy's ideas on landscape protection. He argued after all, that the "... environmental goal of biospheric stewardship including conservation and restoration" need not apply only to wild, unpopulated ecosystems, but also to "... ones thinly populated with people whose values are congruent with maintaining wild places and their biodiversity". To Lovejoy, nature's place is "... in isolated protected areas set in human dominated landscapes", but also where "... human aspiration is embedded in nature". Sustainable cities, "... that draw lightly on the natural resources of surrounding natural habitats are a key part of the solution".¹⁴³ The DGR, a thinly-peopled, semi-wilderness area near large cities, is ideally situated to attract tourists to view wild animals. The reserve requires expert management to ensure that tourists "draw lightly" on this wonderful nature resource for which no blueprint existed. Chapter Two explores what environmental history reveals about DGR's efforts to meet the aims of both conservation and economic regeneration.

¹³⁹ J. Carruthers, "Environmental History: Complex Connections around the Constancy of Change", *Historia*, 54(2), 2009, p. 104.

¹⁴⁰ RSA, Bureau for Economic Research, "The Small, Medium and Micro Enterprise Sector of South Africa", Research Note, 2016, No 1, p. 5.

¹⁴¹ E. Nel & C.M. Rogerson, "Re-Engaging with Spatial Economic Development: The Recent Experience of Regional and Local Economic Development in South Africa", *Local Economy*, 31(1-2), 2016, pp. 4-6.

¹⁴² E. Nel & C.M. Rogerson, "Re-Engaging with Spatial Economic Development ...", *Local Economy*, 31(1-2), 2016, pp. 4-6.

¹⁴³ T.E. Lovejoy, "Conservation Biology: The Importance of Wilderness", *Current Biology Dispatches*, *Current Biology* 26, 2016-12-05, p. R1237, accessed 2021-04-14.

1.4.2 Reflections on boundary studies literature

In a *National Geographic Resource*, boundaries are defined as real or imaginary lines that separate two things. It lists several boundary types, including physical, political, linguistic, economic, and social boundaries. These types are relevant to DGR's current and future boundaries, as they help define the relationship between the region and its wildlife and human resources.¹⁴⁴ The *Stanford Encyclopedia of Philosophy* suggests that boundaries are entities demarcated from their surroundings, whether natural or artificial, sharp, or blurry, and can have different meanings for different people.¹⁴⁵

Those geography researchers, for example, who approach their subject matter from a Marxist perspective, may well see boundaries as indicators of capitalist exploitation. This is notable in Thakholi's doctoral work on the use of conservation labour drawn from communities on the western boundaries of Kruger National Park. Thakholi interprets conservation boundaries as "... maintaining the separation between black people and land" in a way that "... reinforces spatial injustice and so 'conserves' inequality in South Africa". This separation of mainly indigenous people from their land is something that she believes "... is common in contemporary conservation landscapes".¹⁴⁶

Van Houtum, Kramsch and Zierhofer said of borders that it "... is not so much their material morphology, but the various forms of interpretation and representation that they embody". Using an argument of Bruno Latour, they added that "... a key can transform a door into a border for some but a pass-through for others", while a door could also offer protection for some, while for others, it might suggest a political offence. While borders, barriers, and doors can convey liberty, opportunity, or protection, they may also be interpreted as being constraining. As articulated by Van Houtum *et al.*, "... border objects are not relevant in themselves, as are the objectification processes of bounded spaces informing people's everyday spatial practices".¹⁴⁷

The current boundaries of the DGR face unpredictable change, raising concerns about human-wildlife conflict (HWC), landowners' rights, and protection of conservation areas. The Dinokeng-based Wildlife and Ecological Investments research focused on managing HWC in Dinokeng,

¹⁴⁴ National Geographic Society, *National Geographic Resource*, "Boundary", <https://education.nationalgeographic.org/resource/boundary/>, accessed 2021-03-30.

¹⁴⁵ *Stanford Encyclopedia of Philosophy*, "Boundary", Centre for the Study of Language and Information, <https://plato.stanford.edu/entries/boundary/>, accessed 2023-07-25.

¹⁴⁶ L. Thakholi, "Conserving Inequality: Subjugating Black Labour by Accumulating and Defending Property in South Africa's Private Nature Reserve's". PhD, Wageningen University, 2021, p. 21.

¹⁴⁷ H. van Houtum, O. Kramsch & W. Zierhofer (eds.), *B/ordering space* (Ashgate Publishing Ltd, Aldershot, 2005), pp. 2-3.

collecting spatial data on fences and disturbances, and initiating conservation projects and research in ecologically important areas.¹⁴⁸

Conservation researchers Dallimer and Strange described situations closely related to those of DGR. They suggested that careful management alleviates the negative effects of socio-political borders on conservation efforts. They highlighted the need for ecosystem and biodiversity conservation in human-dominated landscapes, where boundaries determine ownership, governance, and management. This approach can help mitigate the fragmentation of habitats and improve overall conservation efforts.¹⁴⁹ The growth of the DGR is influenced by a limited availability of fragmented land, comprising many small holdings with some owners agreeing to join the game reserve and others remaining locked out as island properties. The boundaries of DGR are fluid, allowing owners to withdraw their land at any time if they become disillusioned. Consequently, DGR's boundaries are based on gratitude for land contributions, rather than natural ecological boundaries. Government-owned land in the game reserve is also problematic, with some areas open to roaming animals but not to tourists or landowners. Large DGR landowners have allowed only their paying guests to explore their portion, leading to smaller landowners, who's properties are open to self-drive routes, feeling excluded and cheated. These ownership dynamics exemplify the management complexities referred to by Dallimer and Strange that require cross-boundary cooperation. In this regard, these authors described four principles that are relevant to the DGR.

These principles are scale-matching, quantifying mutual economic benefits, determining transboundary societal values, and acknowledging stakeholder behaviour and incentives and are crucial for effective conservation and management across physical mappable boundaries.¹⁵⁰ The DGR, straddling the border between the provinces of Gauteng and Limpopo, requires scale-matching, for example, to ensure application of the same policy for grassland rehabilitation on DGR land in both provinces. Cooperation between parties is crucial to quantify mutual economic benefits. A DGR example of this principle is the Welgevonden female cheetah's death in a snare that led to her five cubs being taken to Kevin Richardson's Wildlife Sanctuary for a two-year re-wilding programme, showcasing the mutual interest of neighbours in countering poaching.¹⁵¹ Regarding transboundary values, DGR has gained cachet by attracting wider interest and support

¹⁴⁸ Wildlife and Ecological Investments website, <https://www.chnet.com/2394/wildlife-ecological-investments.html>, accessed 2020-04-07.

¹⁴⁹ M. Dallimer and N. Strange, "Why Socio-Political Borders and Boundaries Matter in Conservation", *Trends in Ecology and Evolution*, 30(3), 2015, p. 132.

¹⁵⁰ M. Dallimer and N. Strange, "Why Socio-Political Borders and Boundaries Matter in Conservation", *Trends in Ecology and Evolution*, 30(3), 2015, p. 132.

¹⁵¹ LSPC, D. Boshoff, Email, DGR General Manager, "Cheetah and Lion Update"/DGR Landowners, 2021-05-26.

for its biophysical and research activities, which promote ecosystem values beyond its immediate boundaries.¹⁵²

Regarding the fourth principle, DGR showcases behaviour and incentives in job creation and community engagement programmes benefiting local communities. By cataloguing individual preferences and local social networks, landowner participation can be harnessed through consultation, promotion of conservation opportunities, and improved planning and policy design.¹⁵³ The DGR exhibits exceptional volunteerism, with landowners contributing value through goodwill tasks like picnic site cleaning and donations of time, skills, and money.¹⁵⁴ These DGR examples illustrate that in the context of conservation and managements, barriers present opportunities for growth.

While DGR is not a transfrontier park, it is a trans-provincial one. Schoon's study on transboundary governance in the Kgalagadi and Great Limpopo Transfrontier Parks has highlighted the need for stronger institutions for future transboundary conservation projects.¹⁵⁵ The fluid boundaries of DGR have been challenged by interest groups in Limpopo, preventing future expansion. Unfortunately, official requests for evidence of negotiations between Limpopo and Gauteng's provincial government officials regarding trans-provincial game reserves did not yield much information.

Schoon compared top-down and bottom-up institutional structures to address challenges faced by park officials. Top-down structures offer a wider range of views, resources, and governmental support, whereas bottom-up structures accept nuanced views, promote experimentation, and use local place-based knowledge.¹⁵⁶ An informed understanding of institutional history helps academics and practitioners in two ways where the ongoing governance of conservation efforts and designing new plans appropriately, rather than as contextually free panaceas, may lead to new insights into strengthening institutional arrangements.¹⁵⁷

¹⁵² See Chapter Seven for information on the history of research in the DSGR.

¹⁵³ M. Dallimer and N. Strange, "Why Socio-Political Borders and Boundaries Matter in Conservation", *Trends in Ecology and Evolution*, 30(3), 2015, pp. 137-138.

¹⁵⁴ See Chapter Eight for information on social responsibility programmes associated with the DGR.

¹⁵⁵ M. Schoon, "Governance in Transboundary Conservation: How Institutional Structure and Path Dependence Matter", *Conservation and Society*, 11(4), 2013, p. 420.

¹⁵⁶ M. Schoon, "Governance in Transboundary Conservation: ...", *Conservation and Society*, 11(4), 2013, p. 420-421.

¹⁵⁷ M. Schoon, "Governance in Transboundary Conservation: ...", *Conservation and Society*, 11(4), 2013, p. 421.

Historians have a role to play in this regard. Cronon has remarked that storytelling, or narrative, is the historian's responsibility, and historians are unapologetic about it. Every story is unique, and the historian cares about the characters, experiences, and lived realities of the characters in the story. Historians become intimately involved with the story, using their imagination to inhabit that place and time. These narratives, which require historical evidence, become objects of other stories, continually "... elaborating the web of narrative".¹⁵⁸ The DGR, as a trans-provincial park, faces similar challenges to those identified by Schoon as applicable to transfrontier parks, namely local community relations, HWC, and ecotourism.¹⁵⁹

A 2017 edition of *The American Historical Review* featured boundary and border scholars' innovative ideas revealed through their conversations. While not focusing at all on boundary issues of game reserves, their conversations did reveal interesting perspectives on borders and boundaries in general. For example, Daniel Jütte noted the historians' "spatial turn" and its sustained effects: "It is now entirely common to think of space as a fundamental analytical category for the historian and to acknowledge that space is not an elusive, amorphous mass, but rather subject to historical change and shaped by specific social forces".¹⁶⁰ In this regard, the DGR story is also one of space in the sense of its origin as a Gauteng provincial spatial development project.

There are plans to expand the modest-sized, 19 000 ha DGR to protect biodiversity and increase ecotourism; however, expansion remains restricted until more land becomes available. Applicable to such planned expansion is a multidisciplinary boundary model developed by Schonewald-Cox and Bayless to examine the processes of exchange across administrative edges of nature reserves, with the aim of protecting biodiversity in small reserves.¹⁶¹

¹⁵⁸ H. Kreisler, University of California Television (UCTV), "The Life and Work of an Environmental Historian with William Cronon – Conversations with History", 2013-04-15, <https://www.youtube.com/watch?v=Bl610FkoG7k>, accessed 2023-04-22.

¹⁵⁹ M. Schoon, "Governance in Transboundary Conservation: ...", *Conservation and Society*, 11(4), 2013, p. 424.

¹⁶⁰ S.C. Akbari, T. Herzog, D. Jütte, C. Nightingale, W. Rankin & K. Weitzberg, "AHR Conversation: Walls, Borders, and Boundaries in World History", *The American Historical Review* 122(5), 2017, p. 1526.

¹⁶¹ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: A Geographical Analysis of Design and Conservation of Nature Reserves", *Biological Conservation*, 38, 1986, pp. 305-322.

Van Houtum singled out Minghi¹⁶² and Prescott¹⁶³ as the founding fathers of boundary and border studies, which, in the 1960s, focused on demarcation.¹⁶⁴ By 2002, Singh and Van Houtum argued that new conservation policies, based on bioregionalism and touristic nature parks, embraced scientific and technical terminologies that masked a moral and economic visionary discourse. The result was what they called the “othering” of Africans from their land and resources.¹⁶⁵ They did not view transfrontier/transboundary conservation favourably. Their criticism was that these conservation models created “... a neo-liberal economic space for white capital while privileging the tribal elite and enclosing the rural black African”. Although apparently equitable, in reality, they argued, these racially separate models privileged only “... the elites – state, traditional, private investment, NGOs – while ignoring an important segment of the population – the younger, disenfranchised youth and women or the peasantry”.¹⁶⁶ While Singh and Van Houtum’s criticisms of pre- and post-colonial approaches to conservation are well constructed, one is left wondering what alternative solution they might suggest.

In 2019, Ramutsindela, from the University of Cape Town's Department of Environmental and Geographical Science, urged human geographers and social scientists to study subnational borders.¹⁶⁷ A study of the DGR's boundaries accomplishes this because its border subnational (within South Africa) and inter-provincial in the north where it reaches into Limpopo Province. Van Huyssteen examined community narratives in planning and development, studying physical and non-physical divisions (borders, boundaries, and barriers) in Hammanskraal/Temba.¹⁶⁸ Lindsay Braun's *Colonial Survey and Native Landscapes in Rural South Africa 1850-1913* examined land and livelihoods within an emerging framework of spaces and boundaries.¹⁶⁹ These works are relevant to a study of the DGR because the expansion of the Dinokeng landscape relies on negotiations over land, spaces, and boundaries. Other relevant environmental works include

¹⁶² J. Minghi, “Boundary Studies in Political Geography”, *Annals of the Association of American Geographers*, 53(3), 1963, pp. 407-428.

¹⁶³ J.R.V. Prescott, *The Geography of Frontiers and Boundaries* (Aldine Pub. Co., Chicago, 1965). This book was re-published by Routledge in October 2016.

¹⁶⁴ H. van Houtum, “The Geopolitics of Borders and Boundaries”, *Geopolitics* 10, 2005, pp. 672-678. [doi:10.1080/14650040500318522](https://doi.org/10.1080/14650040500318522).

¹⁶⁵ J. Singh & H. van Houtum, “Post-Colonial Nature Conservation in Southern Africa: Same Emperors, New Clothes?”, *GeoJournal* 58, 2002, p. 261.

¹⁶⁶ J. Singh & H. van Houtum, “Post-Colonial Nature Conservation in Southern Africa: ...”, *GeoJournal* 58, 2002, p. 261.

¹⁶⁷ M. Ramutsindela, “Placing Subnational Borders in Border Studies”, *South African Geographical Journal*, 101(3), 2019, p. 349.

¹⁶⁸ E. van Huyssteen, “Borders, Boundaries and Barriers: A Narrative on Hammanskraal/Temba”, Masters in Town and Regional Planning, University of Pretoria, 1997.

¹⁶⁹ L. Braun, “Colonial Survey and Native Landscapes in Rural South Africa, 1850-1913: The Politics of Divided Space in the Cape and Transvaal”, *African Social Studies Series*, 33 (Brill, Netherlands, 2014).

*South Africa's Environmental History: Cases and Comparisons*¹⁷⁰ and Godsell's research on Kekana family land claims in Hammanskraal.¹⁷¹ This initial introduction to literature concerning boundary studies will be elaborated upon in Chapter Two, and ways will be explored in which boundary studies reveal insights into DGR's efforts to meet the aims of both conservation and economic regeneration.

1.4.3 Thoughts on the human-animal-environment interactions that shape history

The point is taken by environmental historians, such as Cronon, that there are environmental consequences to human activities and that human and nature-induced changes in natural systems will almost certainly affect human beings.¹⁷² Humans and other creatures, as well as natural processes, shape history in Dinokeng. Probably the most well-known narrative is about a cheetah, known for his escape artistry and long-distance roaming. His relocation history began in Samara Private Game Reserve and ended in the DGR. "The Story of the Darlington Male" told by Vincent van der Merwe in *Dinokeng Game Reserve: The First Decade*, reveals interesting cheetah interactions between each other as well as with lions, often expressed in mortal conflicts.¹⁷³ Further comment on cheetah is added by both Vincent van der Merwe and Stephan Prins in "My Journey with the Cheetahs" in the same volume.¹⁷⁴ So much more information relevant to environmental history is revealed in this single narrative, for example: predator on predator interactions, human-animal interactions, the role of individuals in the Cheetah Range Expansion Project co-ordinated by the Endangered Wildlife Trust, donor dynamics, and poaching consequences. One could add other existing DGR narratives on lions, vultures, and snakes, to name a few whose stories, in just under 15 years, have gained traction and made an impact on DGR's environmental history. Animal narratives in environmental history are not new. A case in point is Sandra Swart's narrative on horses, cattle, and dogs.

Swart has explored the use of history writing to connect with animal lives, focusing on horses in South African history and their impact on humans. She also provided a cultural perspective from those who worked with horses and understood their value during the South African War (1899--

¹⁷⁰ S. Dovers, R. Edgecombe & B. Guest, (eds.), *South Africa's Environmental History: Cases and Comparisons* (David Philips Publishers, Cape Town, 2002).

¹⁷¹ S. Godsell, "New 'Traditional' Strategies and Land Claims in South Africa: A Case Study in Hammanskraal", *New Contree*, 67, Special Edition, 2013.

¹⁷² W. Cronon, "The Uses of Environmental History", *Environmental History Review*, 17(3), 1993, p. 13.

¹⁷³ V. van der Merwe, "The Story of the Darlington Male", in Paton, A (ed.). Written for Dinokeng Game Reserve by Paton, A., Cochran, D., Daymond, M., Helm, L., Pretorius, C., Prins, S., Ramcharan, A., Soate, K.V. & Van der Merwe, V., *Dinokeng Game Reserve, the First Decade* (HPH Publishing, Johannesburg, 2022), pp. 81-87.

¹⁷⁴ V. van der Merwe and Stephan Prins, "My Journey with the Cheetahs", in Paton, A (ed.). Written for Dinokeng Game Reserve by Paton, A., Cochran, D., Daymond, M., Helm, L., Pretorius, C., Prins, S., Ramcharan, A., Soate, K.V. & Van der Merwe, V., *Dinokeng Game Reserve, the First Decade* (HPH Publishing, Johannesburg, 2022), pp. 74-79.

1902).¹⁷⁵ Swart has noted how recent historiography has increasingly emphasised the importance of animals in historical research: “Animals are roaming the groves of academe; they bark and paw at the doors of the ivory tower”.¹⁷⁶ Van Sittert and Swart have said of human societies’ interactions with dogs that the presence of dogs is ambiguous. On one hand, they may be dangerous scavengers, yet on a more comforting note: “They occupy warm *stoeps*, follow their masters at night, track insurgents, patrol borders, sniff out strangers, hunt game, protect homesteads and leave their pawprints all over the archives”.¹⁷⁷ Their work is surveyed from the perspective of “the settler/white middle class”, and they show, for example, the dog’s place in Afrikaner society. They also agree with the notion that historical studies should be extended “... to include the cultural construction of all humanity’s non-human consorts in the region”.¹⁷⁸

Swart, along with Mwatwara has also researched African livestock regimes in Southern Rhodesia. In their work, they explored the many ways in which colonial veterinary medicine could be used as a means of social control while platforming the claimed supremacy of the settler society. Overcoming livestock diseases was an essential component of subduing the local landscape.¹⁷⁹ Carruthers has identified animal ethics, forest reserves, pollution, and urbanisation as examples of environmental history narratives, and indicated, that every “... continent, area or region has specific environmental histories, but because there are connections, they enrich each other and can speak to each other”.¹⁸⁰

Two post-graduate students presenting cultural history papers at the International Society for Cultural History conference in Turku in 2010 left an indelible impression on the author and went some way towards alerting him to human and animal interactions in environmental and conservation history. Tucked into the final day of a five-day conference when many delegates had already departed, the two students presented, in this writer’s opinion, two of the most interesting papers of the conference. Henrikka Heikinheimo’s paper examined the emotional bonds between humans and animals when about 250 Finnish veterinary nurses assisted veterinarians with

¹⁷⁵ S. Swart, “The World the Horses Made: A South African Case Study of Writing Animals into Social History”, *International Review of Social History*, 55(2), 2010, p. 241, [doi:10.1017/S0020859010000192](https://doi.org/10.1017/S0020859010000192).

¹⁷⁶ S. Swart, *Riding High Horses, Humans and History in South Africa* (Wits University Press, Johannesburg, 2010), p. 3.

¹⁷⁷ L. van Sittert & S. Swart, “Canis Africanis. A Dog History of Southern Africa”, *South African Historical Journal*, 48, May 2003, p. 138.

¹⁷⁸ L. van Sittert & S. Swart, “Canis Africanis. A Dog History of Southern Africa”, *South African Historical Journal*, 48, May 2003, pp. 168-169.

¹⁷⁹ W. Mwatwara & S. Swart, “If our Cattle die, we Eat them but these White People Bury and Burn them!’ African Livestock Regimes, Veterinary Knowledge and the Emergence of a Colonial Order in Southern Rhodesia, c. 1860–1902”, *Kronos* 41(1), 2015, p. 112.

¹⁸⁰ J. Carruthers, “Environmental History: Complex Connections around the Constancy of Change”, *Historia*, 54(2), 2009, pp. 103-104.

treating wounded horses used largely for transportation purposes in the 1941-1944 Continuation War.¹⁸¹ Heta Lähdesmäki noted how people both used and restricted their power over wolves in Finland in the 1990s when the number of wolves was increasing after protective laws halted their near extinction in the 19th century.¹⁸²

In addition to his argument that there are environmental consequences to human activities, Cronon argued that environmental history reveals that nature and culture are not static, and stability in human systems is not guaranteed, as they constantly change at different speeds and degrees.¹⁸³ Carruthers suggested that those who revere South Africa's landscape with its abundant flora and fauna should not try to keep things as they are. Rather, she says, work towards understanding past and present change dynamics to influence future change within a dynamic social, political, and environmental milieu.¹⁸⁴

Cronon also emphasised that environmental knowledge is culturally constructed and historically contingent, including our own, and that by adhering to absolute laws or truths we may limit our awareness of diverse aspects of environments and cultures.¹⁸⁵ Further, he argued that historical wisdom presents as parables rather than as policy recommendations or certainties. Historians, he says, "... usually make reluctant prophets, despite the teleological similarities between the stories we tell about the past and the prophecies that others may wish us to make about what will happen in the future".¹⁸⁶ This does not mean we should be silent about the present and future: "Rather than make *predictions* about what *will* happen, we offer *parables* about how to interpret what *may* happen". In trying to compare past with present to identify lessons for the future, historians employ analogy as an analytical tool because it reminds historians that they "... are engaged in an interpretive, hermeneutic enterprise, not a quest for absolute knowledge, and that competing interpretations about the meaning of the past for the present are not only possible but inevitable".¹⁸⁷

¹⁸¹ H. Heikinheimo, "Women and horses in War", *International Society for Cultural History (ISCH) Conference Book, Abstracts*, University of Turku, H. Kiiskinen (ed.), Turku 26-30 May 2010.

¹⁸² H. Lähdesmäki, Man, Wolf and Power: Conflicting Attitudes towards Wolves in Finland in the 1990s", *International Society for Cultural History (ISCH) Conference Book, Abstracts*, H. Kiiskinen (ed.), University of Turku, Turku 26-30 May 2010.

¹⁸³ W. Cronon, "The Uses of Environmental History", (Presidential Address, American Society for Environmental History), *Environmental History Review*, 17(3), 1993, p. 13.

¹⁸⁴ J. Carruthers, "Environmental History: Complex Connections around the Constancy of Change", *Historia*, 54(2), 2009, pp. 99.

¹⁸⁵ W. Cronon, "The Uses of Environmental History", p. 14.

¹⁸⁶ W. Cronon, "The Uses of Environmental History", p. 16.

¹⁸⁷ W. Cronon, "The Uses of Environmental History", pp. 16-17.

Regarding “non-human consorts” in the Dinokeng region, there is a thread that runs through this thesis concerning the interaction between elephants and humans in the DGR. Elephants need space, and the DGR, while adequate for current numbers of elephants, future expansion might be necessary to cope with increased numbers. The fact is that humans and elephants live together in the DGR, and human-elephant contact in the region is inevitable and needs to be managed calmly. Concerns about human and elephant interactions are discussed, for example, in some detail in Chapters Five and Seven.

1.4.4 Literature review of official documents

Maxwell's *Qualitative Research Design: an Interactive Approach*, emphasised the historical method, focusing on five components: goals, conceptual framework, research questions, methods, and validity. These components form an integrated and interacting whole, rather than being linked in a linear or cyclic sequence. The historical method is central to achieving research objectives, while the qualitative research design is prominent.¹⁸⁸ The historical method requires making use of primary (archival and oral histories) and secondary (standard published type) sources. With the advent of the information age, one is obliged to indicate the value of digital technology to historical research, a source of information without which this thesis would not have been possible.

Historians, as with practitioners of other disciplines, need to be cautious about the reliability of information they are consulting. One needs skills of discernment when using online sources. One must be alert for what Milligan refers to as “deepfakes”. As an example, he cites “... fake yet realistic-looking videos manipulated or generated by artificial intelligence”. Videos, as he says, “... are considered trustworthy” so establishing their authenticity presents new and real challenges.¹⁸⁹ Historians have to hone their skills and beware of digital challenges, for example, that the majority of systems are not designed to reveal context and are instead focused on keyword search”. This also calls for a change in the way future historians are trained to “... incorporate new and emerging technologies”.¹⁹⁰

Historians have already developed archival skills to a greater or lesser extent, which give them an advantage when analysing digital sources. As Milligan says of historians: “If we read an

¹⁸⁸ J. A. Maxwell, *Qualitative Research Design: An Interactive Approach*, 2nd edition, Applied Social Research Methods Series, 41 (London, SAGE Publications, 2005), p. 216.

¹⁸⁹ I. Milligan, “The Transformation of Historical Research in the Digital Age”, in D. Woolf (ed.), *Elements in Historical Theory and Practice*, (Cambridge University Press, 2022), p. 64, <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/30DFBEEA3B753370946B7A98045CFEF4/9781009012522AR.pdf/the-transformation-of-historical-research-in-the-digital-age.pdf>, accessed 2024-03-04.

¹⁹⁰ I. Milligan, “The Transformation of Historical Research in the Digital Age”, in D. Woolf (ed.), *Elements in Historical Theory and Practice*, p. 5.

archival document that surprises us as an expert reader, breaking with our accepted understanding, a good historian does not rashly jump to conclusions. We instead try to contextualise what we have just learned. A historian attuned to historical context should not be hoodwinked by an outlier”.¹⁹¹ Whatever the sources of historical scholarship are, whether emails, government reports, inter-personal correspondence, or any other, historians need to analyse them in their historical context. Milligan adds two additional ones, “source mediation and algorithms”, as appropriate for the digital era. Algorithms may be defined as procedures “... used for solving a problem or performing a computation. Algorithms act as an exact list of instructions that conduct specified actions step by step in either hardware- or software-based routines”.¹⁹² As historians increasingly rely on digital information, they will particularly need to establish the context in which it is presented, particularly in an era of disinformation assisted by the use of artificial intelligence to push a specific, often political agenda. The research lesson is that one needs to be cautious with interpreting and validating digital information; however, the reality is it is now an essential and invaluable component of a historian’s research tool kit.

Another consideration when using digital technology to identify sources is that while searches may be inestimably quicker and more efficient than before, it does not guarantee quality of information in an era of information overload. As Lara Putnam expressed it: “... nothing guarantees that the growth of knowledge brought by fallen barriers, broader vision, and multi-scalar research will not be canceled out by increased superficiality and new blind spots”.¹⁹³ There is also a possibility that this easy access to information across borders and boundaries, while allowing narratives about faraway places, may result in historians publishing papers about places to which they have never been, or about which they know very little.¹⁹⁴

The use of searches such as Google and Google Scholar in this thesis have enabled the researcher to examine a wide range of game reserve models around the world, not only in Africa. The access to open-source articles and maps has been revolutionary for this researcher who conducted his master’s degree in history 30 years ago and was comparatively limited in access to a wider range of life experiences. While digital scholarship should be approached cautiously,

¹⁹¹ I. Milligan, “The Transformation of Historical Research in the Digital Age”, in D. Woolf (ed.), *Elements in Historical Theory and Practice*, p. 64.

¹⁹² TechTarget, What is an algorithm?”, <https://www.techtarget.com/whatis/definition/algorithm#:~:text=An%20algorithm%20is%20a%20procedure,throughout%20all%20areas%20of%20IT>, accessed 2024-03-04.

¹⁹³ L. Putnam, “The Transnational and the Text-Searchable: Digitized Sources and the Shadows They Cast”, *American Historical Review*, April 2016, p. 401, https://www.academia.edu/86710134/The_Transnational_and_the_Text_Searchable_Digitized_Sources_and_the_Shadows_They_Cast, accessed 2024-03-04.

¹⁹⁴ L. Putnam, “The Transnational and the Text-Searchable: Digitized Sources and the Shadows They Cast”, *American Historical Review*, April 2016, p. 397.

there is no doubting the contribution it has made to scholarship in general and, certainly at a learner's level, to this thesis. Putnam has superbly encapsulated the advantages digital research has given us, despite the potential hazards:¹⁹⁵

Digital search offers disintermediated discovery. Algorithms fetch for us, doing away with the need for intermediaries like brick-and-mortar stores (if you are Amazon.com) or regional expertise, bibliographies, and immersive reading (if you are a historian). For the first time, historians can find without knowing where to look. As a result, at an unprecedented rate we are finding connections in unexpected places: powering publication on mobile ideas and international audiences; circuits, networks, and border-crossing flows. Technology has exploded the scope and speed of discovery.

Primary sources for DGR research include Gauteng Province's tourism and Blue IQ annual and economic impact assessment reports. Other sources, housed in Ndlovu Gate's administration centre, are minutes of management/landowner meetings, communications with the Gauteng Provincial Government's Dinokeng Projects, interactions with local communities, proposals for boundary expansion, Dinokeng research, community engagement projects, and gate entry and tourism statistics.

Of the many government documents, two are specifically used to project manage the DGR. They formed part of the Department of Agriculture, Conservation, Environment and Land Affairs' (DACEL) 2001 Master Plan.¹⁹⁶ They are the Dinokeng Integrated Tourism Development Framework, Volume G – Institutional Arrangements;¹⁹⁷ and Volume B – Dinokeng Game Reserve Development Framework.¹⁹⁸ Volume C – Land-Use, Environmental Management and Infrastructure Development Framework, refers to the expected socio-economic benefits for previously disadvantaged people in Dinokeng.¹⁹⁹

¹⁹⁵ L. Putnam, "The Transnational and the Text-Searchable: Digitized Sources and the Shadows They Cast", *American Historical Review*, April 2016, p. 377.

¹⁹⁶ LSPC, confirmed by N. Grobler, Ecologist, Deputy Director Dinokeng Project, GDED/L. Shee, 2017/10/11.

¹⁹⁷ RSA, GPG, Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL), B. Ngeleza, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume G – Institutional Arrangements", 2001/12.

¹⁹⁸ RSA, GPG, GDACEL, R. Collinson, *et al.*, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12.

¹⁹⁹ RSA, GPG, GDACEL, S. Berrisford, A. Adam, C. Madel, A. Adams, N. Pather, P. Chipwanya, G. Rossouw, G. Breedlove & P. Theron, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume C – Land-Use, Environmental Management and Infrastructure Development Framework", 2001/12, p. 9.

1.5 Problem statement

Moeng conducted an early rural development study on DGR which revealed a lack of progress in finalising a precise game reserve site. He found that landowners' agreements were incomplete, and administrative matters were problematic.²⁰⁰ Nearly 20 years have passed since Moeng's observations, and the proposed site was replaced by one further north. The present study highlights research gaps in DGR development and the different approaches taken between 2004 and 2018. Van Rooyen has also examined possible socio-economic development partnerships in DGR, highlighting the efforts of local landowners and peripheral communities since the early 2000s.²⁰¹ Gauteng development analysts, Götz, Mosiane, and Matjomane,²⁰² have since stressed the need for greater spatial development research in Gauteng's peripheral areas, including ex-Bantustan areas around Hammanskraal, which they describe as "... not-quite-urban and not-quite-rural settlement forms".²⁰³

Mary Metcalfe, the MEC's provincial Member for Gauteng's DACEL between 1995 and 2004, emphasised the importance of employment opportunities and environmental sustainability in addressing poverty, transport difficulties, unemployment, and service availability. She emphasised the need for socio-economic upliftment and environmental sustainability for successful implementation.²⁰⁴ The research gap requires examining DGR's environmental and human past, including initiatives to expand the reserve's boundaries near economically depressed zones, aiming to achieve Metcalfe's recommended "quality of life principle" alleviations.

Initial discussions about a possible game reserve in Northeastern Gauteng centred around the Amakulu initiative about which no comprehensive history exists. An attempt is, therefore, made to remedy this information gap in Chapter Four. Landowner, Jimmy Kruger, and provincial officials from Amakulu shared electronic communications. Interviews with original landowners and officials

²⁰⁰ M.W. Moeng, "The Impact of Eco-Tourism on Land-Use Patterns: The Case of Dinokeng-Tourism Pilot Project in Gauteng Province", M Inst Agrar (Rural Development Planning), University of Pretoria, 2004, pp. vi-viii, <https://repository.up.ac.za/bitstream/handle/2263/24964/dissertation.pdf?sequence=1&isAllowed=y>, accessed on 2018-01-21.

²⁰¹ E.J. van Rooyen, "The Dinokeng Big Five Game Reserve...", *Journal of Public Administration*, 40(4.1), 2005, pp. 609-610.

²⁰² G. Götz at the time, Director of Research at the Gauteng City-Region Observatory (GCRO) and N. Mosiane and M. Matjomane, researchers at GCRO.

²⁰³ G. Götz, N. Mosiane & M. Matjomane, Gauteng City-Region Observatory (GCRO), "Zones of Displaced Urbanisation", (ongoing research), <http://www.gcro.ac.za/research/project/detail/landscapes-of-peripheral-and-displaced-urbanisation/>, n.p., accessed 2018-02-08.

²⁰⁴ RSA, Department of Agriculture, Conservation, Environment and Land Affairs DACEL, Gauteng Province, Strategic Plan, 2003/2004 to 2005/2006, p. 5., <http://www.treasury.gov.za/documents/provincial%20budget/2003/Strategic%20Plans/Gauteng/GT%20-%20Vote%2011%20-%20Agriculture,%20Cons%20&%20Envir.pdf>, accessed 2018-01-31.

helped fill gaps, but role-players have acknowledged that their recollections are vague. Written sources on inter-provincial discussions over Dinokeng's trans-provincial boundaries were elusive. The researcher has received valuable cooperation from the administrative structures of the DGR and the Gauteng government. Moving on to research questions, it is hoped that this thesis will reveal new insights into the possibilities of converting degraded farm land with complicated boundaries into an economically productive region.

1.6 Research questions

The research questions asked in this study were:

- What will environmental history and boundary studies reveal about economic and conservation opportunities in economically depressed spaces like DGR whose socio-political and ecological boundaries are not necessarily congruent?
- How have boundary changes transformed the local area, the land, the environment and the local economy of Dinokeng since the mid nineteenth century?
- What insights will an examination of boundary-specific literature and environmental history reveal that could contribute to an understanding of DGR's development from the Amakulu phase to its current configuration?
- In what ways did previous initiatives in other localities with similar goals of economic upliftment have an impact on negotiations over the proposed establishment of DGR?
- How did the architectural planning of DGR come to fruition amidst possible contestation, and to what extent did this model represent combined input of role-players: local communities, game reserve architects, ecologists, conservationists, landowners, and the Gauteng Provincial Government?
- To what extent has the DGR project encouraged local and international research, and what processes are in place to reintroduce endemic species and disseminate research findings?
- Where are DGR's social responsibility programmes based, how are they organised, and how has their impact been received by communities within and neighbouring the reserve?

1.7 Research objectives

From the research questions asked, the following research objectives were pursued:

- Review environmental history and boundary theories to establish the extent to which DGR's creation over time in an economically depressed area, with limited and sometimes contested space, was able to meet the aims of both conservation and economic regeneration.
- Show, from evidence gathered, how changes in both land ownership and land use in DGR have evolved since the mid-19th century, and how these have influenced local communities and DGR boundaries.
- Investigate the origins and subsequent developmental challenges as DGC evolved from the original Amakulu phase to DGR's current status within a framework of environmental history and boundary studies.
- Critique the literature on regional and environmental history that focuses on theories and models of boundaries and economic upliftment in other localities that have proved, or may yet prove, valuable to the study of DGR's contribution to economic upliftment.

- Examine the extent to which consensus was reached by all role-players in the face of any contestation from, for example, island landowners and land claimants for a model involving complex boundaries and ecotones.
- Examine the extent to which ecological research possibilities in DGR have attracted both local and international researchers, and then establish the value of their findings on the reintroduction of endemic species to a wider conservation community.
- Assess the extent to which DGR's local community engagement projects have been received by local communities and establish their level of reach outside of DGR's boundaries since the opening of the game reserve in 2011.

1.8 Central theoretical statement

The DGR strategic partnership was in line with the post-apartheid government's intention to extend biodiversity conservation through tourism opportunities in economically marginal areas.²⁰⁵ Boundary expansion in game reserves with multiple landowners is a complex process that requires a thorough inter-disciplinary literature review. This study investigates the development of DGR's boundary model, an original PPP model, and compares it with Schonewald-Cox and Bayless' multi-disciplinary model. The study examines the tensions between role-players in identifying land boundaries satisfactory to all, as well as aspects of boundary theory such as human effects, development of edges, stimuli for fluid boundaries, and segmentation of boundaries.²⁰⁶ Schonewald-Cox and Bayless' guidelines, among others, will inform this DGR research on boundaries to establish whether the DGR model, relative to others, is unique and optimal for the region.

1.9 Methodology

This study overlaps with several fields of history, each with its own historiography, uniqueness and approach when it comes to research content. Different approaches to research might also display different nuances in the standard historical method. So, for example, Van Eeden's view is that the methodology of regional history should focus not only on contributing to the historiography and the theory of this and other disciplines, but also to "... community knowledge and expertise on environmental issues of concern to all to ensure sustainable consideration of environmental matters".²⁰⁷ A historical approach, according to Van Eeden, requires "... a moral inclusiveness and reflectiveness as part of progressing towards being truthful".²⁰⁸

²⁰⁵ Republic of South Africa (RSA), Department of Environmental Affairs and Tourism, Conservation and Sustainable Use of South Africa's Biological Diversity, White Paper G 18163 GeN 1095, 1997-07-25.

²⁰⁶ C. Schonewald-Cox & J. Bayless, "The Boundary Model:...", *Biological Conservation*, 38(4), 2013, pp. 305-322.

²⁰⁷ E.S. van Eeden, "Environmental History Within a Revitalized Integrative Research Methodology for Today and Tomorrow", *Interdisciplinary Science Reviews*, 36(4), 2011, p. 326.

²⁰⁸ E.S. van Eeden, "Thoughts About the Historiography of Veracity or 'Truthfulness' in Understanding and Teaching History in South Africa", *Yesterday & Today*, 2016, p. 65, doi.org/10.17159/2223-0386/2016/n15a3.

The research approach taken in this thesis on DGR was to consider trends, both global and local, in the evolution of environmental history and border studies, to examine critically how those involved in the development of DGR were able to achieve their goal in the face of numerous obstacles. The intention has also been to reveal both the achievements and challenges faced by its developers, local communities, landowners, and managers. The thesis emphasises the importance of broad-based consultation, accumulating and disseminating conservation knowledge, and securing the “buy-in” of landowners and proximate communities in game reserve projects. By adding to the corpus of scholarship on game reserve development through original research, and by drawing on the expertise of practitioners in a variety of disciplines, this thesis aims to present the unique DGR model as one worthy of emulation under similar circumstances.

Haydn recommended the need for “... respect for evidence, open-mindedness, and awareness of the need to appreciate and acknowledge the appropriate knowledge warrant for historical (and present day) claims which are made”.²⁰⁹ Keeping in mind Bundy’s sense of the purpose of South African history, as interpreted by Van Eeden, the topic undertaken here fulfils his argument that: “South African History should reflect the diversity of its population, while also accounting for processes that have created a single society; and should locate the country’s history within regional, continental, and global events and processes”.²¹⁰ A wide range of research has been conducted in DGR at a regional level whose findings have contributed to this environmental history study. Environmental history is of essence multidisciplinary, while maintaining a sense of historical consciousness.

McNeill said of environmental historians, if “... their motives for engaging in environmental history are nothing loftier than curiosity, that is no sin”.²¹¹ Curiosity was the first factor leading this researcher to embark on a study of DGR. Having visited many traditional game reserves in Zimbabwe and South Africa, DGR struck him as unique and novel. Firstly, people lived permanently within it, secondly it was on the edge of the country’s largest urban concentration, and thirdly, its reason for being was primarily for economic development based on conservation.

The questions then arose as to how to approach a study in environmental history and of what value would it be. In 2011, regional historian, Professor Elize van Eeden remarked on the lack of

²⁰⁹ E.S. van Eeden, “Thoughts About the Historiography of Veracity or ‘Truthfulness’...”, *Yesterday & Today*, 2016, p. 56.

²¹⁰ E.S. van Eeden, “Thoughts About the Historiography of Veracity or ‘Truthfulness’ ...”, *Yesterday & Today*, 2016, p. 58.

²¹¹ J. McNeill, “As Useful as We Want to Be” *The Uses of Environmental History: John R. McNeill*, Blog post by the Rachel Carson Centre, 2017-03-01, <https://seeingthewoods.org/2017/03/01/the-uses-of-environmental-history/>, accessed 2020-04-22.

a definite "... methodology, epistemology or even theory" emerging from either disciplinary or interdisciplinary research efforts in the field of environmental history. Despite a negative reaction to interdisciplinary research by some historians, Van Eeden argued that if used "... constructively and meaningfully, transdisciplinary research may result in what we could call higher-order research because it is all-inclusive and can provide diverse perspectives on any theme, for example, environmental history".²¹²

As this Dinokeng study drew from practitioners of other disciplines (law, ecology, conservation, tourism, landscape architects, and game reserve management) for direction, advice, and opinion, a claim on an interdisciplinary methodology is made. In contrast, the nature of a transdisciplinary approach would require considerable resources, and reports from a broad range of cluster groups as well as considerable organisation between researchers and institutes. Van Eeden proffers an Integrative Multidisciplinary (IMD) research model that advances from Disciplinary (D) to Interdisciplinary (ID) and culminates in the Transdisciplinary (TD). This Dinokeng research draws from all three stages of this triangular methodology.

The first stage of this IMD research required the formulation of questions and preliminary reporting. The second research stage required reporting from clusters of small, specialised groups. With respect to the Dinokeng research, these specialists were in the humanities, sciences, and game reserve management. All participants were required to transcend their own subject boundaries. As an illustration of this, the researcher approached a zoologist from the University of Pretoria, Mark Keith, for information on the history of mammals specifically in the DGR region. Having supervised students' research in the DGR, he generously made available four manuscripts of various work conducted by his students on animals in DGR.²¹³ The third stage involved consultation and guidance from experts in various fields who made up the pool of interviewees. These interviewees included among others, ecologists, conservationists, landowners, formal and informal entrepreneurs, game rangers, tourism practitioners, lodge owners, and a landscape architect, all of whom provided valuable historical data as well as their own perspectives on the DGR's development.²¹⁴

As stated at the start of Section 1.9, environmental historians should not only aim at widening the historiography and theory of their own discipline. They should also aim to advance environmental knowledge and expertise that can be used by communities to support sustainable environmental

²¹² E.S. van Eeden, "Environmental History ...", *Interdisciplinary Science Reviews*, 36(4), 2011, p. 314.

²¹³ LSPC, M. Keith, Email, Zoologist, University of Pretoria, Department of Natural and Agricultural Sciences/L. Shee, 2021/02/16.

²¹⁴ E.S. van Eeden, "Environmental History ...", *Interdisciplinary Science Reviews*, 36(4), 2011, p. 317.

development.²¹⁵ Fundamental to the methodology of history, although not all historians agree, is to remain as truthful as possible until all available evidence (displaying voices of inclusivity) has been collated and analysed. Van Eeden suggested further ways to improving one's methodology.

Be prepared, she said, for the likelihood of documentary sources in corporate and government environments not being well organised or being misplaced, possibly resulting in information gaps. She also advised that environmental historians need not be experts in scientific methodologies when they can consult scientists for their perspectives.²¹⁶ To answer the "whys" and "hows" of DGR phenomena, a combination of qualitative research designs were implemented. Narrative and case studies, crucial in environmental research, were used and, to understand the lives of the DGR communities, the researcher immersed himself in these communities by interacting with them and identifying their lived experiences and perceptions of DGR as part of their environment.

Information from interviews, questionnaires, DGR visits, videos, and analysis of DGR-related documents has been pursued. Care was taken to follow up where necessary to clarify responses. In several instances, up to three one-hour interviews were conducted over time with the same landowners whose clarification on pertinent issues was sought. Their responses were usually digitally recorded and later transcribed. This process continued until the researcher recognised that a saturation level had been reached and themes identified.

Thirty-two interviews were conducted for this research study, mostly face-to-face, digitally recorded, and within the DGR and surrounding communities. As qualitative research plays an important role in gaining a detailed understanding of phenomena through first-hand experience, interviews contributed significantly to this study. Comparative studies were consulted in pursuit of corollaries between the DGR, and other South African game reserve models based on marginal farming.

Other questions requiring reflection were why study Environmental History at all, and if it is useful, to whom is it useful, and who is the reading audience? The audience for this DGR research includes DGR management, landowners, community workers, conservationists, ecologists, government departments, tourism practitioners, environmental historians, and regional historians.

Environmental history is a study that examines human life, work, and thought in relation to nature over time. Hughes believes humans have caused significant alterations to the earth, affecting

²¹⁵ E.S. van Eeden, "Environmental History ...", *Interdisciplinary Science Reviews*, 36(4), 2011, p. 326.

²¹⁶ E.S. van Eeden, "Using a Transdisciplinary Approach for Environmental Crisis Research in History", *The Journal for Transdisciplinary Research in Southern Africa*, 6(1), 2010, pp. 206 & 208.

societies and histories. The three interest areas Hughes identified in environmental history are the influence of environmental factors on human history, environmental changes caused by human actions, and the history of human thought about the environment and attitudes.²¹⁷

This DGR study highlights the importance of narratives and interviews with the role-players in the transformation of degraded agricultural land into a sustainable game reserve. Engaging with these role-players and recognising the methodological importance of human and animal interactions was crucial. However, formal information on the reserve's progress was still primarily sought in government publications and private correspondence.

1.10 Interview design

The research on the DGR's boundaries, which change depending on landowners' engagement or disengagement with the DGR project, relied heavily on semi-structured interviews for qualitative interactivens.²¹⁸ Schoon recommends that interview questions focus on key challenges, crises, stresses, and problems faced by respondents. The purpose of the DGR interview questions included identifying points raised by the respondents, gaining general information, elucidating concerns, and documenting responses to these challenges. Additionally, questions focused on provincial discussions and collaboration between provinces to establish the effectiveness of provincial partners in co-ordinating projects, boundaries, and sharing information.²¹⁹ Attempts to obtain any official government records of inter-provincial boundary discussions were, unfortunately, unsuccessful.

This DGR study aimed to understand the cooperation among landowners, employees, local communities, government officials, and game reserve officials in the region. Semi-structured interviews were conducted to gather insights into the experiences, observations, and ideas of landowners, employees, and local communities. The preliminary goal was to interview a selection of large and small landowners, as well as several island landowners in the DGR region. The interviews focused on boundaries, satisfaction levels, and advantages and disadvantages of participation in the DGR enterprise. Interviews with early role-players, such as Jenny Stephens,

²¹⁷ J.D. Hughes, *What is Environmental History?* (Polity Press, Cambridge, 2016), pp. 1 & 4.

²¹⁸ Semi-structured interviews include open-ended questions usually outlined on a paper-based guide. As questions are open-ended, discussions might diverge from the guide while still yielding useful responses. Recording discussions for later transcriptions allows the interviewer to concentrate on the interview without being distracted by note taking.

²¹⁹ M. Schoon, "Governance in Transboundary Conservation: ...", *Conservation and Society*, 11(4), 2013, pp. 423-424.

and past and current government officials involved in Dinokeng Projects provided invaluable primary source responses.²²⁰

Management and landowners were asked their opinions on the value of community programmes. Interviews with ecologists, conservationists, and community leaders of local villages were co-ordinated through DGR management. Open-ended questions to landowners, for example, were of the type, “Tell me what you recall of the Amakulu project”, rather than the closed “Do you remember the Amakulu project?”. Historical questions were probing such as, “Would you tell me how you felt about removing your own boundary fences to accommodate the greater reserve?”. Hypothetical questions such as “What do you think your lives would be like had the DGR not been successful?” were designed to encourage interviewees to be more willing to talk openly.

The analysis of phenomenological data first required deep readings of data gleaned from the participants’ descriptions of their lived experiences. This process involved careful consideration of the participants’ words and views while being aware of multiple realities that have been socially constructed. In practice, this required attentive listening to recorded interviews which were transcribed where necessary. Recurring words and phrases were noted for their significance. For authenticity, transcribed interviews were not corrected for grammar. A minority of responders in the DGR were mother-tongue speakers of English and considerable latitude in syntax was granted for this.

The thesis stressed how crucial it is to subject historical sources to internal and external criticism in order to determine the veracity and context of the data. It required studying written records, including government reports and correspondence between landowners and government officials, as well as conducting oral interviews with role-players from a variety of backgrounds, languages, and cultures. By considering the historical context of the source, external analysis made possible a more comprehensive historical study. For example, several game reserve models that came before DGR were looked at to see whether they had any impact on the DGR model. The thesis also examined how DGR evolved in the aftermath of apartheid, when the new democratic government eagerly sought social reform but was not always practical or realistic in its objectives. Through the external and internal criticism of oral and written sources, a sense of familiarity with the terrain and the people of DGR and its environs was achieved, which provided valuable insights into the everyday lives and domestic politics of the various local communities.

²²⁰ Non-recorded discussion with Jenny Stephens, Operations Manager, Dinokeng Big Five Game Reserve, 2016-06-28 at 13h00, at Ndlovu Gate office block.

The framework for interrogating data and drawing connections involved reading and identifying supportive quotes as part of an iterative process, which also involved identifying what was not said. All digital recordings were saved as electronic files indicating the year, specific date, and the interviewees' name and the place of the interview.

1.11 Ethical considerations

The researcher's Basic and Social Sciences Research Ethics Committee (BaSSREC) Authorisation was first granted on 20 January 2021, Reference Number: NWU-02092-20-S7.

All research done during this DGR study respected North-West University's ethical requirements' policy. The research was in the minimal to low-risk category. The researcher received permission to conduct research in DGR from the General Manager of Dinokeng Game Reserve, David Boshoff, and senior officials of Dinokeng Projects in the Gauteng Department of Economic Development, initially Nico Grobler, and later, Emmanuel Tshilamulele. In addition, permission to conduct research in DGR was granted by the Chairman of the Dinokeng Landowners' Association Exco, Jonathan Kleynhans, as well as by David Ramushu (and later, Hartogh Streicher), Chairman of the Board of the DGR Management Association. Lines of communication were established with these project "gatekeepers". Their formal permission was granted as recorded in the acknowledgment letters provided to BaSSREC. The DGR gatekeepers hold the contact details of all landowners, provincial government officials, and community leaders involved in ongoing cooperative dialogue and were, therefore, the most reliable source for identifying prospective interviewees.

Interviews were conducted voluntarily, with consent forms provided. Interviewees included DGR managers, Gauteng Provincial Government's Dinokeng Projects managers, marketing personnel, landowners, community leaders, park officials, conservationists, and ecologists. They were granted professional courtesy and respect, and their rights of participation were safeguarded. Several interviewees chose to remain anonymous as was their right granted in the ethics protocol. Other respondents, however, confirmed that they were willing to have their names mentioned. I am grateful to all interviewees for their valuable contributions to this DGR narrative.

Semi-structured interviews conducted individually or, occasionally in very small groups, typically lasted an hour or more. Landowners interviewed in their homes were open and honest about their DGR experiences. A few interviews were conducted via Zoom, WhatsApp, or email, with permission from the interviewees, and the same ethical protocols were applied as with face-to-face interviews. A few respondents provided written feedback to questionnaires or to direct

questions via email. Landowners appeared content to discuss their DGR experiences in their homes and were very accommodating.

The arrangement of seeking permission from landowners and DGR management for interviews with them or their staff was legal, transparent, voluntary, and courteous. For on-site lodge visits, private rooms or facilities suitable for interviews were provided. In most cases, these were comfortable and well ventilated, if not airconditioned. Some on site venues, particularly informal ones immediately neighbouring DGR, were mildly uncomfortable on account of the heat, and the intrusive noise of heavy trucks had a limited effect on recording quality.

During the Covid-19 pandemic, interviewees were given the choice of Zoom meetings, written responses by emails, or face-to-face interviews. When face-to-face interviews took place, the researcher adhered to the required Covid-19 protocols with respect to temperature checking with thermometers and the use of masks and sanitisers – stocks of which the researcher had in his possession.

With respect to payments, the researcher made it clear to interviewees that their participation was voluntary and unpaid. No situations arose where he was obliged to supply basic non-alcoholic refreshments for the comfort of interviewees. The DGR management was extremely helpful with respect to the organisation of interviews, and on several occasions, the General Manager of DGR kindly made his boardroom available for interviews and research-related meetings.

Individual arrangements were made with interviewees for flexible meetings, either face-to-face or electronically. The researcher sent open-ended guiding questions in advance, allowing time for responses. Consent forms and proof of ethics clearance were also provided in advance.

Recorded data with the interviewees will be stored by the promoter, Professor E.S. van Eeden of North-West University who will save the data for five years in a password-protected file on the NWU computer assigned to her. Sharing the research with the DGR community and several governing administrators of the broader project (such as the Gauteng Department of Economic Development) will be done on completion of the thesis. A copy of the thesis will form the basis for information sharing.

1.12 Contribution of the study

Drew's view on the practice of history is that it should ask penetrating questions that critically interrogate hypotheses and evidence to avoid political bias.²²¹ This study asked who the real beneficiaries of the DGR are, what DGR research can offer boundary studies and environmental history, and whether the physical and socio-economic landscapes of this part of Gauteng had changed people's lives for the better.

This research aimed to enhance the understanding of innovative land use in marginalised areas, where conservationists and population communities compete for limited, undeveloped land. The approach to conservation in DGR was evaluated to determine its unique alternative to traditional South African methods. Dinokeng's designers, Bohlweki-SSI Environmental, developed a game reserve model that went beyond conventional "fortress conservation" designs.²²² "Fortress conservation" is a conservation strategy that aims to protect biodiversity from human interference. It involves setting aside protected areas for tourism, scientific research, and safari hunting, while excluding people reliant on natural resources. Park guards enforce these areas using a "fines and fences" strategy. However, due to their long-term presence and potential negative effects on biodiversity, people often view these activities as adversarial.²²³ This study has examined reserve boundary dynamics and compared DGR's design with other judicious systems in African and other landscapes, offering new insights into environmental history and conservation debate, particularly as "fortress conservation" becomes universally less and less acceptable.

1.13 Limitations

A significant obstacle to conducting interviews arose during the Covid-19 pandemic's total lock down period. As lockdown softened, several interviews were conducted in accordance with Covid-19 sanitation protocols as outlined in the BaSSREC Participant Information Leaflet and Consent Form. Access to libraries was interrupted by Covid-19 restrictions.

During interviews, one is always conscious of protecting the integrity of interviewees and the reputations of those about whom they might give negative personal comments. On such occasions, care was taken to either omit information deleterious to the reputation of others or to

²²¹ A. Drew, "1922 And All That: Facts and the Writing of South African Political History", in H.E. Stolten (ed.), *History Making and Present Day Politics* (Nordiska Afrikainstitutet, Uppsala, 2006), p. 348.

²²² RSA, Gauteng Department of Economic Development (GDED), Bohlweki-SSI Engineers and Environmental Consultants (trading as Bohlweki-SSI Environmental), "Environmental Management Framework and Environmental Management Plan for the Dinokeng Project Area", October 2009.

²²³ Social-Ecological Systems Meta-Analysis Database Dartmouth/SESMA), "Critique of fortress conservation", <https://sesmad.dartmouth.edu/theories/85>, accessed 2024-05-28.

modulate the information. On several occasions it was necessary to employ anonymity for the sources.

Unfortunately, several sought after and arranged interviews with community members did not materialise owing to non-arrival of the interviewees despite the researcher having travelled to DGR to meet with them. As this study was self-financed by a student in retirement, personal costs were incurred through regular travel between Pretoria and the DGR including petrol, toll fees, and initially gate entry costs. The latter were subsequently waived by DGR management whose generosity allowed the researcher free entry to DGR for research purposes. During the researcher's year of retirement, after 40 years as an educator, he put a hold on his DGR study. Finally, the tragic death of the researcher's daughter in a car accident required a period of emotional adjustment that set back the pace of this DGR research study.

1.14 Concluding comments

This chapter has provided a geographical and historical setting for a study of DGR's development within the context of boundary studies and environmental history. It has introduced a variety of ideas on boundaries and environmental history which will be elaborated upon in the next chapter. The focus of Chapter Two will be on the extent to which the ideas of these disciplines have affected DGR's goals of both conservation and economic advancement of the reserve's proximate communities.

Much has been said in this opening chapter of the approach being taken in this thesis by way of providing background orientation, a literature review, a problem statement, research questions and objectives, and a methodology. The intention was to portray the development of DGR as a unique and creative response to economic challenges in an economically fragile portion of Northeastern Gauteng. Developing the reserve for ecotourism required extensive and complicated dialogue between different role-players over a long period of time – from 1995 until the present. As subsequent chapters unfold, a closer inspection of DGR's history will take place within the loose framework of environmental history and boundary studies while frequent comparisons with other projects with similar objectives, but different landscapes and challenges, will be made.

CHAPTER TWO

A CRITIQUE OF CONSERVATION AND ECONOMIC DEVELOPMENT IN DINOKENG GAME RESERVE THROUGH THE LENS OF BOUNDARY STUDIES AND ENVIRONMENTAL HISTORY

2.1 Introduction

In this chapter, Dinokeng Game Reserve (DGR) is used as a case study to establish what boundary studies and environmental history reveal about economic and conservation opportunities in economically depressed areas. For want of another phrase to define the phased boundaries of DGR as proposed in 2001, the researcher applies his own, describing them as “paper boundaries” because they appeared only on maps without ever being physically implemented along the original lines envisaged. These envisaged but not necessarily implemented boundaries, as proposed in a Master Plan in 2001 by way of three phases: A, B, and C, are discussed in detail in Chapter Six. How the phases were planned and how and why they did not materialise are appropriate for that chapter, which considers whether DGR’s current model is the best fit for meeting the objectives of DGR’s development. For Chapter Two, however, it is important to note that DGR’s boundaries were identified on paper several times but changed as time went by depending on the availability of land for inclusion in DGR.

When the boundaries, in a different form from those suggested on paper in the 2001 Master Plan’s three phases, were finally established in DGR, they became hard boundaries on the ground, demarcated by physical fences. For scientific assessments of the impact of fences, as boundaries, on environments, an interesting source is a multi-authored review, published by the University of Pretoria’s Mammal Research Institute,¹ of the socio-economic and environmental impacts, positive and negative, of game and veterinary fences. The DGR’s fences themselves could become a future research focus for scientists in search of a “strategy toolbox” as sought in the previously mentioned source. In the multi-author review, the intention of the authors was to source information on how to plan, implement, and evaluate the impacts of fencing policies and possibly identify alternatives to fencing. Their purpose was to “... facilitate discussion and increase a regional transfer of knowledge between stakeholders with regard to the long-term resolution of fencing issues”.² Chapter Two then continues the discussion of the scholarly exchange on boundary studies and environmental history as introduced in Chapter One. The

¹ K. Ferguson & J. Hanks (eds.), *A Review of the Environmental, Social and Economic Impacts of Game and Veterinary Fencing in Africa With Particular Reference to the Great Limpopo and Kavango-Zambezi Transfrontier Conservation Areas* (University of Pretoria Mammal Research Institute, Pretoria, 2010).

² K. Ferguson, “Introduction”, in K. Ferguson & J. Hanks (eds.), *A Review of the Environmental, Social and Economic Impacts of Game and Veterinary Fencing in Africa ...*, pp. 18 & 19.

applicability of ideas to DGR and their impact on economies and ecotourism for conservation and economic and social regeneration is also discussed.

For convenience in this thesis, the researcher has chosen, in line with Jones' preference, to use boundary as "... a broad term that refers to any type of division whether it is a semantic divider between categories or a line-on-the-ground political division". The term border will be used expressly for "... territorialized line-on-the-ground political borders".³ Regarding DGR research, the latter would usually refer to a provincial border. Jones highlights the importance of using categories or schemas to understand boundary types and their operation. While categories may seem fixed and permanent, they are not. Jones suggests that the bounding process is inchoate, allowing for flexibility between categories. This approach does not mean that boundary categories should not be challenged. By their flexible nature, they can be challenged as needed.⁴

The DGR's boundaries remain fluid due to the inclusion or exclusion of land parcels. Expansion relies on voluntary contributions from private and state landowners, who retain their title deeds on joining the reserve. The fluidity of boundaries is exacerbated by landowner withdrawal threats. Currently, DGR consists of state and private land, with ongoing negotiations between community leaders and DGR management regarding future incorporation of community land.

This local-level study of DGR's boundaries and environmental history does not benefit from the same advantages offered by the plethora of sources for boundary studies at national and global levels such as those found in the work of Puente-Lozano and García-Álvarez.⁵ That said, by examining DGR's unique complexities at a local scale, the researcher hopes to gain valuable insights for researchers studying game reserve boundaries in localised areas. In a contemporary study of this nature, it is yet too early to assess with certainty the extent to which DGR's spinoffs as an economic generator have benefited the community in just 12 years. However, in Chapter Eight an attempt is made to show some of the certifiable socio-economic achievements of DGR. It is important to consider ways in which environmental history reveals how the development of DGR has benefited Northeastern Gauteng economically through ecotourism while simultaneously satisfying the government's conservation obligations.

³ R. Jones, "Categories, Borders and Boundaries", *Progress in Human Geography*, 33(2), 2009, p. 180.

⁴ R. Jones, "Categories, Borders and Boundaries", *Progress in Human Geography*, 33(2), 2009, p. 186.

⁵ P. Puente-Lozano & J. García-Álvarez, "Recent Geohistorical Research on Boundary-Making. Challenging Conventional Narratives on Borders and Modern State-Building", *Geography Compass*, 16(1), 2022, [doi/full/10.1111/gec3.12602](https://doi.org/10.1111/gec3.12602).

2.2 The relevance of boundary studies to DGR

2.2.1 The practical relevance of boundary and border studies to DGR

Historically, much attention has been given to borders regarding state-building. The recent article by Puente-Lozano and García-Álvarez provided an overview of three decades of international scholarship involving boundary studies. Referring to numerous scholarly works, these researchers argued that by identifying shared themes and concerns through comparisons, in various disciplines, and from an international perspective, boundary knowledge had become more useful.⁶ The availability of more varied primary sources and research materials helped improve knowledge about boundary-making and methodological changes. Citing as sources, Amelina *et al.*⁷ and Faist,⁸ Puente-Lozano and García-Álvarez observed that there was a move, or methodological transformation, within historical studies from the pre-eminence of national perspectives organised around the nation towards micro, localised approaches to transregional and global procedures.

Puente-Lozano and García-Álvarez emphasised the value of comparativist readings of diverse literature on boundaries, emphasising the importance of understanding the historical spatial nature of contemporary occurrences. They emphasised the value of scholarly case studies across diverse disciplines to identify similar concerns in border and boundary studies.⁹ Based on their rigorously researched case studies, they found that geohistorical scholarship has come to show how the “... complex, multifaceted, and layered process of the construction of borderlands unfolded historically”. They noted that in contemporary times, notions about borders have relied more on “... postmodern fluid, polysemic, mobile, and practice-based notions of bordering and border areas”. This makes border and boundary studies less restricted to different regional and historical specialisations and more open as objects of enquiry. This, they concluded, allowed for “... cross-fertilisation between seemingly disparate literatures and a productive dialogue among scholars from different backgrounds”.¹⁰ The extent to which academic discourse around borders and boundaries has practical relevance is a point worth considering.

⁶ P. Puente-Lozano & J. García-Álvarez, “Recent Geohistorical Research on Boundary-Making ...”, *Geography Compass*, 16(1), 2022, p. 2, doi.org/10.1111/gec3.12602.

⁷ A. Amelina, D.D. Nergiz, T. Faist & N. Glick Schill, *Beyond Methodological Nationalism: Research Methodologies for Cross-Border Studies* (Routledge, London, 2022).

⁸ T. Faist, “Toward a Transnational Methodology: Methods to Address Methodological Nationalism, Essentialism, and Positionality”, *Revue Européenne des Migrations Internationales*, 28(1), 2012, pp. 51-70.

⁹ P. Puente-Lozano & J. García-Álvarez, “Recent Geohistorical Research on Boundary-Making ...”, *Geography Compass*, 16(1), 2022, p. 2.

¹⁰ P. Puente-Lozano & J. García-Álvarez, “Recent Geohistorical Research on Boundary-Making ...”, *Geography Compass*, 16(1), 2022, p. 8.

For example, how valuable is the concept offered by the *Stanford Encyclopedia of Philosophy* of “owned” versus “unowned” boundaries as a boundary classification? This classification asks whether a boundary separates two entities, and if so, what, for example, would be the line of demarcation between a black spot and its white background? The idea is at least interesting, and one might ask whether the border fence line of DGR is inside or outside the fence. Other *Stanford* categories include “natural” versus “artificial” boundaries, “sharp” versus “vague” boundaries, and “bodiless” versus “bulky” boundaries. A fiat boundary, for example, could be considered as a conceptual construct and, therefore, artificial, whereas a physical feature could be a natural boundary such as a river. A game reserve fence could exemplify a sharp boundary, whereas a vague boundary is one that might not be clear, such as the exact points in time or dates on which DGR’s initial phases begin and end. These are impossible to identify with certainty. Some surfaces or boundaries have bulk, such as the section of DGR’s protective fence and wall at Tau Gate. These boundaries are visible and physically bulky as they are made of wire and brick, respectively. However, some boundaries lack physical attributes and cannot be seen.¹¹ An example of the latter is a fenceless boundary between two adjacent DGR properties. Other researchers of boundaries suggest additional categories.

Oommen, for example, stated that boundaries may be of “... various types – territorial, temporal and ideological, to mention a few – and they may be hard or soft, permanent or ephemeral, sacred or secular, static or dynamic”.¹² He would question the idea that boundaries are settled “identities”. What Oommen meant by “temporal” or “temporal variability” in reference to boundaries was that they may be, for example, subject to seasonal change. They may also undergo “temporal variability” in function. For these reasons, Oommen recommended incorporating temporal dynamics into studies of boundary structure and function.¹³ In this thesis, DGR’s boundaries are frequently referred to as being “fluid”. When we think of categories, in this case, categories of boundaries, we might imagine they are “... inherently closed, with fixed stable boundaries between them”. However, one could argue as does Jones that “... boundaries are almost always fluid and permeable”,¹⁴ just as they have been throughout DGR’s history.

¹¹ Stanford Encyclopedia of Philosophy, “Boundary”, Centre for the Study of Language and Information, 2013-10-10, <https://plato.stanford.edu/entries/boundary/>, accessed 2021-04-11.

¹² T.K. Oommen, “Presidential Address: Contested boundaries and emerging pluralism”, *International Sociology*, 10(3), 1995, p. 252.

¹³ M.L. Cadenasso, S.T.A. Pickett, K.C. Weathers, S.S. Bell, T.L. Benning, M.M. Carreiro & T.E. Dawson, “An Interdisciplinary and Synthetic Approach to Ecological Boundaries”, *BioScience*, 53(8), 2003, p. 721.

¹⁴ R. Jones, “Categories, Borders and Boundaries”, *Progress in Human Geography*, 33(2), 2009, p. 179.

2.2.2 Boundaries and ecotourism

As DGR's development was based on ecotourism, it is also appropriate to consider the reserve's boundaries from a tourism specialist's perspective. Sharpley's reflections on land use for tourism, for example, involved an integrated, multi-purpose countryside. Sharpley's observations on land continuums and identification of land suitable for tourism corresponded closely with proposals for Dinokeng's broader tourism project rather than DGR specifically. Such land should ideally have, according to Sharpley, a low population with small settlements. Further, it should have remnants of traditional lifestyles, some scenic value, and potential for recreational activities. Sharpley argued that boundaries should not necessarily be a "... sharp discontinuity between urban and rural resources for recreation".¹⁵ However, the idea becomes more complicated within DGR's boundaries where the aspiration, although not easy to achieve, has been to remove as many vestiges of traditional lifestyles as possible to regain an appearance of wilderness while still retaining several hundred homesteads and lodges.

The broader Dinokeng area, located in Northeastern Gauteng's urban fringes, offers a diverse mix of suburbia, farms, and smallholdings with various rural tourism products. The area, which includes DGR, Roodeplaat, and Cullinan, being within easy travel reach of Johannesburg and Pretoria, offers enormous possibilities for a strong market for day visitors, thanks to its proximity to these products and diverse outdoor offerings. The DGR itself, however, must have of necessity, a much tighter boundary. This includes strong, electrified fences for the protection and isolation of large mammals as well as protection for landowners, staff, tourists paying for their wildlife experience, and for the safety of proximate communities. The interior of DGR has another web of internal fences which protect commercial lodges, residential homesteads, and island properties from wild game intrusions.

The idea of investigating specific boundaries at all lacks relevance unless it is context-dependent and related to a research question. In DGR, for example, while expansion is constantly sought by its management, its boundaries may change depending on the contribution or withdrawal of land by its partners. Its boundaries are complicated for various reasons, one being that they cross provincial borders, and another is that it is not obligatory for landowners living within the reserve to participate as members of the reserve. Different researchers may work within the same landscape yet may pose different questions concerning different types of boundaries.¹⁶ Cadenasso *et al.* encouraged the integration of boundary studies with general landscape

¹⁵ R. Sharpley, "Tourism and the Countryside", in A. Lew, C.M. Hall & A.M. Williams (eds.), *A Companion to Tourism* (John Wiley & Sons, 2008), p. 376.

¹⁶ M.L. Cadenasso *et al.*, "An Interdisciplinary and Synthetic Approach to Ecological Boundaries", *BioScience*, 53(8), 2003, pp. 719-720.

research to assist in the establishment of new approaches to boundary studies at what Belnap *et al.*¹⁷ refer to as fine scales and coarse scales.¹⁸ Cadenasso *et al.*, believe that from this integration, common questions can be formulated across different scales, and unifying principles may emerge. They identified, from their readings, four useful directions for future boundary studies: the identification of factors controlling boundary features, linking boundary structure with boundary function, incorporating temporal variability into measures of boundary structure and function, and comparing anthropogenically created boundaries with other classes of boundaries.¹⁹ These are certainly directions from which a study of DGR's boundaries can benefit, particularly with regard to factors controlling its boundary features in the context of expansion efforts.

Boundary studies have a multidimensional nature, something to which Newman and Paasi encouraged boundary researchers from various disciplines, including geography, to consider. Newman and Paasi stressed the importance of scale regarding boundaries operating at different levels. These could be from international to local and micro scales, and the dynamics of boundary impacts should be examined equally at all these scales.²⁰ The boundaries relevant to this DGR study, for example, might be seen by some as representing, in both the real and virtual space, a sense of "us" and "other" identities on a sociospatial scale.²¹ For example, there are boundaries between the game reserve and local communities outside the fence, boundaries separating participant landowners from "island property" owners, boundaries immediately around the perimeter of lodges inside the reserve, and many others. These boundaries could easily change over time as they are not static. Oommen has stated that even when they are old, boundaries are continually contested. A society without borders, he said, will be "... nasty, brutish and short". However, "... a society with a proclivity to maintain eternal boundaries will be condemned to stagnation and decay".²² With this view in mind, the fact that DGR's borders and boundaries are fluid could be interpreted positively – a healthy sign – as border dynamism fits with the story of human civilisation and social transformation.

¹⁷ J. Belnap, C.V. Hawkes & M.K. Firestone, "Boundaries in Miniature: Two Examples from Soil", *BioScience*, 53(8), 2003, pp. 739-749.

¹⁸ What Belnap *et al.* meant by this is that while boundary studies mainly address biome and landscape scales, fine scale (metres) and even finer-scale (millimetres) boundaries also influence ecosystem processes. They study, for example, two fine-scale boundaries important in ecosystem function, these being the interface between the atmosphere and soil surface and the transition between bulk soil and plant root boundaries important in ecosystem function.

¹⁹ M.L. Cadenasso, *et al.*, An Interdisciplinary and Synthetic Approach to Ecological Boundaries, *BioScience*, 53(8), 2003, p. 720.

²⁰ D. Newman & A. Paasi, "Fences and Neighbours in the Postmodern World: Boundary Narratives in Political Geography", *Progress in Human Geography*, 22(2), 1998, p. 197.

²¹ D. Newman & A. Paasi, "Fences and Neighbours ...", *Progress in Human Geography*, 22(2), 1998, p. 191.

²² T.K. Oommen, "Presidential Address: Contested Boundaries and Emerging Pluralism", *International Sociology*, 10(3), 1995, pp. 252.

Boundaries are also constitutive of social action and may be both barriers and sources of motivation. Newman and Paasi cite Tester as being supportive of borders.²³ Tester pointed out that social and cultural activities are pointless and chaotic without boundaries, as they are necessary for providing direction and location, and create “practices and forms” which are the foundation of “meaning and interpretation”.²⁴ What is already clear in the case of DGR, a game reserve close to metropolitan areas, is the need for sharp, physical barriers or boundaries in the reserve for the protection of both wildlife and humans.

It is difficult to establish where DGR fits in the broad and sophisticated discourse around what are largely national, regional, and territorial borders and boundaries as articulated earlier by Puente-Lozano and García-Álvarez. However, it is more meaningful in this thesis to focus on the micro and local boundary processes. DGR management does not have the luxury of following specific natural boundaries or ecotones. The expansion of its boundaries internally, and across provincial borders, has relied on the goodwill and collective recognition of the reserve’s ecotourism by landowners – whether state, private, or community. DGR is a trans-provincial reserve which has both advantages and disadvantages for its managers. On the one hand, DGR is grateful for land from Limpopo in the north for purposes of increasing biodiversity in quantity and quality. On the other hand, this complicates administration. The government partner has both socio-economic responsibilities and an obligation to preserve biodiversity. The game reserve management has from the outset been under pressure to expand the reserve to at least 40 000 ha to provide ideal carrying capacity for the animals it manages.

During an interview with Stephan Prins,²⁵ Section Ranger/Conservation Officer, DGR, in which Nico Grobler also participated, Grobler commented on the significance of the 40 000 ha optimal size that is often mentioned. He suggested that the figure was not based on availability of land. Rather, he maintained, it was based on “... the minimum threshold for the highest probability of a business model to work with least financial resources, because the larger an ecosystem is that you manage, the more self-regulating an ecosystem becomes”.²⁶ He continued that a large game reserve like the Kruger National Park (KNP) cost considerably less to manage per unit square area than a game farm or small game reserve. He added that he first came across this principle of the bigger the reserve, the more self-regulating it becomes, in Bothma and Du Toit’s, *Game*

²³ D. Newman & A. Paasi, “Fences and Neighbours ...”, *Progress in Human Geography*, 22(2), 1998, p. 194.

²⁴ K. Tester, *The Life and Times of Post-Modernity* (Routledge, London, 1993), p. 8.

²⁵ Laurence Shee Personal Collection (LSPC), SOA10, S. Prins, Section Ranger/Conservation Officer, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2021-06-07.

²⁶ LSPC, SOA9, N. Grobler, Retired Deputy Director, Dinokeng Projects, Gauteng Department of Economic Development (GDED), Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2021-06-07.

Ranch Management, first published in 1989. A sixth edition of this work was published in 2015 and it remains a detailed, reliable handbook for wildlife ranchers with scientific input from no fewer than 39 wildlife experts.²⁷ From his own experiences and studies of behavioural ecology and of apex-predator home ranges, Grobler concluded that in savanna areas, 40 000 ha would be a minimum requirement for viable population sizes of most mammals and raptors.²⁸

Before concluding this section, it is worth revisiting the question as to whether boundary studies or environmental history have value. Substantiating the need for a history of DGR's growth and development, including in its scientific research and conservation ethics, one might take a precedent from the purpose behind the monumental, three volume work, *The Kruger National Park a History* by Salmon Joubert. Firstly, Joubert found it necessary to portray the development of a nature conservation policy. In the early days of Kruger Park's development, at the end of the 19th century, nature conservation policies were not well developed. Today, however, as Joubert noted, "... ecology and wildlife management are well-established sciences that have played an important role in the development of the ecotourism industry, an industry of vast environmental and economic importance". Secondly, his history provided a record of the physical development of Kruger's infrastructure and administration, the very foundations upon which a world-renowned game reserve was built. A third purpose was to record the work of the custodians of the natural heritage of the KNP. South Africa's parks are visited and supported by "... a vast international audience of nature lovers and environmental scientists" and the custodians have a duty to keep them informed.²⁹

These premises can equally apply to the history of DGR, and perhaps many other game reserves. One could add that the development of DGR took place shortly after South Africa's transition from an apartheid state to a democratic one in 1994. The new government emphasised economic and social upliftment through DGR's development in accordance with its own Environmental Management Plan. Thus, DGR's development history needs to be recorded and understood in that political light. In addition, the trailblazers involved in DGR's development deserve recognition.

2.3 A scarcity of evidence for inter-provincial Dinokeng Game Reserve negotiations

While the Gauteng Department of Economic Development (GDED), a "gatekeeper" of this research project, has been helpful in providing official sources, it appears that there is a sparse record of inter-provincial dialogue over boundary issues. As or when more documents become

²⁷ J. du P. Bothma & J.G. du Toit, *Game Ranch Management* (Van Schaik Publishers, Hatfield, 6th edition, 2015).

²⁸ LSPC, SOA9, N. Grobler, 2021-06-07.

²⁹ S. Joubert, *The Kruger National Park a History*, 1 (High Branching, Johannesburg, 2007), p. XIV.

available over time, they should provide sources for a deeper case study by researchers examining complex boundaries through the eye of environmental history.

This does not mean that there has been a vacuum in inter-provincial communication. The GDED has indicated some progress over time. Incorporation discussions between the Ga-Mashung Matlala community, whose lands include Rust de Winter Dam and Nature Reserve, and DGR management have been ongoing for over a decade, and there is still a willingness of the community to sustain discussions. Originally proposed for inclusion within DGR's boundaries, the Limpopo Provincial Government's Rust de Winter Nature Reserve could potentially add 1689 ha, including the popular 500-ha Rust de Winter Dam on the Elands River.³⁰

The GDED emphasised the need for high-level government and political intervention to incorporate Ga-Mashung lands that lie within Limpopo Province. A dedicated steering committee and a Memorandum of Understanding (MOU) between Gauteng and Limpopo provincial governments is meant to drive this expansion focus. The GDED has met with the Limpopo Department of Economic Development, Environment and Tourism on transboundary issues, which necessitate inter-provincial discussions. The MOU was expected to be finalised in 2023.³¹ The DGR's trans-provincial boundary issues provide a good example of what Newman and Passi refer to as "... the environmental impacts of transboundary externalities and spillovers", a study of which could include all the spatial scales mentioned so far.³²

2.4 The need to expand into restituted land, military land, and conservancies

The expansion of DGR's boundaries has been an ongoing challenge. The swathes of government-owned military land lying temptingly to the southwest of the reserve in the Murray Hill and Wallmannsthal areas cannot simply be absorbed. Some land previously used as a firing range during the militarised apartheid era contains unexploded ordnance (UXOs) making it unsuitable for inclusion, and some military land remains necessary for day-to-day military training and operations. The area likely to be contaminated with UXOs is the Murray Hill military training area currently used by the Special Forces School of the SANDF. Ordnance likely to be fired here, would range from small arms, assault rifles, grenades, and projectiles up to 81 mm mortars.³³ As seen in the map below (Figure 2-1), lying to the east of DGR are potential corridors that remain

³⁰ Republic of South Africa (RSA), Limpopo Department of Economic Development, Environment & Tourism, "Five-Year Strategic Plan for the Rust de Winter Nature Reserve", March 2013, pp. 11-12.

³¹ LSPC, E. Tshilamulele, Email, Dinokeng Projects, GDED/L. Shee, 2023-04-13.

³² D. Newman & A. Paasi, *Fences and Neighbours ...*, *Progress in Human Geography*, 22(2), 1998, p. 197.

³³ LSPC, WhatsApp correspondence, Lt Col E. Van Blerk, South African Air Force (SAAF), Military Environmental Management Practitioner for the SANDF/L. Shee, 2024-03-05.

blocked by island properties and those of other non-participant landowners. These properties present barriers between DGR and expansion towards Rust de Winter Dam and Nature Reserve. Such an inclusion, if possible, would add an important aquatic feature to DGR, which would be an added attraction for tourists, including anglers. East of DGR and north of the Moloto Road, and east and west of the road running north-south (the R/D 567), are large, privately-owned game reserves, conservancies, and hunting farms whose owners have held out against including their land in DGR.

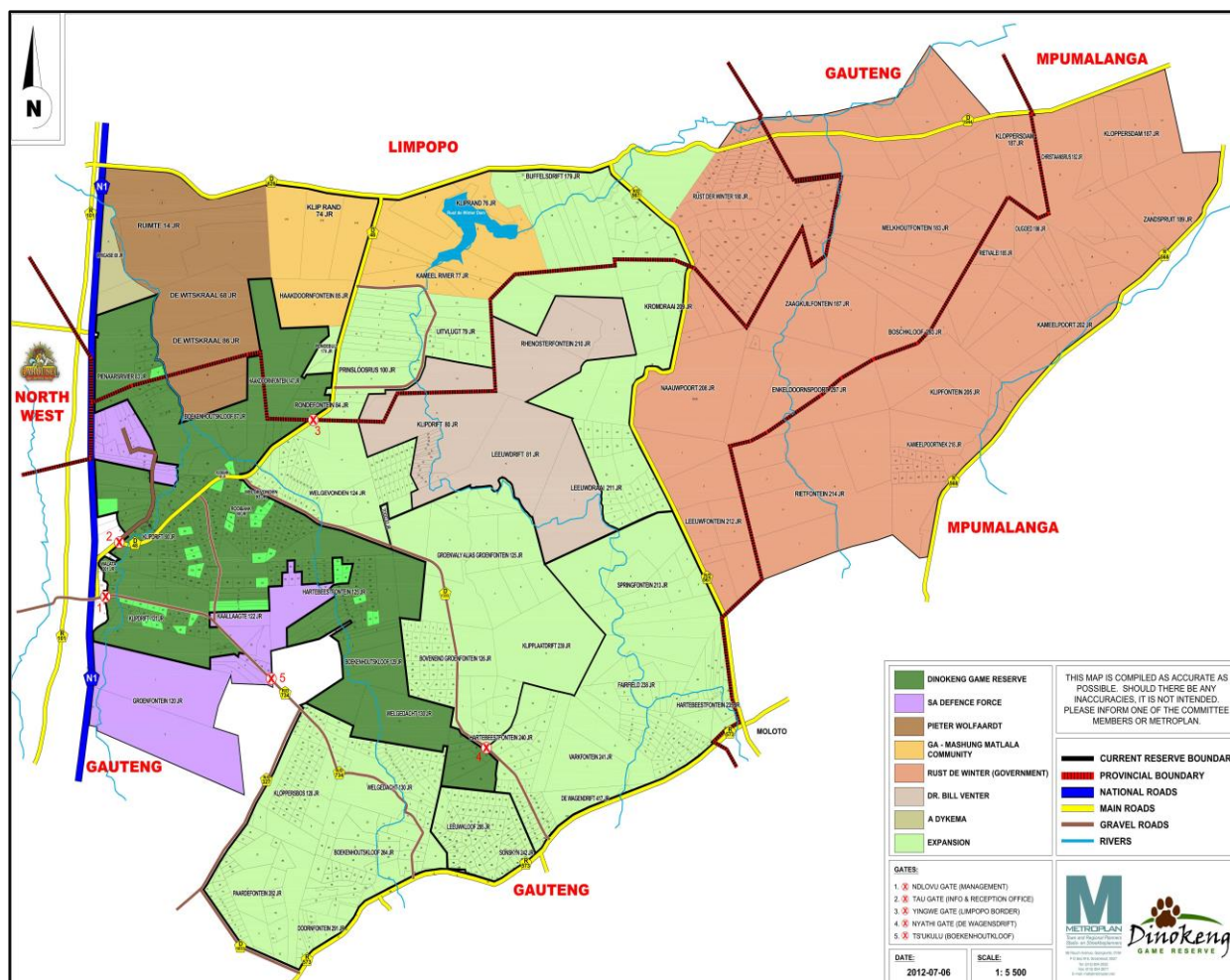


Figure 2-1 DGR. Permission for map use was granted by DGR Management and Dinokeng Projects on 2019-11-12.

Attempts were made to improve the readability of this detailed map. However, it is best read when zoomed.

The management of DGR has been tasked with identifying creative ways of expanding into these potential areas while simultaneously exploring ways for reluctant landowners to join without their current land-related incomes being reduced. There are, for example, lucrative hunting farms east of DGR whose owners continue to fear that by joining DGR, their current income streams might be negatively affected and they might lose autonomy over the management of their own land.

Additionally, the thought of the intrusion of tourists into their private domains is an unappealing prospect for many landowners.³⁴ Some of these landowners are on the boundary of DGR, whereas others are within DGR's boundaries.

2.5 Community and landowner responses to boundaries in Dinokeng Game Reserve

Responses to game reserve boundaries – strong electrified game fences in the case of DGR – may be positive, negative, or neutral. Intellectual discussions about boundaries and fences do not necessarily enter the daily conversations of poor people living on the edge of DGR. Nevertheless, when a sample of community individuals in Kekana Gardens, which borders DGR, were asked how they felt about the game reserve fence and wall, their responses were revealing.

One respondent recalled that initially there had been resistance over safety concerns regarding the proximity of wild animals attacking community members. Concerning the wall, which community members insisted was built in addition to the fence, the respondent said that one reason the wall was built was that community members do not have to see the wild animals.³⁵ The second respondent, Patience Molekwa, said: “It is to protect us, I think it is a good thing. It protects us from the animals. One other thing, even the way they constructed the wall, it gives our area a relevant shape and a structure”.³⁶ This reply supports the idea mentioned earlier that boundaries may create a sense of order and safety. A third reply was the antithesis of the first regarding the wall. The respondent regarded the building of the wall as “unfortunate” as it blocked the view of animals, whereas fences did not. He said: “Fences are great because you can see the animals walking nearby”. He remarked that he felt deprived of the thrill of watching elephants, in particular, passing from place to place.³⁷ None of the respondents, admittedly a small sample, interpreted the presence of the wall in a political context, but rather as a necessary protection against animals.

Similarly, with respect to communities on the western edge of KNP, Chaminuka was surprised to learn that rural communities did not have a negative perception of the KNP boundary fence, but rather focused on the fact that the fence did not successfully keep damage-causing animals from crossing over into people's fields and the grazing land. There was general agreement on the need

³⁴ LSPC, SOA27, D. Boshoff, DGR Reserve General Manager, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2022-11-23.

³⁵ LSPC, SOA7, S. Maphae, Principal of St Camillus School, Kekana Gardens, St Camillus School, 2021-05-11.

³⁶ LSPC, SOA3, P. Molekwa, Manager Koka Pub, Kekana Gardens, 2021-05-10.

³⁷ LSPC, SOA4, Anonymous, Kekana Gardens resident, 2021-05-10.

for the fence; however, there were differences in understanding of the purpose of the fence among community members.³⁸

While fences may frequently be seen as divisions between “us” and “them”, it is not always the case. When interviewed, the principal of Saint Camillus Primary School in Kekana Gardens, whose school shares a boundary fence with DGR, reacted positively to the fence. Firstly, it kept his learners safe from wild animals, but additionally, it was seen as a source of positive learning opportunities. He recounted the high-pitched excitement of young learners when an elephant or giraffe appeared close to the fence when the children were outside for a break. They would excitedly run to report the presence of these animals to their teachers. In addition, DGR has become an outdoor extension of the children’s educational programme. The principal listed exciting activities that learners had witnessed on guided tours into the neighbouring reserve. One such learning experience involved their seeing first-hand the treatment of rhino horns with poison to discourage poaching. Another involved witnessing the removal of an African rock python from the school grounds.³⁹

Saint Camillus Catholic School is a prominent institution in Kekana Gardens and is thought to have started as a mission in 1927. An upgrading of the buildings began in 1998. Today it has a media-cum-laboratory centre, no fewer than 19 classrooms, and an administration block. While having a Catholic ethos, it is classified as a public school on private property. Situated on DGR’s western perimeter fence, it provides primary education to the surrounding informal settlements of Refiloe, Kekana Gardens, Mandela Village, and Marokolong. The school’s website states that most of its learners and their families are poverty stricken and struggle to pay school fees. Yet, despite these difficulties the school is successful and offers a variety of extra-curricular activities, including public speaking.⁴⁰ The school is clearly seen on the right-hand side of the road as one approaches DGR’s Tau entrance Gate in Kekana Gardens. While these community impressions of DGR’s presence have been relatively agreeable, responses to boundaries are not always so.

As articulated by Van Houtum *et al.*, responses to boundaries, depending on the circumstances, are not always benign because “...border objects are not relevant in themselves, as are the objectification processes of bounded spaces informing people’s everyday spatial practices. This power of borders, that which exceeds their constraining material form, is derived from their

³⁸ P. Chaminuka, “What Do the Local Communities Say About Fences”, in K. Ferguson & J. Hanks (eds.), *A Review of the Environmental, Social and Economic Impacts of Game and Veterinary Fencing in Africa* (Mammal Research Institute, University of Pretoria, 2010), p. 53.

³⁹ LSPC, SOA7, S. Maphae, 2021-05-11.

⁴⁰ St Camillus Primary, <http://www.cso.za.org/Member-Schools/Hammanskraal/St-Camillus-Primary>, accessed 2023-05-19.

specific interpretation and a resultant (often violent) practice”.⁴¹ Indeed, there have been a few orchestrated attempts to breach DGR’s boundaries prior to its official opening in 2011. Subsequently, the breaching of the fence and wall for poaching purposes has become a regular occurrence requiring continual daily fence patrols. Nevertheless, a few notable illegal land claims made headlines.

In 2011 an informal settlement mushroomed within the reserve’s boundaries resulting in the boundary fence being discarded at its original locality and moved towards the inside of DGR.⁴² The occupation resulted in R15 million worth of damage to DGR’s boundary fence. Prominent community leaders and the Gauteng Provincial Government (GPG) opposed the land claim as an opportunistic land grab.⁴³ In May 2014, Reserve Manager at the time, Piet Venter, had to apply for an interdict against another group of claimants.⁴⁴ Despite these few incidents, DGR has played an important role as an employer in the region. An interview with a DGR official, resident in a local Dinokeng community, revealed constant requests for work from local community members desperate for employment in DGR. The official added that requests can be persistent, at times making officials living in the community uncomfortable. This led to the individual concerned opting not to wear a DGR uniform in public to reduce recognition.⁴⁵ Whereas land invasions in DGR have been rare, there are other land challenges with which DGR’s management has had to contend.

As pointed out in Chapter One, human-dominated landscapes can be fragmented. The limited available land from which DGR can draw for its purposes of growth is highly “fragmented” by way of numerous small holdings, some of whose owners agreed to join the game reserve and some of whom choose to remain locked out as “island properties”. The nature of the DGR boundaries remains fluid as owners can withdraw their land from the reserve at any time should they become disillusioned participants. These ownership dynamics are perfect examples of the management complexities referred to by Dallimer and Strange that require cross-boundary and cross-border cooperation. The boundaries to which they referred were “physical mappable boundaries”. In DGR’s case they would be material game fences.

⁴¹ H. van Houtum, O. Kramsch & W. Zierhofer (eds.), *B/Ordering Space* (Ashgate Publishing Limited, Aldershot, 2005), pp. 2-3.

⁴² LSPC, N. Grobler, Email, Ecologist, Deputy Director Dinokeng Projects, GDED/L. Shee, 2018/07/03.

⁴³ Y. Omar, “New controversy at Dinokeng”, *IOL*, 2011-09-27, <https://www.iol.co.za/news/africa/new-controversy-at-dinokeng-1145442>, accessed 2020-01-18.

⁴⁴ News 24, “Land invasion at Gauteng game reserve”, *News24 Archives*, 2014-05-12, <https://www.news24.com/SouthAfrica/News/Land-invasion-at-Gauteng-game-reserve-20140512>, accessed 2020-01-18.

⁴⁵ LSPC, SOA6, Anonymous, Employee at DGR, Resident in Kekana Gardens, 2021-05-11.

Co-operation, Dallimer and Strange further contend, is made easier if the role-players can identify mutual economic benefits of conservation across boundaries, determine transboundary societal values, and acknowledge the importance of stakeholder behaviour and incentives.⁴⁶ Historically, it has always been a challenge to incentivise island property owners to join the reserve. Since 2010, the year prior to DGR's opening, there has been a history of working towards Protected Area Status (PAS) for DGR,⁴⁷ and over time some creative incentives have been proposed to attract island owners, perhaps the most important of these being the lure of PAS.

2.6 The Protected Area drawcard

Hartogh Streicher, Chairperson of the Dinokeng Management Association, encouraged hold-out island landowners to join the game reserve before the anticipated PAS is granted to DGR. It was optimistically hoped that this would be granted in 2023; however, by early 2024 it had still not been achieved. The attraction to island landowners lay in that if they joined the reserve, PAS could reduce the chance of land claims on their property. It could also potentially increase their property values because the expectation is that the value of a property in DGR with PAS will be more than that of an equivalent-sized island property. In addition, as DGR's collective application for PAS would include their properties, the application costs would be carried by government.⁴⁸

As Emmanuel Tshilamulele of Dinokeng Projects confirmed, the application was a joint effort between the LOA and GDED, although the LOA had initiated the latest process in 2021 by appointing a service provider. From 2022 until today (2024) GDED has been funding the implementation of the project estimated to have cost over R2 million so far.⁴⁹ However, despite these incentives, the counterargument was that island property owners who chose to retain the status quo would continue to enjoy an eco-estate lifestyle with autonomy over their land while still having DGR take maintenance responsibility for their fences. Although DGR's ongoing process of applying for PAS is outside the time frame of this thesis, the desire for PAS goes back at least to 1994.

This researcher is not privy to the details of DGR's application; however, some general advantages to PAS warrant mention. The International Union for the Conservation of Nature (IUCN) is an authoritative source for comment about protected areas and land use. It states that human activity, largely for food production and forestry, has transformed and degraded landscapes to the extent that one third of all land on earth is either degraded or in the process of

⁴⁶ M. Dallimer & N. Strange, "Why Socio-Political Borders and Boundaries Matter in Conservation", *Trends in Ecology and Evolution*, 30(3), 2015, p. 132.

⁴⁷ LSPC, E. Tshilamulele, Email, Dinokeng Projects, GDED/L. Shee, 2023-05-03.

⁴⁸ LSPC, SOA31, H. Streicher, DGRMA Chairperson/L. Shee, 2023-04-24.

⁴⁹ LSPC, E. Tshilamulele, WhatsApp correspondence, Dinokeng Projects, GDED/L. Shee, 2024-03-05.

being degraded through irresponsible use. This has a negative impact on biodiversity and imperils ecosystem services like carbon storage. The IUCN has suggested that protected areas can help turn this trend around: “If effectively managed and fairly governed, such areas can safeguard nature and cultural resources, protect human health and well-being, provide sustainable livelihoods and so support sustainable development”.⁵⁰

South Africa has its own National Protected Area Strategy as outlined by the RSA Department of Forestry, Fisheries and Environment. Their 2018 report runs to 133 pages of detailed explanations of the value, conditions of, and implementation of protected areas in South Africa. It is not necessary here to repeat the content of that expansive report; however, background pertinent to DGR’s situation is warranted.

Firstly, DGR’s application for PAS must be based upon some reasonable criteria for success. Primarily, DGR falls within the Central Bushveld areas around Hammanskraal, one of the priority areas identified in the Department of Environmental Affairs’ National Protected Area Expansion Strategy (NPAES).⁵¹ This is the area in which DGR is situated, so one hopes that DGR’s application for PAS is treated sympathetically. Protected areas recognised in the National Environmental Management Protected Areas Act (Act 57 of 2003) are considered protected areas in the NPAES. The protected areas act covers several protected area categories, “... including special nature reserves, national parks, national reserves, marine protected areas and protected environments”.⁵² The purpose of protected areas is that they are vital for ecological sustainability, climate change adaptation, providing nodes in South Africa’s ecological infrastructure network, and protecting the ecosystems that deliver important ecosystem services to people.⁵³ There are three main mechanisms for expanding the land-based protected area network. Without entering an in-depth discussion of protected areas, one needs to consider how these three main mechanisms apply to DGR’s boundaries and environment. While not yet officially a protected area, DGR functions as one, and correlates with the second and third mechanisms, which have formed and continue to form its boundaries.

The first mechanism is to acquire land to expand protected areas, which involves large upfront costs if the government, for example, must purchase the land. The purchasing of land did not apply to DGR, which aligns more with the other two mechanisms. The second mechanism,

⁵⁰ IUCN, Protected Areas and Land Use, <https://www.iucn.org/our-work/protected-areas-and-land-use>, accessed 2023-05-15.

⁵¹ RSA, Department of Environmental Affairs (DEA), D. Balfour, S. Holness, J. Jackelman & A. Skowno, “National Protected Areas Expansion Strategy for South Africa”, 2018, p. 39.

⁵² RSA, DEA, D. Balfour, *et al.*, “National Protected Areas ...”, 2018, p. vi.

⁵³ RSA, DEA, D. Balfour, *et al.*, “National Protected Areas ...”, 2018, pp. vii-viii.

contract agreements, allows landowners to maintain ownership of their land when they have signed a contract with a protected area agency. Most land that lies within priority protection areas is privately owned. Dinokeng Game Reserve, in a priority protection area, exists because landowners have signed agreements with the Dinokeng Management Association. While DGR is not yet officially a protected area, since 2009 it has included a portion of military land, Ditholo Nature Reserve, which already had PAS. The GPG continues to subsidise DGR's running costs until such time that it is financially self-sustaining. The contract agreements' mechanism uses biodiversity stewardship programmes to expand the protected areas network.⁵⁴

Contract arrangements for expanding national parks stemmed from the National Parks Act (Act 57 of 1976) and were used increasingly by SANParks from the late 1980s. The Protected Areas Act, however, has allowed for a broader use of contract agreements since 2003, including by provincial protected area agencies. These contract agreements in terms of the Protected Areas Act are the most secure of a series of options for agreements with landowners that form part of biodiversity stewardship programmes. Agreements with fewer restrictions would be less secure for landowners and would come with reduced management assistance from the protected area agency.⁵⁵

The third mechanism is the declaration of public or state land.⁵⁶ This is certainly relevant in DGR where the Gauteng Government has reassigned military land, Ditholo, to a larger game reserve (DGR). Further military land, at Boekenhoutskloof, for example, has already been earmarked for inclusion in DGR. However, the wheels of government are dilatory, and although the inclusion process for Boekenhoutskloof is at an advanced stage, actual implementation of inclusion of this piece of suitable land remains elusive. Biodiversity stewardship programmes, of which DGR is arguably already one, are increasingly used with advantages to both private landowners and the agencies responsible for administering them. It remains to be seen whether island landowners, land claimants with restituted land, and larger landowners currently enjoying full autonomy of decisions over their land, will sign up. Each added portion of viable land would extend DGR's boundaries and add to its biodiversity. Having examined the relevance of boundary studies to DGR's eco-health, the focus of this chapter now shifts to the value of environmental studies to DGR.

⁵⁴ RSA, DEA, D. Balfour, *et al.*, "National Protected Areas ...", 2018, pp. vii-viii.

⁵⁵ RSA, DEA, D. Balfour, *et al.*, "National Protected Areas ...", 2018, p. 49.

⁵⁶ RSA, DEA, D. Balfour, *et al.*, "National Protected Areas ...", 2018, pp. xii-xiii.

2.7 The relevance of environmental studies to Dinokeng Game Reserve

A single definition of environmental history is as difficult to pin down as it is to say what history brings to our understanding of the environment. However, O'Connor, Cronon, and Worster, as environmental historians, can help. O'Connor provided a broad sweep, almost all-encompassing definition of what environmental history is, admitting that its range of methods and subjects is vast: "Environmental historians study the history of energy use and depletion; atmospheric, climatic, and even human-assisted geological changes; populations of particular species life and their inorganic 'bodies'; bioregions, watersheds, ecosystems, and ecological patches, boundaries, edges, corridors, and mosaics". The environment, he continued, is investigated as a resource, amenity, socially constructed space, and mental map.⁵⁷

His shorter definition was that environmental history is "... the history of the planet and its people and other species of life and inorganic matter insofar as these have been modified by, and have enabled and constrained, the material and mental productions of human beings".⁵⁸ This involves relationships between humans and surrounding nature, and it is these relations that only make sense if investigated. Cronon also emphasised the necessity of these relationships.

He has said that environmental history is several things. It is "... the history of human beings' interactions with the natural world over time". It is "... the history of environmental politics". It is "... the history of our changing ideas of nature". What environmental history seeks to do, he continued "... is to call our attention to a world out there of nonhuman beings and processes, landscapes, environments, that we could not exist without". He argued that environmental history insists that we pay attention to something and write about it in terms of interesting and complicated relationships as our lives depend on these relationships.⁵⁹ Applying these ideas to this thesis on DGR, one could consider boundaries, for example, to be interesting and complicated. There are so many ways in which one could create narratives on relationships between boundaries and humans, flora, and fauna.

Environmental narratives also need to be useful. There is little point in creating a narrative that dwells upon the negative and is easy to tell. Or as Cronon warns: "So, I would say, one of the lessons for environmental politics is that when you start telling yourself a story that begins in a place of stasis and moves to a place of dynamism that looks bad, or crisis, you should step back

⁵⁷ J. O'Connor, "What is Environmental History? Why Environmental History?", *Capitalism Nature Socialism*, 8(2), pp. 10-11, [doi:10.1080/10455759709358733](https://doi.org/10.1080/10455759709358733).

⁵⁸ J. O'Connor, "What is Environmental History? ...", *Capitalism Nature Socialism*, 8(2), pp. 11-12.

⁵⁹ H. Kreisler, University of California Television (UCTV), "The Life and Work of an Environmental Historian with William Cronon - Conversations with History", Harry Kreisler interviews William Cronon, 2013-04-15, <https://www.youtube.com/watch?v=Bl610FkoG7k>, accessed 2023-05-09.

and ask yourself whether that story's too easy". If Cronon's quotation, taken from a direct transcript, appears a little confusing at first, he clarifies what he means by adding that those who care about the environment are likely to experience emotions, as he himself has done, which may not be very useful emotions. In other words, it is easy, for example, to tell a non-critical story about an environmental crisis. As Cronon explains: "I sure would not want to build a political movement, or a cultural movement a moral movement on despair, so I'm actually a great believer in complicated stories that have fearful things in them, but that also have some kind of vision of hope in them".⁶⁰ It should already be clear that the story of DGR's boundaries is a dynamic one. It is also a story in which the narrator could dwell on the seemingly insurmountable problems, which is not constructive as Cronon has illustrated.

One considers here, Julia Adeney Thomas' understanding that one probably should not expect, when attempting to reverse damage to environments, or ecosystems, or species, that one will get it completely right. As a historian of the Anthropocene and environmental history, Adeney Thomas said that we cannot recreate extinct animals or recreate ecosystems as they once were. However, one can try to achieve what she calls "resilience with decency". That is, instead of looking for systems that become ever more efficient and productive, perhaps one should rather consider more simple, realistic systems of the past which were able to cope with various challenges such as weather changes.⁶¹ In the case of DGR, one could respond to Thomas's suggestion by arguing that that approach has already been taken. It is unlikely that DGR's developers ever expected to reverse the damage to DGR's flora and fauna to the extent of regaining a pristine replica of what went before. As Tosh has stated: "No one historical situation has been, or ever can be, repeated in every particular".⁶² The idea was to revert the land use to one best suited for wildlife tourism to benefit both conservation and the lives of those inside, and proximate to, the game reserve. For all the obstacles DGR's planners faced, the DGR gates opened officially in 2011 and that is something to celebrate – a victory against all odds.

O'Connor has said that environmental history is space-bound and that historians study particular places during particular periods. When applying this statement to this DGR study, the particular period would be 1995 to 2018 and the place, the northeastern corner of Gauteng Province in South Africa. Inevitably a study of this nature omits vast expanses of the area's prior history in

⁶⁰ H. Kreisler, University of California Television (UCTV), "The Life and Work of an Environmental Historian with William Cronon ...", 2013-04-15, <https://www.youtube.com/watch?v=BI610FkoG7k>, accessed 2023-05-09.

⁶¹ J. McNeill & J. Adeney Thomas, "Historians and the Anthropocene", *American Historical Association*, 2017-11-24, <https://www.youtube.com/watch?v=xhrP1hZuWOM&t=782s>, accessed 2023-05-11.

⁶² J. Tosh, *The Pursuit of History Aims, Methods and New Directions in the Study of Modern History* (Pearson Education Ltd., Edinburgh Gate Harlow, 2010), p. 29.

the decision of where to start and where to end. Yet, there are links, as O'Connor pointed out, "... since the history of one place, in the last analysis, is inseparable from the history of other places, in principle every environmental history can be linked to every other history".⁶³

Wakild has said of environmental historians that they "... have a more anarchic chronology than, say, geologists, as each historian can decide when to start and stop the story she tells". In selecting a timeline, Wakild recommended that it be based on two or three metrics. She gave examples of these as a timeline based on an event, a life, or a "... comfortably round time period".⁶⁴ Questions environmental historians should be asking are, for example, why does DGR look the way it does? It looks the way it does because historically, people made choices about it, and continue to do so. One would like to think that current choices about DGR are being made in the spirit of "resilience with decency" as proposed by Thomas.⁶⁵ Future historians will be curious to examine the results of current choices.

As to selecting a timeline for this DGR study, considering Wakild's suggestions, the rounded time span began with initial discussions about a future game reserve – the Amakulu phase of 1995. This will be discussed separately in Chapter Four. The concluding date, 2018, marked the arrival of black rhino, which completed the reintroduction of the Big 5 including then both white and black rhino. This achievement had been one of the intentions of DGR's developers. The beginning and end date also encompassed the official opening of the reserve in 2011, giving the opportunity to study both the development of the reserve and at least seven years of the reserve as a functioning entity. The story of DGR is one of particularly close relationships between the human and non-human worlds. There are parallels between the views of O'Connor, Cronon, and Worster, all of whom emphasise the idea of relationships.

Worster has placed the origin of the concept or phrase "environmental history" at the time of the first Earth Day. Originally an American concept, it spread globally in various forms, but all related to "vital relationships" between humans and the non-human world, or nature.⁶⁶ The DGR

⁶³ J. O'Connor, "What is Environmental History? Why Environmental History?", *Capitalism Nature Socialism*, 8(2), p. 13.

⁶⁴ E. Wakild, "The Challenge of Scale in Environmental History: A Small Meditation on a Large Matter", Special issue on "Crossing Mountains: The Challenges of Doing Environmental History", *RCC Perspectives*, No. 4, 2014, p. 20.

⁶⁵ J. McNeill & J. Adeney Thomas, "Historians and the Anthropocene", *American Historical Association*, 2017-11-24, n.p.

⁶⁶ Earth Day was first observed on the 22nd of April 1970, when some 20 million people across America attended related environmental events at numerous sites including schools and universities. By July 1970, in response to public demand for cleaner environments, the Environmental Protection Agency was established. Earth Day contributed to the largest grassroots environmental movement in U.S. history. Library of Congress, <https://www.loc.gov/item/today-in-history/april->

management is aware of the importance of these vital relationships. It has stated as policy: “The future of conservation requires a two-pronged strategy, the fight for open ecosystems and pristine wilderness areas, and the development of new buffer models where people and nature grow together in harmony”. The fight includes avoiding inbreeding to maintain healthy gene pools for its animals. The DGR, which has been described as the “... only residential Big 5 game reserve worldwide within the boundaries of a metro”, is well placed to serve as a unique model for future conservation developments in other areas worldwide that are proximate to metropolitan areas.⁶⁷

Worster interpreted the word “environmental” as suggesting something scientific, but with a broader meaning than terms like “ecologica” or “ecological history”. To Worster, “environmental” embraced a range of disciplines such as ecology, hydrology, geology, and climate systems.⁶⁸ As indicated in the previous chapter, Worster was interested in environmental history in the context of health and welfare. The environmental history of DGR is based on the very premise that its development was to improve the welfare of proximate communities while simultaneously nurturing and repairing the land.

Within a few months of the first Earth Day, the Environmental Protection Agency was established in the United States of America. Worster was concerned that while historians had long been writing about health issues such as epidemics, they had not paid much attention to the study of health of humans and the environment over time. But the Environmental Protection Agency, he believed, broadened the definition to include the health of people and land, which are always intertwined in a comprehensive relationship between the human and non-human worlds. Rachel Carson’s *Silent Spring*, published in 1962, had already alerted environmentalists and historians to the dangers of chemicals and pesticides, especially Dichlorodiphenyltrichloroetha (DDT), an agricultural pesticide.⁶⁹

This new emphasis on health influenced environmental historians who started thinking more deeply about such things as poor land and water use which could lead to ugly and unhealthy environments. Worster stated that you cannot strictly separate the human mind from the rest of nature. Environmental history, he argued, is the history of all living things (the biosphere) and that it incorporates the whole complex history of our material lives in both the economic and visceral

[22/#:~:text=Earth%20Day%20was%20first%20observed,sites%20across%20the%20United%20States](#), accessed 2023-05-09.

⁶⁷ Dinokeng Game Reserve, Conservation Efforts, “Rehabilitation and Conservation”, n.d., <https://www.dinokengreserve.co.za/conservation/>, accessed 2024-02-02.

⁶⁸ D. Worster, KTH Environmental Humanities Laboratory, “Donald Worster: Environmental History”, <https://www.youtube.com/watch?v=BJfwVXWP6X4>, accessed 2023-04-24.

⁶⁹ D. Worster, KTH Environmental Humanities Laboratory, “Donald Worster: Environmental History”.

sense. Pointing to health, he maintained that history should examine the long struggle for health of our species on a planet that may be sick, or healthy, due to our actions.⁷⁰ Thus, Worster appeared to be looking at the importance of environmental history as a global phenomenon, which parallels John McNeill's emphasis on the global nature of environmental history as demonstrated, for example, in his work on environmental history of the Industrial Revolution.

As a Carson Fellow at the Rachel Carson Center in Munich, McNeill wrote *An Environmental History of the Industrial Revolution*. His intentions were twofold. Firstly, he wanted to explain that the Industrial Revolution was more than an economic and social revolution. It was, in his view, an environmental and ecological transformation. Secondly, he presented the Industrial Revolution as a phenomenon on a global scale, pointing out that it did not simply spread out from England, but it was a global process because the raw materials necessary for industrialisation came from near and far. He cited cotton as not coming from England, but from the American South, Egypt, and India. Wool came from Argentina, Australia, and New Zealand. Ores required for the metallurgical stages came from both the British Isles and from other countries such as Spain, Malaya, and South Africa. His work charted the "ingredients" of the Industrial Revolution as if it were a "cooking process". Then came the environmental changes that came about from the mass production of fibres and other materials during industrialisation.⁷¹ Whatever timeline is chosen for a historical study, one needs to consider its scale.

Wakild argued that decisions about scale must be taken in any discipline. However, regarding environmental history, she saw scale manifesting itself in at least five ways: temporal, spatial, cultural, organismal, and organisational.⁷² One can find relevant examples from a study of DGR that align with Wakild's environmental history suggestions on how scale manifests itself.

As an example of the temporal aspect of scale, one could consider the migratory patterns of birds, such as the fiercely territorial woodland kingfisher, which almost like clockwork arrives in Limpopo, including in DGR, on or close to 11 November every year and departs late in March. Work by Warwick and Michèle Tarboton, in conjunction with other ornithologists, has been done on the migration patterns of woodland kingfishers between Limpopo Province in South Africa and northerly destinations including South Sudan and the Central African Republic. Data on their journeys are extracted from lightweight (0,9 g) geolocators attached to the birds being studied. In

⁷⁰ D. Worster, KTH Environmental Humanities Laboratory, "Donald Worster: Environmental History".

⁷¹ J. McNeill, "An Environmental History of the Industrial Revolution", Rachel Carson Center, *Environment and Society*, 2011, https://www.youtube.com/watch?v=th_OXOKWZJY, accessed 2023-05-11.

⁷² E. Wakild, "The Challenge of Scale in Environmental History: A Small Meditation on a Large Matter", Special issue on "Crossing Mountains: The Challenges of Doing Environmental History", *RCC Perspectives*, No. 4, 2014, p. 20.

this research, they selected the woodland kingfisher (*Halcyon senegalensis cyanoleuca*), which travels thousands of kilometres to nest in the south, often in the same nesting place, unless that has been usurped by another bird or creature.⁷³ Such temporal patterns become areas for scientific research.

Concerning the spatial scale, Wakild noted that "... ecological phenomena both predate and transcend convenient political boundaries". An example she mentions is that no fewer than seven nations include the Alps in their territory, yet this mountain range is often thought of as an entity without boundaries. Initially, DGR's boundaries were envisaged to traverse the provinces of Gauteng, Limpopo, and Mpumalanga, extending over 200 000 ha. To date it covers an area of 19 000 ha, which falls dramatically short of the original aspiration. Should expansion take place in the future, the DGR could ultimately traverse three rather than two provinces, and it could include island properties if the landowners decide to join the reserve. In fact, many spatial possibilities could emerge. Already seen is the fact that the original three phases, A, B, and C, did not materialise as envisaged, so the current location and extent of DGR evidences a forced spatial shift. Should future DGR expansion occur, its physical features could include both additional aquatic and mountainous landscapes.

Regarding cultural scales, Wakild has suggested that histories from below may be influential in going against the grain of master narratives by offering alternative perspectives.⁷⁴ A study commissioned by the GDED in April 2022, the Synthesised Socio-Economic Assessment Report, sought to identify how DGR was viewed by the community outside the gates of the game reserve. While it had its faults, this GDED study marked an attempt at least to seek a response from below rather than assume from above that everyone welcomed the game reserve. The report, examined in detail in Chapter Eight, showed diverse responses from the community.⁷⁵ Schoon, too, has stressed the value of consulting views from below.

Schoon's interview-based work on transboundary governance examined the history of governance in transboundary protected areas, specifically the Kgalagadi and the Great Limpopo Transfrontier Parks. He recommended constructing stronger, long-lasting institutions to better

⁷³ W. Tarboton & M. Tarboton, "Travel Log, Migration of the Woodland Kingfisher", *African Birdlife*, May/June 2014, pp. 56-62, <https://www.warwicktarboton.co.za/images/AB%20Woodland%20Kingfisher%20article.pdf>, accessed 2023-05-15.

⁷⁴ E. Wakild, "The Challenge of Scale in Environmental History: A Small Meditation on a Large Matter", Special issue on "Crossing Mountains: The Challenges of Doing Environmental History", *RCC Perspectives*, No. 4, 2014, pp. 23 & 25.

⁷⁵ The SSEIA Report is discussed in Chapter Eight.

attain any future transboundary conservation projects.⁷⁶ Schoon's recommendations could be considered with respect to DGR's fluid boundaries, particularly when they become lines of discontent and are challenged by interest groups in a way that inhibits future expansion. Reflecting on challenges facing park officials, Schoon compared the approaches of top-down and bottom-up institutional structures. Whereas the top-down approach might provide such advantages as a wider range of views, greater resources, and governmental support, the bottom-up approach is more likely to accept nuanced views, offer greater diversity to experimentation, make constructive use of local place-based knowledge, and be more receptive to drawing on local actors for "regional monitoring and enforcement" so providing better "on-the-ground legitimacy". Schoon's argument that an informed grasp of institutional history reached beyond standard policy literature can assist academics and practitioners in two ways: firstly "... in the ongoing governance of current conservation efforts" and secondly, "... in the more appropriate design of new conservation plans as opposed to contextually free panaceas". The chances increase that new, more vigorous insights into strengthening institutional arrangements may result.⁷⁷ This research on DGR is the first formal, academic recording of DGR's history, and it is optimistically anticipated that this study will reveal the value of recording its institutional history.

Many visitors arriving in DGR for the first time have recounted that they find its structure confusing. This is understandable as its boundaries are fragmented and complex. To appreciate that the reserve is not like KNP or the Pilanesberg Game Reserve, visitors need to understand and appreciate how the DGR developed in the way it has. An environmental history of DGR will go some way to making its structure more comprehensible to all interested parties. In compiling an environmental history of DGR, it was important to gather information from the memories of those involved in the reserve's development and convert these into narrative form. This leads the researcher to, as environmental historian, Cronon, has indicated, "... to think of the past not as a random collection of people, places, objects, and experiences, but as a series of events that form meaningful sequences. Just so do we transform the raw material of the past into narratives that permit us to speculate about what caused what, why people acted as they did, how a particular event happened, and what lessons we should extract from it".⁷⁸

Moving on from Schoon and Wakild's comments on the need to consider a bottom-up approach with respect to the cultural scale, environmental historians should also be cognitive of the effects of non-human nature on the human story. The latter consideration suggests that we need to know

⁷⁶ M. Schoon, "Governance in Transboundary Conservation: How Institutional Structure and Path Dependence Matter", *Conservation and Society*, 11(4), 2013, p. 420.

⁷⁷ M. Schoon, "Governance in Transboundary Conservation: ...", *Conservation and Society*, 11(4), 2013, pp. 420-421.

⁷⁸ W. Cronon, "Why the Past Matters", *Wisconsin Magazine of History*, 84(1), 2000, p. 6.

and understand species beyond our own: “To consider other species as actors in history is not to claim their agency; it is to recognise that the human story would be incomplete without them”.⁷⁹ In this regard, DGR has quickly become a respected outdoor laboratory for a wide range of organismal research, a topic explored in detail in Chapter Seven.⁸⁰

Wakild’s final category of scale is organisational, which includes the management of practical and political difficulties. In this regard, there is no shortage of organisational challenges as the DGR management has had to oversee landowners’ views, community views, internal politics, tourist expectations, problems with poachers, and any number of other issues resulting from the DGR model. The role of the environmental historian then, according to Wakild, is to combine all these perspectives into a single story while trying to bridge the differing views to provide a full empathetic account of the park’s story.⁸¹ Having now discussed ways in which both boundary studies and environmental history provide a framework for delving into the history of DGR, the rest of this chapter provides an introduction to the socio-economic purpose of DGR – one that includes both conservation and the development of ecotourism.

2.8 Dinokeng Game Reserve’s role in conservation and socio-economic upliftment based on ecotourism

In the early to mid-1990s, South African conservation and environmental policies were increasingly guided by international expectations. There had been a rapid expansion of agriculture and industry under the apartheid government, with negative consequences for the country’s natural habitats. By the time the White Paper on the Conservation and Sustainable Use of South Africa’s Biological Diversity was published, 3 435 (15%) of South Africa’s plant species, and 102 (14%) of bird, 72 (24%) of reptile, 17 (18%) of amphibian, 90 (37%) of mammal, and 142 (22%) of butterfly species were identified in the African Red Data Books as under threat. Evidence showed the situation was worsening as ecosystems were deteriorating and ecological processes were debilitated.⁸²

Any initiatives deemed necessary to combat these threats had to accord with international trends, as well as with South Africa’s new constitution whose Bill of Rights declared that everyone has the right to an environment that is not harmful to their health or wellbeing as well as to have their

⁷⁹ E. Wakild, “The Challenge of Scale in Environmental History: A Small Meditation on a Large Matter”, Special issue on “Crossing Mountains: The Challenges of Doing Environmental History”, *RCC Perspectives*, No. 4, 2014, p. 25.

⁸⁰ A range of scientific research of an organismal nature is discussed in Chapter Eight of this thesis.

⁸¹ E. Wakild, “The Challenge of Scale in Environmental History: ...”, Special issue ..., *RCC Perspectives*, No. 4, 2014, p. 28.

⁸² RSA, Department of Environmental Affairs and Tourism (DEAT), Government Gazette G 18163, GeN1095, May 1997, “White Paper on the Conservation and Sustainable Use of South Africa’s Biological Diversity”, pp. 13-14.

environment protected.⁸³ This protection would necessarily come about through appropriate legislation to prevent ecological degradation, promote conservation, and ensure ecologically sustainable development, while natural resources should promote socio-economic development.⁸⁴ These tenets became, and remain, central to the development of DGR.

The Department of Environmental Affairs, in its first 10-year report, blamed apartheid policies for the heavy toll on the country's communities, biodiversity, and ecosystems. Those policies, it claimed, restricted access to protected areas with the result that conservation was seen by some as elitist with military undertones. There was indeed a quasi-military presence in many protected areas. Many wardens had some military background, wore khaki uniforms, and were armed. Some among the African populace often took the brunt for killing animals and there was a resultant objection to the "fences and fines" approach of conservation game guards.⁸⁵

Environmental degradation was, however, well underway prior to the ascension of the apartheid government. As discussed in Chapter One, European settlers, hunters, and explorers arriving in the mid-nineteenth century undoubtedly inflicted considerable destruction on South Africa's flora and fauna, as did early farmers. The apartheid-era government engineered its policy of separate development which led to the upheaval of communities resulting in substantial ecological damage. Unsurprisingly, with most of the population forced to live within overcrowded homelands, deforestation, erosion, and loss of biodiversity occurred. Favourable subsidies on water, energy, and agricultural inputs to white industrialists, farmers, and for domestic uses, resulted in long-term damage to soil, rivers, and wetlands. Several human interventions had contributed to South Africa's ecosystems being degraded. These included, among others, agriculture, poor land-use management, over-grazing, commercial afforestation, the spread of invasive alien vegetation, urbanisation, damming of rivers, mining, industrialisation, and uncontrolled harvesting of indigenous plant products.⁸⁶

In 1995, Senator Stefanus Grove initiated an environmental consultation process in South Africa, focusing on inclusivity. The Green Paper was discussed, and submissions were considered by the editorial committee. In 1997, a draft White Paper was presented to the reference group, which recommended the White Paper be presented to the Minister of Environmental Affairs and Tourism

⁸³ RSA, The South African Constitution, Bill of Rights, Chapter Two, Section 7-39, 24 Environment, <https://www.justice.gov.za/legislation/constitution/chp02.html>, accessed 2022-09-09.

⁸⁴ RSA, DEAT, Government Gazette G 18163, GeN1095, May 1997, "White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity", p. 17.

⁸⁵ RSA, Department of Environmental Affairs and Tourism (DEAT), "10-Year Focus, 1994-2004", 2004, p. 43, https://www.dffe.gov.za/sites/default/files/docs/10year_review.pdf, accessed 2023-04-17.

⁸⁶ RSA, DEAT, "10-Year Focus, 1994-2004", 2004, p. 50.

and the relevant MinMEC.⁸⁷ The steering and editorial committees oversaw the process, leading to the White Paper's adoption as official policy.⁸⁸ Similarly, extensive and inclusive consultation was also undertaken for the development of the DGR, which is discussed in Chapter Five.

In post-apartheid South Africa, the country's recovery and redress required new policies and legislation. The NEMA (Act 107 of 1998) emphasised the environment's trust and protection for the benefit of the people as part of their inherent heritage. Two further Acts, the National Environmental Management: Biodiversity Act of 2004 and the National Environmental Management: Protected Areas Act of 2004, were crucial in promoting sustainable use of South Africa's biological resources. These environmental management acts provided a regulatory framework for protecting valuable species and ecosystems, while the South African National Biodiversity Institute aimed to integrate, coordinate, and standardise a path forward for conservation and sustainable use of the country's biodiversity. These environmental acts aimed to protect ecologically viable areas representative of South Africa's biological diversity and natural land and seascapes, and to regulate the management thereof.⁸⁹ Of relevance to DGR, these acts were applied with the aim to create an interlocking system of protected areas, encouraging the inclusion of privately owned land. These acts acknowledged that people were the custodians of the land and should be involved in its management and benefit from it.⁹⁰

The post-apartheid government's emphasis on conservation and sustaining livelihoods in local areas became of great importance to DGR's development. Nature-based tourism plays a crucial role in invigorating local economic development, focusing on skills training and nurturing entrepreneurs in tourism, game farming, and related businesses. Support for training, access to finance, and marketing is essential for achieving this goal.⁹¹ Often, despite government's promises and intentions, the necessary resources, both financial and organisational, are not forthcoming.

Historically, forced removals had taken place in areas of South Africa resulting from the apartheid government's decision to expand national and provincial parks in the mid-20th century. These had

⁸⁷ According to the Education & Training Unit (ETU), <https://www.etu.org.za/about.html>, a Section 21 non-profit company, every South African department at national level has a consultation forum where Ministers meet with Members of the Executive Council (MECs) and the South African Local Government Association (SALGA). These forums are called MinMECs. They may also be attended by heads of departments, as technical advisors. The role of MinMECs is, after consultation, to coordinate implementation and align programmes at national and provincial levels.

⁸⁸ RSA, DEAT, Government Gazette G 18163, GeN1095, May 1997, "White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity", pp. 7-8.

⁸⁹ RSA, DEAT, "10-Year Focus, 1994-2004", 2004, p. 44.

⁹⁰ RSA, DEAT, "10-Year Focus, 1994-2004", 2004, p. 50.

⁹¹ RSA, DEAT, "10-Year Focus, 1994-2004", 2004, pp. 53 & 55.

severe consequences for rural populations. For example, in the 1960s, the Tsonga-speaking Makuleke community in KNP was forcibly removed to allow for its northward expansion to the Limpopo River. A valuable account of the Makuleke forced removals and subsequent land claims are provided by Bertus de Villiers in his article, “Makuleke Land Claim and the Kruger National Park - Joint Management - a Benchmark for Conservation Areas?”.⁹² In Northern KwaZulu-Natal, thousands were forced to move from Ndumo Game Reserve⁹³ and Tembe Elephant Park.⁹⁴ Fortunately, forced removals were never considered as a component of DGR’s development plan. A unique point about DGR is that its planning started in the mid-1990s making it one of the first new game reserves to be considered viable in the post-apartheid era. Forced removals would have been impermissible in the new political dispensation and were anyway neither required nor desired as land sought for inclusion was either privately-owned or state-owned land. As far as possible, any likely land claims were settled prior to establishing DGR’s boundaries.

In 1997, South Africa's government developed a joint strategy for rehabilitating degraded ecosystems based on biological and socio-economic factors and local employment opportunities.⁹⁵ Northeastern Gauteng prioritised economic growth through Strategic Economic Infrastructural Investment Projects (SEIIPs), a geo-spatial tourism initiative, including a game reserve project, aiming to boost tourism and development.⁹⁶ In 1997, SEIIP, with the support of the Gauteng Provincial Department of Finance and Economic Affairs (DFEA), initiated an economic impact study for Gauteng.

The DFEA study identified eleven “mega-projects” to be integrated through the SEIIP’s initiative. Those identified by SEIIPs (later known as Blue IQ) encompassed the Dinokeng greater “Africa-all-in-one-day” project, which included three hubs – DGR (the focus of this thesis), Cullinan, and Roodeplaat.⁹⁷ A 1998 IUCN feasibility report showed it was financially, socially, and economically important to develop a reserve, but for that to be cost effective, it should include a wider tourist

⁹² B. de Villiers, “Makuleke Land Claim and the Kruger National Park - Joint Management - a Benchmark for Conservation Areas?”, *SAPR/PL*, 13, 1998, pp. 309-329, [doi/pdf/10.10520/AJA02586568_671](https://doi.org/10.10520/AJA02586568_671).

⁹³ T. Meer & A. Schnurr, “The Community Versus Community-Based Natural Resource Management: the Case of Ndumo Game Reserve, South Africa, *Canadian Journal of Development Studies / Revue canadienne d'études du développement*, (34)4, pp. 482-497, [doi:10.1080/02255189.2013.849580](https://doi.org/10.1080/02255189.2013.849580).

⁹⁴ RSA, DEAT, “10-Year Focus, 1994-2004”, 2004, p. 43.

⁹⁵ RSA, DEAT, Government Gazette G 18163, GeN1095, May 1997, “White Paper on the Conservation and Sustainable Use of South Africa’s Biological Diversity”, pp. 35-36.

⁹⁶ RSA, Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (DACEL), “Strategic Plan, 2003/2004 to 2005/2006”, p. 39. <http://www.treasury.gov.za/documents/provincial%20budget/2003/Strategic%20Plans/Gauteng/GT%20-%20Vote%2011%20-%20Agriculture,%20Cons%20&%20Envir.pdf>, accessed 2018-01-31.

⁹⁷ RSA, Gauteng Provincial Government (GPG) Blue IQ Investment Holdings (Pty) Ltd, 2004/2005 Annual Report, p. 6, <http://www.blueiq.co.za/index.php/about-us/our-history>, accessed 2018-02-07.

destination to be known broadly as Dinokeng (the Place of Rivers).⁹⁸ The Department of Agriculture, Conservation, Environment and Land Affairs (DACEL) aimed to develop wildlife-based tourism to reduce poverty and create employment opportunities.⁹⁹ It consulted local communities, landowners, and tourism stakeholders.¹⁰⁰ Batho Pele principles were applied for transparency, courtesy, and openness.¹⁰¹

The Dinokeng Game Reserve eventually emerged in 2011 as an informal public-private partnership (PPP) with the intention of stimulating Northeastern Gauteng's economy and alleviating poverty through tourism and conservation.¹⁰² This was in line with the Government's push for PPPs in the late 1990s and early 2000s. In accordance with these evolving trends, the Local Government Transition Act of 1993 obliged municipalities in South Africa to develop Integrated Development Plans.¹⁰³

Gauteng Province's DACEL produced the Dinokeng Integrated Tourism Development Framework in 2001¹⁰⁴ when South Africa's current system of local, district, and metropolitan municipalities came into effect.¹⁰⁵ The new system of local government was designed to accommodate transboundary integration, development, and planning.¹⁰⁶ The new regional framework for tourism development included Metsweding Municipality, which incorporated Dinokeng, tsa Taemane

⁹⁸ Dinokeng Game Reserve official website, "History and Timeline", <http://www.dinokengreserve.co.za/About/History.aspx>, accessed 2016-06-20.

⁹⁹ RSA, GPG, GDACEL, R. Collinson, W. Boonzaaier, M. Brett & M. Magakgala, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 5.

¹⁰⁰ RSA, GPG, GDACEL, "Strategic Plan, 2003/2004 to 2005/2006", p. 46, <http://www.treasury.gov.za/documents/provincial%20budget/2003/Strategic%20Plans/Gauteng/GT%20-%20Vote%2011%20-%20Agriculture,%20Cons%20&%20Envir.pdf>, accessed 2018-01-31.

¹⁰¹ Batho Pele means "putting people first". It is a set of South African principles committing state employees to quality service to communities.

¹⁰² M. Rodrigues, "Gauteng's tourism drive to take PPP route", *Creamer Media's Engineering News*, 2002-05-17.

¹⁰³ M.W. Moeng, *The Impact of Eco-Tourism on Land-Use Patterns: The Case of Dinokeng-Tourism Pilot Project in Gauteng Province*, M Inst Agrar (Rural Development Planning), University of Pretoria, 2004, p. 9, <https://repository.up.ac.za/bitstream/handle/2263/24964/dissertation.pdf?sequence=1&isAllowed=y>, accessed on 2018-01-21.

¹⁰⁴ RSA, GPG, GDACEL, R. Collinson, *et al.*, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 5.

¹⁰⁵ RSA, Department of Provincial and Local Government, Local Government: Municipal Systems Act, 2000. (Act No. 32, 2000), *Government Gazette* (No. 21776), 2000-11-20.

¹⁰⁶ RSA, GPG, GDACEL, S. Berrisford, A. Adam, C. Madel, A. Adams, N. Pather, P. Chipwanya, G. Rossouw, G. Breedlove & P. Theron, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume C – Land-Use, Environmental Management and Infrastructure Development Framework", 2001/12, p. 9.

(Cullinan) and Kungwini (Bronkhorstspuit).¹⁰⁷ This tourism framework remains an essential guide to the management of DGR today.¹⁰⁸ The Gauteng DACEL identified Northeastern Gauteng as an economically depressed area, meaning it suffered from industrial decline, high unemployment, a low level of income per head, and poor community service delivery systems.¹⁰⁹

Between 2004 and 2006 three Landowners' Associations (LOAs) negotiated with Gauteng's Blue IQ over basic frameworks for the DGR. Blue IQ and the LOAs were led by Kwenza Consortium, responsible for drawing up the Integrated Business Plan (IBP).¹¹⁰ The DGR Management Association was formed between 2007 and 2008 to head the reserve. Control of the game itself became the responsibility of Dinokeng Game Enterprises (Pty) Ltd (DGE). By October 2008, DGR's Economic Management Plan (EMP) was ready for infrastructural work to begin in 2009.¹¹¹ DGR was officially opened on 22 September 2011 as a spatial development partnership between the Gauteng Government and private landowners.¹¹² Government expected the game reserve to expand and eventually to become self-supporting.

2.9 The dependence of socio-economic development on biodiversity stewardship

DGR has acquired a certain cachet by drawing wider interest and support for its biophysical and other research activities. An understanding of behaviour and incentives can be gained by considering DGR's job creation and community engagement programmes, which benefit local communities.¹¹³ The main purpose of DGR's development was socio-economic, an objective that could never have been realised had the reserve's quality of environment not been sustained. To appeal to the more affluent local and international tourists in South Africa, the DGR's natural environments and landscapes had to meet their expectation of visiting a wilderness area. Because game reserves with sustainable populations of the Big 5 species hold a competitive

¹⁰⁷ RSA, GPG, City of Tshwane, "City of Tshwane in a nutshell", http://www.tshwane.gov.za/sites/about_tshwane/CityOfTshwaneNutshell/Pages/City-Of-Tshwane-in-a-Nutshell.aspx, accessed 2020-05-25.

¹⁰⁸ LSPC, N. Grobler, Email, Ecologist, Deputy Director Dinokeng Project, GDED/L. Shee, 2017/10/11.

¹⁰⁹ RSA, GPG, DACEL, Gauteng Province, Strategic Plan, 2003/2004 to 2005/2006, p. 39, <http://www.treasury.gov.za/documents/provincial%20budget/2003/Strategic%20Plans/Gauteng/GT%20-%20Vote%2011%20-%20Agriculture,%20Cons%20&%20Envir.pdf>, accessed 2018-01-31.

¹¹⁰ RSA, GPG, Department of Economic Development (DED), Gauteng Growth and Development Agency (GGDA), "About the Gauteng Growth and Development Agency", <http://www.ggda.co.za/about-us/about-ggda>, accessed 2020-02-06.

¹¹¹ Dinokeng Game Reserve official website, "History and Timeline", <http://www.dinokengreserve.co.za/About/History.aspx>, accessed 2016-06-20.

¹¹² *Eyewitness News*, "Dinokeng Game Reserve will boost the economy – Mokonyane", 2011-09-22, <http://ewn.co.za/2011/09/22/Dinokeng-Game-Reserve-will-boost-the-economy---Mokonyane>, accessed 2018-02-08.

¹¹³ M. Dallimer & N. Strange, "Why Socio-Political Borders...", *Trends in Ecology and Evolution*, 30(3), 2015, pp. 137-138.

market edge over game reserves without the Big 5, the following nature conservation objective for DGR was proposed and accepted:

To maintain and enhance the “pristine African” appearance of the landscape and the biodiversity in all its forms by, inter alia, conserving the existing indigenous species, reintroducing and sustainably managing all the large wild herbivore and predator species that occurred historically in the area, and reducing/removing man-made visual impairments and other forms of pollution of the landscape, including alien plants.¹¹⁴

To sustain the interest of the emerging tourist industry and reduce regional poverty, tourists needed to experience exceptional game viewing and nature-related activities, complemented by appropriate safari-style accommodation. In DGR, meeting this need has required careful planning to avoid negative impacts on conservation objectives, such as restricting development in environmentally sensitive areas. In this regard, tourist numbers have had to be controlled, as has the development of infrastructure for the supply of electricity and water, so as not to diminish the landscape.¹¹⁵

This chapter has critiqued the conservation and economic development in DGR through the lens of boundary studies and environmental history. Before drawing it to a close, it is worth considering Grobler’s views on the “economic development first and conservation second concept” stressed in the game reserve’s founding documents. As a staff member intimately involved with DGR’s development, Grobler was well placed to comment on this concept. He argued that economic development and conservation were inextricably linked and that neither one is preferable to the other. The DGR’s founding documents themselves reflect the difficulty of separating the two. The Preamble of the DGR’s EMP emphasised that the socio-economic objective of the reserve was primary, which justified the release of resources for the project such as budgets and staff. The GPG’s emphasis on the socio-economic primacy of the Dinokeng Project is illustrated throughout this thesis. For example, if one scrutinises the Executive Summary in the Environmental Management Framework Report of 2010, which marks approximately the mid-point between the

¹¹⁴ RSA, GPG, GDACEL, R. Collinson, *et al.*, “Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework”, 2001/12, p. 5.

¹¹⁵ RSA, GPG, GDACEL, R. Collinson, *et al.*, “Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework”, 2001/12, p. 6.

original idea of a game reserve in Northeastern Gauteng, and where it is today in 2024, the idea of “socio-economic upliftment first” still prevails:¹¹⁶

The Dinokeng Project aims to create a self-sustaining local tourism economy in the north-eastern reaches of the Gauteng Province. Core to the project is the establishment of a Big-5 collaborative game reserve, with a mix of land uses in the surrounding area ranging from high density urban development to diverse tourism establishments.

In support of this objective, this Environmental Management Framework is compiled, to ensure that the development patterns take cognisance of and do not compromise the long term (sic) viability of the natural and social resources of the area. In essence, it defines a spatial development structure that can be supported by the natural resource base and which most closely matches the social and developmental desires of the local communities. The environmental management framework consists of an analysis of both the current and desired states of the biophysical and socio-economic environments, and a spatial interpretation of management actions that are required to reach the desired state of environment in the Dinokeng Area.

The quoted message above is clear that the natural resource base (wildlife) is there to support the spatial development structure. Grobler’s observation was that the founding documents showed two objectives, socio-economic development and conservation, which he believed were interlinked and integrated at the same level. While the GPG focused on the socio-economic objective, Grobler, as an ecologist, saw biodiversity conservation, landscape management, and environmental impact management as essential for the project’s existence. He acknowledged, however, that as a value judgement, it was a good thing to emphasise the importance of the socio-economic imperative, without which, the DGR project would have failed. He emphasised the importance of DGR’s tourism product, which included ingredients such as biodiversity, habitat, biology, landscape, vegetation, and soil profiles, for its success. Responsible biospheric stewardship was crucial for DGR’s role-players to attract paying customers. Without income from tourists, the project would be unsustainable and there would be no community benefits.¹¹⁷ The advantages of biospheric stewardship in relatively small game reserves like DGR is gaining traction in South Africa and internationally.

¹¹⁶ RSA, GPG, DED, “Environmental Management Framework and Environmental Management Plan for the Dinokeng Project Area, Final EMF Report”, Bohlweki-SSI Engineers and Environmental Consultants (trading as Bohlweki-SSI Environmental), March 2010, p. 1.

¹¹⁷ LSPC, SOA9, N. Grobler, 2021-06-07.

Biodiversity stewardship began in South Africa in 2003 and within 10 years, all nine provinces had various biodiversity stewardship programmes in place. By October 2014, 450 000 ha of land was secured through the creation of 74 protected areas. In addition to this, a further 550 000 ha, potentially creating another 145 protected areas with long-term security, were being negotiated. Until the DGR is granted PAS, as applied for by the DGR Management Association (DGRMA), it can best be described as a form of conservancy that carries out stewardship of the land outside of “statutory” recognition with the goal of the socio-economic upliftment of DGR.

Van Blerk described the 2023 DGR status as follows: “Until DGR is entered into the Protected Areas and Conservation Areas (PACA) national database of the DFFE [Department of Forestry, Fisheries and the Environment] and listed in the Protected Areas Register (PAR) of the department, its status will remain informal/non-statutory”. For the DFFE, he pointed out, it is important that an area like DGR receive some sort of statutory conservation status as the DFFE needs to meet “... Aichi Target 11 of the International Convention on Biological Diversity to which the RSA is signatory”. If a level of biodiversity stewardship were granted as an interim measure, it would assist landowners in gaining “... access to fiscal incentives for biodiversity conservation under tax law”.¹¹⁸ How one finances protected areas has been a topic of discussion for many years.

Protected area institutions can utilise funding from the National Treasury, income from the protected areas, private voluntary donations, and implement biodiversity stewardship through contractual agreements. To enhance the effectiveness of biodiversity stewardship, incentives include support for landowners and communities, government revenue, technical and professional advice, management assistance, partnerships in nature-based commercial ventures, marketing resources, and public recognition.¹¹⁹ These incentives have been an important focus of DGR’s expansion efforts over the years as the DGR Management Association looks at ways to expand what is currently a relatively small game reserve.

US-based Thomas Lovejoy, whose research involves Environmental Science and Policy, suggested that to protect landscapes, it was time to change the scale of the global environment goal of biospheric stewardship to more localised areas. These areas, he maintained, “... need not necessarily be wild ecosystems devoid of people but could include ones thinly populated with people whose values are congruent with maintaining wild places and their biodiversity”. It was

¹¹⁸ LSPC, WhatsApp correspondence, Lt Col E. Van Blerk, South African Air Force (SAAF), Military Environmental Management Practitioner for the SANDF/L. Shee, 2023/05/21.

¹¹⁹ RSA, Balfour, *et al.*, Department of Environmental Affairs, “National Protected Areas Expansion Strategy for South Africa”, 2018, p. 52.

time he said, "... to flip our view from one in which nature's place is in isolated protected areas set in human dominated landscapes, to one in which human aspiration is embedded in nature".¹²⁰

One could argue that DGR, a relatively small game reserve with a relatively high population, fits Lovejoy's description, and has much to offer by way of both socio-economic development and conservation working in tandem. Lovejoy believes much is possible by way of restoring vegetation types, improving water quality, conserving soil, while simultaneously providing "... connections between isolated habitats". He suggested that in restoring landscapes, part of the solution is to "... draw lightly on the natural resources of surrounding natural habitats" without isolating people from nature's wonders.¹²¹ While waxing poetically, Lovejoy acknowledged that the rehabilitation of landscapes is not easy. In DGR's case conservation and the rehabilitation of the land is inextricably linked with socio-economic development based on ecotourism.

South Africa is a key destination for foreign and national tourists, which makes it necessary to maintain essential ecosystem services for the well-being and enjoyment of future generations. Game reserves such as DGR are a mainspring for local economic development, and provide tangible and intangible benefits to local communities, particularly as this is an objective of the game reserve's development. What Balfour *et al.* said about protected areas is equally applicable to game reserves like DGR which carry out biodiversity stewardship while not yet having PAS. They recommended that in designing and managing protected areas, there should be sensitivity to proximate communities, with protected areas seen, not as isolated islands, but as part of the socio-economic and ecological environment. They argued that in many rural areas, ecotourism based on protecting ecosystems can "... provide a more viable option for economic development and livelihoods than agriculture, even though agriculture is currently often the main focus for rural socioeconomic development".¹²² In the potential DGR expansion area there are land claimants who have become legitimate landowners through land reform prior to DGR's opening in 2011. The Ga-Mashung Matlala community members, for example, have an opportunity to become landowner communities who, by joining DGR, could benefit from ownership and control of ecotourism ventures based on ecotourism models of their own design.

While much research is still to be done, Balfour *et al.* have suggested there is enough evidence to show that particularly in marginal agricultural areas, products based on conservation such as ecotourism in private reserves and game farming, may be more profitable than commercial

¹²⁰ T.E. Lovejoy, "Conservation Biology: The Importance of Wilderness", *Current Biology* 26, 2016-12-05, p. R1237, accessed 2021-04-14.

¹²¹ T.E. Lovejoy, "Conservation Biology: The Importance of Wilderness", *Current Biology* 26, 2016-12-05, p. R1237, accessed 2021-04-14.

¹²² RSA, Balfour, *et al.*, DEA, "National Protected Areas Expansion Strategy for South Africa", 2018, p. 7.

agricultural activities such as stock farming.¹²³ There are, then, many opportunities for creating business models for conservation and ecotourism resulting from DGR's development. The Government can rightly be criticised for moving too slowly on decisions, particularly regarding expansion. Nevertheless, in conjunction with other role-players, it has opened many opportunities for local communities to take initiatives to create their own commercial products based on conservation and ecotourism.

2.10 Concluding comments

In this chapter an attempt was made to justify a historical narrative of Dinokeng Game Reserve (DGR) within the purview of both boundary studies and environmental history. What this researcher has termed "paper boundaries" were those potential phases identified in 2001 in the Dinokeng Integrated Tourism Development Framework Volume B. The phases were superimposed on a later 2012 map for illustrative purposes (see Chapter Six). These phases were to prove non-starters, and the Gauteng Provincial Government moved its attention in a westerly direction to include predominantly smaller landowners who saw advantages to lowering their fences to join the DGR. The then new focus in the west became known as the Phase 1, Start-up, and aligned predominantly with where the game reserve is situated today. This shifting of boundaries, from what was intended to what actually happened on the ground, was shown to be not an unusual phenomenon and possibly a healthy sign of a developing game reserve. Indeed, Jones suggested that the bounding process was inchoate. Expansion of DGR's boundaries remains critical to the reserve's success; however, expansion has proven to be difficult considering the complicated mix of landowners. The mix alluded to in this chapter included references to the Ga-Mashung Matlala Community of the Rust de Winter area, the state, and private landowners. This mix has been defined formally in the Comprehensive Environmental Management Plan and Specific Species Management Plans for DGR as follows:¹²⁴

The ownership arrangement of the DGR is complicated by multiple land owners (176) which comprises of the provincial government led by the Gauteng Department of Economic Development (DED). Other parcels of land are owned by the national Department of Public Works, and the Department of Defence which are not all included in the Landowners agreement. There are multiple private landowners with multiple land uses within the game reserve. With this complicated land ownership arrangement, under the Land Owners Association (LOA), the Dinokeng Game Reserve Management

¹²³ RSA, Balfour, *et al.*, DEA, "National Protected Areas Expansion Strategy for South Africa", 2018, p. 7.

¹²⁴ RSA, GPG, GDED, Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve, March 2018, p. xlii.

Authority (DGRMA) has been established as a management authority to manage the day to day operations of the DGR.

Expansion of DGR across provincial borders has been achieved in Limpopo; however, expansion into Mpumalanga remains elusive. Although little documentary evidence of inter-provincial dialogue has been found, memoranda of understanding between the provinces suggests at least some constructive cooperation, which is ongoing. Several potential areas for expansion have been considered including the Rust de Winter Game Reserve and Dam, an area now back in the hands of the Ga-Mashung Matlala community after their successful land claim process. Also identified were large swathes of military land south of the current game reserve.

Whereas responses from a number of community members to the DGR boundary fences appeared benign, this chapter documents several attempts to invade the reserve. More will be said of community responses to the DGR's presence in Chapter Eight.

It was suggested, in this chapter, that although a formal application for DGR's accreditation as a protected area was submitted only in 2023, it has been operating as an agent of conservation in a stewardship capacity since 2011. It has also been noted that the DGR's boundaries remain fluid in a reserve undergoing some internal discord between landowners in the north and those in the south of the reserve. Currently, the most plausible area into which to expand the reserve, in the short term, is the military land, Wallmannsthal, south of the game reserve. The wheels of government, however, move slowly, as if there is lack of awareness of the country's urgent need to reach its conservation goals.

Regarding the value of environmental history to DGR's development, an important theme discussed was that of the relationships between humans and surrounding nature. This theme runs as a thread throughout this thesis; however, these relationships are reflected upon in more detail in Chapter Eight, largely regarding knowledge resources on human wildlife management. Although approaches to wildlife management and conservation, and to managing boundaries may be complicated, these should not be seen as subjects to be avoided. On the contrary, Cronon suggested that complexities are important for historians, and narratives should reflect these in such a way that we do not become reliant on textbook histories.

In the next chapter, Chapter Three, the options for best land use in Northeastern Gauteng, a fragmented area much changed by hunting and later agriculture since the 19th century, are considered. This discussion on best land use rests on relevant contextual information provided in Chapters One and Two of this thesis.

CHAPTER THREE

CHANGING LAND USE, AND THE TRANSFORMATION AND RESTORATION OF DINOKENG GAME RESERVE THROUGH ECOTOURISM

3.1 Introduction

Much of the focus of the previous two chapters has been on the value of boundary studies and environmental history in understanding the developmental history of Dinokeng Game Reserve (DGR). The shape and size of the reserve's boundaries have been entirely dependent on land made available by willing parties that have seen a value to contributing their land to the DGR Project. The reasons could be many: an altruistic act to benefit local communities by way of employment, a genuine desire to conserve and rehabilitate land, a need to benefit financially through ecotourism, or even security reasons in a country where rural landowners are particularly vulnerable to crime. While not a key focus area of this thesis, or this chapter, a greater understanding of rural crime in South Africa can be gained by the objective research of, for example, Clack and Minnaar. Their work attempts to put the emotional topic of farm attacks into a less politicised framework without denying the seriousness of these attacks.¹ The presence of electric fences, boom gates, and continual anti-poaching patrols in DGR have offered the reserve's residents at least a sense of being protected.

In this chapter, attention turns to the role ecotourism has played in the area's changing land use. As indicated in Chapter One, the Dinokeng area could be described as largely agricultural during the 20th century. However, transformation in the area's land use came about in the late 1990s with the advent of ecotourism, which became the main mechanism of the Gauteng Provincial Government (GPG) in its attempt to improve the poor socio-economic circumstances in the study area. This begs the primary questions of what ecotourism is and what it hopes to achieve both within the boundaries of DGR and in the proximate communities. While the effects of the reserve's presence on local communities is discussed in Chapter Eight, this chapter traces the history of the transformation from agricultural land to the rewilding of the area for purposes of ecotourism.

3.1.1 The global nature of ecotourism

Sowards and Banerjee have suggested that while ecotourism can refer to a range of tourist activities that include elements of the "natural world", it frequently applies to "... developing or Global South countries, where local or indigenous people host tourists as a way to earn income

¹ W. Clack & A. Minnaar, "Rural Crime in South Africa: An Exploratory Review of 'Farm Attacks' and Stocktheft as the Primary Crimes in Rural Areas", *Acta Criminologica: Southern African Journal of Criminology*, 31(1), 2018, pp. 103-135.

and tourists enjoy cultural experiences in the 'Great Outdoors'.² Linked with assisting indigenous people by way of providing economic opportunities, it must also include the protection of natural habitats. While Sowards and Banerjee recognised that ecotourism potentially brings economic benefits, it is not without its flaws. They cite, for example, "Revenue leakage (in which income goes to outside providers, guides, or services instead of local people), waste disposal problems, plastics and sewage issues, cultural misunderstandings, inappropriate wildlife interactions, increased human impact on soil, forests, and waterways, and lack of tourist preparation for cultural and natural world engagement" as some of the drawbacks that might face communities involved in ecotourism.³ As with the many definitions of borders, boundaries, and environmental history, ecotourism, too, is hard to pin down with precision.

Xu, *et al.*, who point to the late 1980s as the period in which ecotourism began to appear in academic literature, say of ecotourism that it "... is a special form of nature-based tourism that maintains the well-being of the local community while protecting the environment and provides tourists with a satisfying nature experience and enjoyment".⁴ Great advances in the research and development of ecotourism have taken place since the 1980s, and Xu *et al.* have pointed to the need to explore both ecotourism and the use of research methods from a diverse range of disciplines to direct the formulation of ecotourism policy.

One of the first problems they suggested that needs solving is that of evaluating and quantifying ecotourism "reasonably and scientifically". Here they entertained a specialised and technical approach to quantification which is beyond the scope of this thesis. In short, they suggested a variety of sophisticated technological and specialist research options for establishing "... the economic value of ecotourism, especially non-market value". For example, they mention the use of spatial econometrics and geographic information system (GIS) as "spatial scale analysis methods" to establish the sustainable development of ecotourism. They mention, among other powerful programming techniques, the use of artificial neural networks (ANN) and linear discriminant analysis (LDA) as being increasingly used. These examples indicate the extent to which technology plays a role in measuring ecological footprints and establishing sustainability. They add that "R" as a powerful software and open source is used by ecotourism researchers for

² S.K. Sowards & P. Banerjee, "Ecotourism as Leisure and Labour in the Experiences of the 'Great Outdoors'", *Frontiers in Communication*, Article No 736762, 2021-12-15, p. 1, [doi:10.3389/fcomm.2021.736762](https://doi.org/10.3389/fcomm.2021.736762).

³ S.K. Sowards & P. Banerjee, "Ecotourism as Leisure and Labour ...", *Frontiers in Communication*, Article No 736762, 2021-12-15, p. 1.

⁴ L. Xu, C. Ao, B. Liu & Z. Cai, "Ecotourism and Sustainable Development: A Scientometric Review of Global Research Trends", *Environment, Development and Sustainability*, 25, 2023, p. 2978, doi.org/10.1007/s10668-022-02190-0.

“... statistical analysis, data mining, data processing and mapping of ecotourism research”.⁵ Ecotourism research has clearly become an area of study dependant on highly sophisticated technological tools to harvest information.

The purpose of referring to the technical side of ecotourism research conducted by Xu *et al.* is to illustrate that, together with the various definitions of and approaches to ecotourism research, the discipline requires some kind of organised body as it increasingly expands and becomes more complex. One such society is that of The International Ecotourism Society (TIES):⁶

The International Ecotourism Society (TIES) is a nonprofit organization dedicated to promoting ecotourism. Founded in 1990, TIES has been on the forefront of the development of ecotourism, providing guidelines and standards, training, technical assistance, and educational resources. TIES’ global network of ecotourism professionals and travelers [sic] is leading the efforts to make tourism a viable tool for conservation, protection of bio-cultural diversity, and sustainable community development.

While global organisations such as TIES play watchdog, as well as organisational, standardisation, and educative roles on behalf of ecotourism as a discipline, the role of individual ecotourism researchers remains essential for the enhancement of the discipline. Taking the work of Fennell and Weaver, for example, one can discern their determination to keep ecotourism professional and responsible. In 1995, worried about a crisis of credibility in the ecotourism industry, they thought about ways of overcoming two trends that they believed were compromising ecotourism at the time. One trend was that many ecotourism products failed to meet the accepted professional criteria of ecotourism, yet they were being marketed as if they were compliant. The other trend was that many legitimate ecotourism products adhered “... to a weak or minimalist model that impedes or possibly even works against the potential of this sector to serve as a vehicle for environmental, sociocultural and economic sustainability”. The solution, they decided, lay in “ecotouriums”, essentially public and private protected areas that together would “... foster a holistic and integrated model of ecotourism that enables biodiversity conservation, education and research, partnerships, and community development”.⁷ If this was their gold standard, then a claim can be made that from its embryonic stages to its inception, the development of DGR has followed such an integrated “ecotourium” model. In this regard, DGR has a conservation focus, facilitates research projects (as discussed in Chapter Seven), is a public-private partnership, has

⁵ L. Xu, *et al.*, “Ecotourism and Sustainable Development: ...”, *Environment, Development and Sustainability*, 25, 2023, p. 2997.

⁶ The International Ecotourism Society (TIES), <https://ecotourism.org/programs/>, accessed 2024-01-21.

⁷ D. Fennell & D. Weaver, “The Ecotourium Concept and Tourism-Conservation Symbiosis”, *Journal of Sustainable Tourism*, 13(4), 2005-04-13, pp. 373-390.

an associated community trust, and a pending application submitted to the GPG for protected area status.

According to Sowards and Banerjee, many stakeholders using the term ecotourism for their own purposes are not fully aware of its professional requirements and might, for example, see it as “... a social net that will alleviate poverty without understanding that ecotourism is first and foremost a business that follows commercial objectives”.⁸ They might also not be fully aware of the impact ecotourism might have on the welfare of local communities. In their contribution to the professionalisation of the discipline, Fennell and Weaver identified three characteristics of responsible ecotourism. Firstly, its attractions must be nature-based; secondly, it should promote learning opportunities through interpretive products and interactions with the natural environment; and finally, ecotourism should be monitored and managed in a way that ensures sustainability using appropriate benchmarks.⁹ These characteristics are not unlike the ecotourism principles laid down by TIES.

Those involved in ecotourism activities should, according to TIES:¹⁰

Minimize physical, social, behavioral, and psychological impacts.

Build environmental and cultural awareness and respect.

Provide positive experiences for both visitors and hosts.

Provide direct financial benefits for conservation.

Generate financial benefits for both local people and private industry.

Deliver memorable interpretative experiences to visitors that help raise sensitivity to host countries' political, environmental, and social climates.

Design, construct and operate low-impact facilities.

Recognize the rights and spiritual beliefs of the Indigenous People in your community and work in partnership with them to create empowerment.

These general principles are now familiar to academic researchers of ecotourism. For example, if one considers the research done on ecotourism in Southern Africa by Chiutsi *et al.*, it is evident they have drawn from the work of Fennell, Weaver, and other global researchers. Chiutsi *et al.* have said of ecotourism that it is nature-based, and it is seen as ensuring environmental conservation while also “... enabling economic benefits to accrue to the local communities”. They

⁸ S.K. Sowards & P. Banerjee, “Ecotourism as Leisure and Labour ...”, *Frontiers in Communication*, Article No 736762, 2021-12-15, p. 10.

⁹ D. Fennell & D. Weaver, “The Ecotourism Concept ...”, *Journal of Sustainable Tourism*, 13(4), 2005-04-13, pp. 374-375.

¹⁰ The International Ecotourism Society (TIES), <https://ecotourism.org/programs/>, accessed 2024-01-21.

too, reiterate that ecotourism should be managed in accordance with industry best practice and should promote learning experiences. Further, they are of the view "... that ecotourism is a form of tourism which minimizes negative impacts, contributes to conservation, directs economic benefits to local people and further provides opportunities for local people to enjoy natural areas".¹¹ In their literature search, Chiutsi *et al.* confirmed that the sustainability criteria of ecotourism include economic, sociocultural, and ecological facets. They suggested that ecotourism is only sustainable if local communities benefited financially through the tourism projects, if the operations were right-sized, if tourist satisfaction was high, and if operated as a business enterprise.¹² The findings of their research stemming from studies on the Mahenye ecotourism venture in Zimbabwe's Chipinge District and the Makuleke ecotourism initiative in South Africa, which took place on restituted land, offer valuable indications of both the successes and challenges of ecotourism projects in Southern Africa. Their research is also important in alerting developers of similar ecotourism projects to the challenges of such ventures within a Southern African context. As some consideration is given to the nature of the Makuleke model in Chapter Six of this thesis, attention will now focus only on the lessons of the Mahenye ecotourism model as provided by Chiutsi *et al.* in their first case study.

In their Mahenye case study that focused on a joint venture between the local Shangaan people and African Sun Limited (formerly Zimsun Limited), Chiutsi *et al.* identified both successes and potential threats of the ecotourism project. One such threat was related to the fact that the Shangaan/Tsonga people, whose land is situated on an island at the junction of the Sabi and Runde confluence in eastern Zimbabwe, experienced forced removals in the 1960s to make way for the development of Gonarezhou National Park, and the consequent disruption to their lives led to an increase in poaching for their survival. Regarding successes, through the joint ventures mentioned, the lodges in Gonarezhou National Park and the Great Limpopo Transfrontier Park now offer ecotourism activities such as bird photography, fishing, and boat cruises – Mahenye being particularly blessed with a beautiful riverine ecosystem. The local people are heavily involved in cultural tourism, serving as tour guides for village tours, and the lodges provide access to the park. By 2011, benefits since the start of the joint venture included "... training and employment opportunities for local people in tour guiding, service arena and cultural tours". These training and employment opportunities were dominated by men, a gender disparity that put the project at a sustainability risk. In addition to employment opportunities, the agreement with Zimsun

¹¹ S. Chiutsi, M. Mukoroverwa, P. Karigambe & B.K. Mudzengi, "The Theory and Practice of Ecotourism in Southern Africa", *Journal of Hospitality Management and Tourism*, 2(2), 2011, p. 15, https://www.researchgate.net/publication/228511170_The_theory_and_practice_of_ecotourism_in_Southern_Africa, accessed 2024-01-20.

¹² S. Chiutsi, *et al.*, "The Theory and Practice of Ecotourism in Southern Africa", *Journal of Hospitality Management and Tourism*, 2(2), 2011, pp. 16-17.

Limited brought several infrastructural improvements including tarred roads, piped water, and electricity supply. The Mahenye community also prospered from "... significant sums from lease payments by Zimsun Limited thereby providing direct economic benefits to the local people". Overall, Chiutsi *et al.* pronounced the Mahenye initiative as initially a positive one regarding "... promoting development in an economically marginalized communal area, encouraging sustainable use of natural resources and enhancing the control of local people over development in the surrounding areas".¹³ However, over time, serious challenges arose.

The Mahenye ecotourism initiative was severely disrupted by macro-economic challenges, sanctions, and the collapse of Zimbabwe's tourist industry. Zimsun Limited, now African Sun Limited, withdrew from the joint venture due to viability concerns, resulting in the degeneration of the conservation project. The economic benefits to local communities deteriorated, and the local failure of leadership and withdrawal of conservation agencies contributed to the poor performance of the venture. This case study by Chiutsi *et al.* has highlighted the importance of technical support, business marketing, and promotion assistance from established tourism enterprises for the economic viability and sustainability of ecotourism ventures. Local participatory decision-making institutions were identified as fragile and requiring continuous external support and capacity development. The Chiutsi *et al.* study also accentuated the importance of the Western market in sustaining the ecotourism industry, as Zimbabwe's tourism woes are closely linked to the anti-Western stance taken by Zimbabwe's political leadership, which has led to the broader international market boycotting Zimbabwe as a tourist destination.¹⁴

Following their studies on both Mahenye and Makuleke ecotourism initiatives the authors concluded that such ventures, if managed correctly, may provide a sustainable method to earn an income by conserving and protecting the resources that they own. They emphasised the importance of maintaining national and regional political stability while nurturing relations with eco-tourists from the West. Concerning the definition of ecotourism, they contended "... that the concept of ecotourism development will hover at the rhetoric, unless the multiplicity of stakeholders involved in the tourism matrix are agreeable on the boundaries of what constitutes ecotourism and what does not". They concluded by identifying the main benefit of ecotourism to Southern Africa as being its potential for attracting capital needed for local and national economic development in a way that provided "tangible benefits" to local populations without "... exceeding

¹³ S. Chiutsi, *et al.*, "The Theory and Practice of Ecotourism in Southern Africa", *Journal of Hospitality Management and Tourism*, 2(2), 2011, p. 18.

¹⁴ S. Chiutsi, *et al.*, "The Theory and Practice of Ecotourism in Southern Africa", *Journal of Hospitality Management and Tourism*, 2(2), 2011, p. 18.

ecological and cultural carrying capacities”.¹⁵ With this in mind, future expansion that would include African landowners is very much desired by the Dinokeng Game Reserve Management Association (DGRMA) and the Landowners Association (LOA) which is evidenced by their ongoing conversations with the ga Mashung Matlala community’s representatives. Understandably, for communities more used to cattle farming than to ecotourism models, their approach so far has been to take time to consider whether the benefits of joining DGR outweigh those of their current agricultural pursuits and way of life.

3.1.2 The local nature of ecotourism and proposal of the DGR

Dinokeng Game Reserve management embarked on an ecotourism project centred around conservation as a GPG strategic initiative project involving more than 170 landowners. Together they embarked on this ecotourism project to help uplift rural communities through sustainable employment. The management group realised that developing a new ecotourism model meant being in unknown terrain. Although enthusiastic, they claimed to be realistic in their endeavours, and understood that there might be setbacks and on occasion, wrong decisions made¹⁶. Where did the DGR brand of ecotourism originate and how did its development require a change in land use in the study area? Answers to these questions are provided in this chapter as the history of DGR’s unique ecotourism model based on wildlife conservation is unfolded.

Intrinsic to the DGR model were the findings on best land use practice of the 1996 Swart and 1998 International Union for the Conservation of Nature (IUCN) reports, in which examples are given of both past and current land uses in DGR. These reports were commissioned in response to a proposal in 1995 by the then premier of Gauteng, Tokyo Sexwale, to establish a Big 5 game reserve in the rural north-east of Gauteng. Sexwale’s proposal rested on the post-apartheid Government’s decision, very soon after the political succession of 1994, that in line with international ecotourism trends, tourism would be a chief vehicle for inclusive economic upliftment.¹⁷

To establish the viability of Sexwale’s proposal, several wide-reaching professionally commissioned feasibility and planning studies ensued. The IUCN feasibility study, completed in 1998, showed that the proposal was viable, and the potential existed to develop a Big 5 game reserve. The project, based on the findings of this feasibility study, was brought into Gauteng’s

¹⁵ S. Chiutsi, *et al.*, “The Theory and Practice of Ecotourism in Southern Africa”, *Journal of Hospitality Management and Tourism*, 2(2), 2011, pp. 20-21.

¹⁶ Dinokeng Game Reserve, “About us”, <https://www.dinokengreserve.co.za/about-us/>, accessed 2024-01-22.

¹⁷ Dinokeng Game Reserve, “Dinokeng Game Reserve Celebrates Twelve Years”, <https://www.dinokengreserve.co.za/dinokeng-game-reserve-celebrates-12-years/>, accessed 2024-01-22.

Strategic Economic Infrastructure Investment Programme, which was later re-branded as Blue IQ. The line function management of what became known as the Dinokeng Project was placed with the Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL).¹⁸

The IUCN feasibility study concluded that the most appropriate land use model to achieve the Government's goals would be a mix of conservation and economic upliftment based on job creation through wildlife tourism, in other words, ecotourism. Various studies established that a transition from livestock and arable farming to wildlife ecotourism was the best way to benefit from land use in a farming area that, without irrigation, could best be described as marginal. The proposed way forward was eventually encompassed in the Integrated Development Framework (IDF) for land use in Dinokeng, the salient points of which are outlined in Section 3.4.2 of this chapter.

Swart, a GPG landscape architect, highlighted South Africa's conservation responsibilities, stating that a reserve, such as the proposed DGR, had to adhere to relevant legislation and to the Convention on Biodiversity, which committed countries to develop national strategies for sustainable biodiversity use. However, only 1.1% of the Gauteng Province was under formal conservation land use at the time, well below the globally recommended 10%, indicating that South Africa had a long way to go to achieve its conservation responsibilities. This conservation land use shortfall persists today, considering decisions taken at the 2022 conference of the parties to the Convention on Biological Diversity's 15th meeting (in Montreal, Canada) as South Africa's 30% conservation obligation is now much greater than the 10% requirement at the time of Swart's report in the 1990s.

One needs to look at only one of the 23 action-oriented global targets for urgent action, immediate implementation, and completion by 2030, to realise how far South Africa must go to meet its obligations. This raises the question as to why the upper echelons of the South African Government do not take the expansion of conservation areas more seriously and move with greater haste and urgency, including with the expansion of the DGR. Target 3 of the Kunming-Montreal Global Biodiversity 2022 Framework illustrates the extent of South Africa's challenges when considering the elevated target levels:

¹⁸ Republic of South Africa (RSA), Gauteng Provincial Government (GPG), Blue IQ, "Dinokeng All of Africa in One Day", Dinokeng briefing document, n.d., likely 2004, p. 1.

Target 3

Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.¹⁹

Expansion of DGR would contribute towards South Africa's meeting of the latest Global Biodiversity Framework's Target 3. Viable expansion possibilities exist, particularly into military land and island properties. These options are considered in more detail later in this chapter. Another potential area for expansion was, and remains, the broad Rust de Winter (RdeW) area east of DGR. This area, which includes the RdeW Dam and Nature Reserve, and the RdeW Farms, is discussed fully in Chapter Four as one of the original potential areas considered for inclusion in a large game-reserve type conservation initiative. Two other areas considered as early start-ups for a Northeastern Gauteng game reserve, Amakulu and Leeuwfontein, are also major focuses of Chapter Four.

Inevitably, expansion of conservation areas requires a change in land use that facilitates sustainable conservation outcomes in line with Target 3 recommendations. Throughout Chapter Three, references are made to the role of ecotourism as the best form of land use to change the physical and socio-economic landscape of rural Northeastern Gauteng. The focus of this chapter now shifts to a consideration of the history of ecotourism in Northeastern Gauteng as it relates to the development of DGR, as well as discussion of tourism with an emphasis on international trends in tourism as a land use and driver of development.

¹⁹ Decision adopted by the conference of the parties to the Convention on Biological Diversity, 15/4. Kunming-Montreal Global Biodiversity Framework, Fifteenth meeting – Part II, Montreal, Canada, 7-19 December 2022, Agenda item 9A, UN Convention on Biological Diversity, Target 3, p. 9, <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf>, accessed 2023-08-11.

3.2 The 1996 Swart proposal for Gauteng's Northeastern Conservation Area

3.2.1 A background history to the 1996 Swart Report on land use

In 1996, the Gauteng Department of Agriculture, Conservation and Environment (GDACE) proposed a conservation resource area for Gauteng proximate to Johannesburg and Pretoria. The proposal identified land use as including two regional mines, Vergenoeg Fluorspar Mine near Rust de Winter and Premier Diamond Mine at Cullinan, as well as borrow pits for sand and aggregates. Other land use included agricultural holdings; intensive farming of poultry, beef, and pork; and game farming. The GDACE proposal considered a much larger region than the area within the current DGR boundaries, with a final transboundary form expected to exceed 200 000 ha. The mixed-use land model of DGR is still evident today, with, for example, Mphilo Mill on the southern side, Klipdrift Primary School on the northern side, and stalls selling wood and fresh vegetables all within its boundaries. Small industries, including a brewery, and small businesses also exist within DGR, including the somewhat hyperbolically named "Safari Mall". The latter has a petrol station, restaurant, coffee shop, butchery, general store, and bottle store. Island property owners operate their own businesses while "ring fencing" themselves out of the game reserve. Mention has been made of important military landowners, the South African National Defence Force (SANDF) and the South African National Air Force (SANAF), to the south and north of the study area.

In the mid-1990s, the GPG approached landowners in the Bushveld region to develop a Big 5 game reserve. However, mixed feelings arose among those already engaged in farming or enjoying a relaxed lifestyle on their property. Some saw opportunities to benefit financially through creating "products" in DGR, such as lodges, restaurants, or adventure activities. An SABC investigative programme, presented by Julie Hyde Mew in 1997, recorded initial reactions to the idea.²⁰ Hyde Mew noted that with game lodges and South Africans seeking foreign exchange, the GPG felt the urgent need to tap into the wildlife tourism market. However, Gauteng was not a "favoured tourist destination", meaning tourists tended to move away quickly to more attractive destinations. As a result, the province continued on the path to developing a game reserve in the vast tracts of bushveld in Northeastern Gauteng, despite mixed feelings from landowners and

²⁰ The researcher's copy of the SABC's Focus programme, an important primary source for the period before the reserve was officially labelled Dinokeng Game Reserve, is, unfortunately of poor-resolution. The SABC's Deep Archives were unable to find a record of its production date, although 1997 seems probable. The programme records early prognostications about the future of a NE Gauteng game reserve. The researcher is grateful to Alexandra Roessingh of Kwa Thabisile Lodge for generously providing a video copy of this programme.

government officials. As Hyde Mew commented: "All those lovely tourist dollars and pounds are just not finding their way into Gauteng's coffers".²¹

Both Nomvula Mokonyane, then MEC for Agriculture, Conservation and Environment (1996-1999) in Gauteng; and Steve Fourie, Director of the Gauteng Directorate of Nature Conservation, commented on the proximity of the envisaged reserve to South Africa's most highly urbanised area. The main selling point of the game reserve and the surety of its long-term viability was, in Fourie's opinion, its proximity to such a large major metropolitan area: "Nowhere in the world, I think, will you have a concept like this. They are so close to thousands and millions of people staying in close proximity in a concrete jungle that you can drive a half hour away and be enveloped by nature where the Big 5 is actually accommodated".²²

The post-apartheid Government faced many challenges after assuming its new role in 1994. Considering South Africa's extraordinary tourism assets as a potential solution, Briedenhann and Wickens were among those who wondered how best to deal with runaway unemployment and the underdevelopment of the country's rural communities. They cited the Reconstruction and Development Programme (RDP) as the government's chosen strategy with which to bring about the basic changes needed in the country's development.²³ They did, however, warn that nature reserve ventures risked being overly commended as instruments of socio-economic development because the income generated would need to be spread to make a broader difference. In other words, tourists, while paying their dues, may not necessarily be "... the economic saviour of rural areas".²⁴ In order to ensure the success of tourism, it had to be a part of a wider diversification and not the only economic option.

Rural tourism in South Africa faced challenges due to differing intra-government interests, priorities, and agendas. To ensure success, tourism policies had to integrate with other local economic sectors and involve local communities in decisions. However, a lack of capacity at the local government level and entrepreneurs' lack of capital, expertise, and management are significant constraints to the success of rural tourism projects. To ensure the success of rural tourism, it is crucial to address these issues and ensure the integration of local communities in

²¹ South African Broadcasting Corporation (SABC), "The Big Five for Gauteng", *Focus Features*. <https://www.youtube.com/watch?v=VaYafATicNE&t=1367s>, accessed 2021-09-01.

²² SABC, "The Big Five for Gauteng", *Focus Features*.

²³ J. Briedenhann & E. Wickens, "Rural Tourism – Meeting the Challenges of the New South Africa", *International Journal of Tourism Research*, 6, 2004, p. 190, [doi:10.1002/jtr.484](https://doi.org/10.1002/jtr.484).

²⁴ J. Briedenhann & E. Wickens, "Rural Tourism ...", *International Journal of Tourism Research*, 6, 2004, p. 191.

decision-making processes.²⁵ Unsurprisingly then, by the mid-1990s, ideas were being discussed between GDACE and private landowners regarding a proposed conservation/resource area for Northeastern Gauteng.

Daan Swart, the landscape architect in the Directorate of Nature Conservation as referred to earlier and since retired, was appointed by GDACE to draw up a proposal to create a game reserve as an ecotourism destination, meeting RDP principles. The Swart Report, "Proposed North-Eastern Conservation/Resource Area for Gauteng", was released in June 1996. The area envisaged as a regional growth point for tourism and conservation was to include more than 2 000 landowners, and its proposed transboundary form was expected to exceed 200 000 ha.²⁶ A few months after completion of Swart's report, an invitation was sent to concerned farmers and landowners to attend a "Co-operation Reserve" information session on 3rd August 1996 at Klipdrift Primary School, presented by Swart himself.²⁷ This indicated, at least to a degree, the GPG's attempts to include landowners in each step of the process towards the final goal of creating a reserve. The Swart Report set out to examine ways in which these tracts of bushveld in Northeastern Gauteng could best be utilised. The report was a precursor to the IUCN's feasibility report commissioned by the Gauteng Government in 1998. The latter became a plan for the "North Eastern Gauteng Initiative" (NEGI) which later became known as the Blue IQ Dinokeng Project that employed staff to begin master planning in 2000.²⁸ The original game reserve vision recorded by the Swart Report could best be described as lofty and overly optimistic, and indeed, the final DGR model was modest by comparison with the vast landscape originally envisaged for the game reserve. Although some documents refer to the initial feasibility study for DGR as having been compiled in 1998, it was in fact preceded by what is here referred to, for convenience, as the GPG commissioned Swart Report. In it, Swart took a strong stance on the promotion of "Afrotourism" at a time when tourism and ecotourism were being seen globally as drivers of development.

Concerning this large development project, the report showed evidence of extensive cost analyses, viability studies, comparative studies, and potential employment calculations using case studies, all supporting the conclusion that the project had great prospects. The area considered viable for a game reserve was vast. It extended west to the N1 and south to the Moloto

²⁵ J. Briedenhann & E. Wickens, "Rural Tourism ...", *International Journal of Tourism Research*, 6, 2004, pp. 191-192.

²⁶ RSA, Gauteng Provincial Government (GPG), Laurence Shee Personal Collection (LSPC), Jimmy Brümmer Archive (JBA), Gauteng Department of Agriculture, Conservation and Environment (GDACE), D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, p. 4.

²⁷ LSPC, JBA, Printed copy of an invitation to landowners to a discussion and information session on the proposed Co-operation Reserve, dated 1996-08-03.

²⁸ RSA, Gauteng Provincial Government (GPG), Blue IQ, "Dinokeng All of Africa in One Day", Dinokeng briefing document, n.d., likely 2004, p. 1.

Road, including large areas of the SANDF property, Wallmannsthal. A section south of the Moloto road that included Roodeplaat Dam was also considered. The area extended north to include RdeW Dam, and a swathe of land running northeast into Mpumalanga as far as Mdala and Mkhombo Nature Reserves was also considered.²⁹

Swart's 1996 report suggested that the RDP aimed to improve South Africans' quality of life by stimulating economic growth and redistributing wealth. Tourism could contribute to these needs by providing employment opportunities and housing. The RDP projects aimed to develop nature reserves; democratise communities; train community members as rangers and chefs, for example; and build the economy through environmental awareness, democratisation, and human resources development.³⁰ Swart's 1996 report also highlighted the potential of land use, specifically "Afrotourism", as a sustainable alternative to agriculture in limited agricultural areas.³¹

3.2.2 Emphasis on the need to "Afrotourism"

In the Swart Report, the need for "Afrotourism" as a form of ecotourism and as a drawcard for international visitors was strongly emphasised. It was, he said, the interaction between three integrated components, namely the Afrotourism industry, the natural and cultural environment, and people inhabiting that environment. The reference to it as "a complete African tourism experience", was based on Africa's rich and diverse cultures, scenery, flora, and fauna.³² Recalling the origin of the term, Afrotourism, Swart explained that in the early 1990s he wanted "... a more specific definition of the broad generic concept of ecotourism. The term was then coined and broadly defined as "... tourism set in an African context with a specific emphasis on providing an African tourism experience by focusing on the wildlife (especially the Big 5) as well as local cultural and historical events". "African tourism" was felt to be "cumbersome", so it was abbreviated to Afrotourism as a portmanteau word.³³

In the report, the proposed game reserve area was described as having a moderate climate with a mean annual rainfall of 750 mm. Its geology was documented as having several underlying formations namely: granite in the northern and eastern parts, volcanic rock (predominantly lava) underlying a large part of the study area, as well as sandstone, siltstone, mudstone, shale, tillite,

²⁹ RSA, GPG, LSPC, JBA, Gauteng Conservation map: Existing land use in Northeastern Gauteng, Gauteng Conservation Planning Services, 1996-02-08.

³⁰ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, pp. 15-17.

³¹ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, p. 4.

³² RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, p. 15.

³³ D. Swart, WhatsApp communication/L. Shee, 2024-03-07.

and sandstone and conglomerate. The local geology was noted to have resulted in limited soil development with limited agricultural potential, other than in the far northern parts of the study area. The general flora of the study area was listed as mixed bushveld and sourish mixed bushveld, with intrusions of Kalahari thornveld in the north-east. The proposed area already had a large variety of mammals including leopard, jackal, and antelope.³⁴ Planning then began on how best to develop this landscape for ecotourism.

Swart assessed accommodation options for a game reserve, estimating income from entrance fees, day visitors, environmental education, game sales, wedding catering, and conference facilities.³⁵ The emphasis on Afrotourism led eventually to the DGR advertising slogan of “Africa in one day” as found on numerous advertising brochures and pamphlets marketing Dinokeng a decade later. One undated Blue IQ pamphlet included the following slogans: “Dinokeng, Africa in one day”, “... the warm big-sky country”; and “Turn weekends into holidays”.³⁶

³⁴ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, “Proposed North-Eastern Conservation/Resource Area for Gauteng”, June 1996, pp. 8-10.

³⁵ These financial analyses, involving predicted calculations, may be read in detail in the Swart Report, pp. 18-29.

³⁶ LSPC, Gauteng Provincial Government (GPG), Blue IQ, Tourism Pamphlet, n.d.



Figure 3-1: *Dinokeng Big Five Guide and Map, 2007/2008, promoting the “Africa in one day” concept. Permission granted to use DGR maps by the DGRMA, on 2023-08-01.*

These preliminary investigations and discussions at the time were conducted under the auspices of the NEGI prior to the transfer of the project to the responsibility of Blue IQ. Figure 3-1 illustrates an example of advertising material for the “Dinokeng Big 5” reserve four years prior to DGR’s official opening in 2011. A number of development stages were recommended by Swart which gave some direction for development over the following few years. However, more structured, formalised planning by the GPG would only begin in 2001.

3.2.3 Possible phases proposed towards conservation for the Dinokeng Game Reserve region

Swart's proposal, while ambitiously recommending an eventual game reserve more than 200 000 ha in size, recognised that to attract game-viewing tourists, an area of at least 30 000 ha would be needed to accommodate the Big 5 as an initial drawcard. The presence of these species, he argued, would "... significantly enhance the economic viability and probable benefits of the proposed conservation area".³⁷ Swart warned of the dangers of uncontrolled development and the need for different landowners to group their properties and develop tourism facilities on a communal basis. The priority was to establish a game reserve on existing military properties and later to link these through a conservation corridor to land adjacent to RdeW.³⁸ One might be misled by this report to assume that it was merely making suggestions for future development. However, various dates suggest otherwise. The developmental project being recommended in the Swart Report had in fact already started by the end of 1994 with the RdeW pilot project, and, although the Swart Report was dated June 1996, it indicated the inception date of the project was January 1995. Some idea of the extensive discussions becomes apparent if one even briefly traces the phasing of the project.

The first phase, completed by June 1995, identified present and potential landowners and land users to compile an inventory for later determination of the interested and affected parties in the tourism project. The second phase was to establish community links through consultations with established forums such as farmers' unions. It focused on three concurrent levels – RdeW, as part of the pilot project for that area; farmers and local communities in the southern parts; and state-owned land (Public works, SANDF, and SANAF). The expected inception date of this phase was June 1995, but as it involved extensive consultation, its completion could only be expected once the project was fully operational. This phase involved ongoing working groups; and constructive meetings between GDACE and the managers of state land.³⁹ The remaining phases were to come after the publication of the Swart report. Documenting of these phases then became either vague or the phases were not officially recorded at all. While there were no definitive end dates to the remaining phases, consultations continued between various interested role-players, although not necessarily in line with Swart's proposed phase timelines.

³⁷ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, p. 30.

³⁸ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, pp. 30-31.

³⁹ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, pp. 32-33.

The third phase was to establish a core southern area by December 1997, mainly around the proposed Buffelsdrift area south of Wallmannsthal. Discussions regarding the inclusion of properties into the proposed southern core area were ongoing at the time of the Swart Report. Phase four sought to develop at least one core area in the north and one in the south. Rust de Winter was seen as a separate pilot programme. Another objective was to persuade hesitant landowners that the Dinokeng Project was a viable land use option to boost the region's economy.⁴⁰

Phase five, due to start in December 1997, was intended to extend the established core areas on properties belonging to willing and adjoining landowners. To run concurrently with Phase five, Phase six was to link the core areas by 2001. Phase seven's goal was to extend the proposed conservation as far as possible across provincial borders to create a nationally significant conservation area. This phase was expected to be ongoing, so no completion date was set.⁴¹ By 1998, the IUCN feasibility study succeeded the pioneering Swart report, which, in this researcher's view, had by then served its purpose as a preliminary document upon which new plans could be laid.

While achieving very little in a concrete sense, the Swart Report's value arguably lay in its ideas and proposals upon which later research could be based. It concluded that there was economic value to the conservation and sustainable use of biodiversity in the project area of northeastern Gauteng. Regarding land use for conservation purposes, it argued that broadly speaking, the agricultural prospects were limited by shallow and rocky soils. The Swart Report claimed that where the game reserve idea had been propagated, local communities' support ranged between 70% and 90%. Strong support was also found to come from government departments, including the SANDF and SANAF. Institutional support for a game reserve in line with Swart's recommendations, was evidenced by the Gauteng Cabinet's recommendation that it become a leading provincial RDP project.⁴²

3.2.4 The switch from farming to wildlife tourism

Apart from supporting Afrotourism as a pivotal way forward in DGR's future, the Swart Report had also formally proposed that the benefits of ecotourism development in the study area outweighed those of agricultural development. Basing his observations on soil types and availability of water,

⁴⁰ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, pp. 33-34.

⁴¹ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, pp. 33-34.

⁴² RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, p. 36.

Swart argued that the area had "... fairly low potential for most agricultural activities", except in the extreme northern part earmarked as "... high potential agricultural land". He further maintained that game animals were more suited to the area than cattle. Game animals, he argued, used a wider spectrum of feeding than cattle, so they were able to use the available fodder more effectively than domesticated grazers. In addition, game could survive on the water naturally available, whereas water for domesticated animals would need to be supplied at great cost. Game could also be used for tourism purposes both consumptively, as in traditional trophy, biltong, and bow hunting, and culling; and non-consumptively, based on game viewing.⁴³ However, the suggestion that land use should transition from cattle and other farming to ecotourism, is not to say that cattle farming was never a successful feature of the region.

Ex-Bonsmara stud farmer, Chris J.J. Pieterse, Alcade Bonsmaras, current owner and developer of Chameleon Bush Lodge, a four-star graded lodge in the DGR, enjoyed enormous success with cattle stud farming prior to the expropriation of his land, which was reassigned to the Ga-Mashung Matlala community from Pankop in Mpumalanga. After 32 years in stud farming and having experienced three land expropriations under both the National Party in 1982, and later under the ANC Government, Pieterse was eventually forced to give up cattle farming. At the peak of his stud farming success, he hosted a variety of international guests on his farm who were interested in his work with the Bonsmara breed, including Uganda's President Yoweri Museveni. Pieterse visited Argentina, Brazil, Colombia, Uruguay and Namibia by invitation, as a senior Bonsmara inspector to assist them with their cattle industries. His knowledge of cattle farming gave him a certain standing in the South African cattle business, particularly as Chairperson of the Advisory Committee on Performance Testing to the Agricultural Research Council, Bonsmara SA council member, Vice President of the Society and President of the World Bonsmara Federation. By 2017, 12 years after the second land claim and expropriation of his cattle farms, he lamented that his previously owned land was no longer being farmed productively.⁴⁴ Prior to losing his land to claims, Pieterse had been willing to contribute 500 ha to the proposed Phase 1 of the DGR because, as he said, "... tourism was the new gold rush and located in the Gauteng Province".⁴⁵ Besides cattle and stud farming, there were other active farming ventures in and proximate to what is DGR today.

Crop farming in a low rainfall area without irrigation is inevitably a precarious business. A long-time farmer in the Dinokeng area, Charl Pretorius, confirmed that crop farming was a hit or miss

⁴³ RSA, GPG, LSPC, JBA, GDACE, D.R. Swart, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, pp. 12-13.

⁴⁴ LSPC, SOA22, Chris J.J. Pieterse, Owner of Chameleon Lodge, at Mongena Lodge, DGR/L. Shee, 2017-04-20.

⁴⁵ LSPC, Chris J.J. Pieterse, Email, Owner of Chameleon Lodge/L. Shee, 2024-03-07.

exercise unless one had access to irrigation. Not all farmers were able to irrigate, and those dependent on rainfall alone were increasingly at risk of erratic rainfall, possibly resulting from climate change.⁴⁶

A veteran farmer of the Dinokeng region, Aaron Glasser, described himself as a “marginal crop farmer”. He explained that the unpredictability of rain in the region made crop farming difficult for those without irrigation as one was reliant on the 450 to 500 mm of precipitation a year. In a good year a farmer could receive 600 mm, in a poor one, as little as 350 mm per year. Glasser noted that other than a few large, bona fide commercial farmers, most farmers were not entirely dependent on cattle or crop farming for a living. A number either had additional income from businesses in the city (Pretoria) or were employed in the city. For these, farming was a part-time hobby or an additional source of income. Some of the crops Glasser grew included maize, sunflowers, peanuts, dryland cotton, sorghum, and millet; however, over time, profit margins decreased as running costs increased. Crop farming became increasingly difficult, and farmers had to turn to chicken or pig farming to survive financially.⁴⁷ Under such difficult farming conditions, many landowners began to consider the Gauteng Government's plans to form a collaborative game reserve as an alternative to farming.

Another landowner, Johan Kruger, believed the game reserve could be modelled on something like the Timbavati Private Nature Reserve (53 000 ha) and the Klaserie Private Nature Reserve (60 000 ha) both of which form part of the Greater Kruger National Park. Kruger saw another advantage to joining a collaborative reserve as being a way for an aging cohort of farmers, struggling on marginal farming land, to boost their incomes through wildlife tourism. He realised, however, that the envisaged Gauteng Collaborative Game Reserve, owing to the large number of participant landowners, would be far more complex and difficult to manage than Timbavati and Klaserie, which had fewer landowners involved and less complicated fencing arrangements.⁴⁸

It is generally accepted that game reserves like DGR with their limited space and multiple narrow corridors are more difficult to patrol, manage, and fence than wider, rounded reserves that facilitate the natural movement of game. They may also be aesthetically less pleasing. Nevertheless, where one must make use of limited available land, wildlife may have to coexist with humans at fine spatial scales. Research has shown, for example, that of Carter *et al.* on the coexistence of tigers and humans in Nepal's Chitwan National Park, that “... incorporating fine-

⁴⁶ LSPC, SOA13B, C. Pretorius, Kwalata Lodge owner, at Kwalata Lodge, DGR/L. Shee, 2021-09-19.

⁴⁷ LSPC, Fieldnotes based on a discussion between L. Shee and ex-cattle farmer, Mr A. Glasser, at Buffelsdrift on 21 June 2018.

⁴⁸ SABC, “The Big Five for Gauteng”, *Focus Features*.

scale spatial and temporal activity patterns into conservation plans can help address a major global challenge – meeting human needs while sustaining wildlife”.⁴⁹ DGR’s game reserve architecture, characterised by a relatively dense internal population of permanent landowners is a far cry from, for example, the Pilanesberg model designed by landscape architect, Willem van Riet, and ecologist, Ken Tilley, with its open landscape and accommodation on the outside of the reserve. Another aesthetic advantage to the Pilanesberg National Park over DGR, was that the Pilanesberg with its volcanic crater, ringed with hills, “... hid the plains and human developments beyond from view” making it “... the ideal topography in which to recreate a natural-looking environment”.⁵⁰

The idea of game farming in certain areas being more cost effective than cattle farming was by no means new. In 1994, for example, De La Harpe’s studies of conservancies in the southeastern and southwestern regions of Zimbabwe, showed that multiple uses of wildlife resources, such as hunting and ecotourism, offered higher financial returns than cattle ranching, increased employment, made greater contributions to the economy and regional development, and generated greater foreign currency than did cattle.⁵¹ Results of research conducted by Lindsey *et al.* on the Savé Valley Conservancy in the semi-arid South East Lowveld of Zimbabwe, an area characterised by “... deciduous woodland savanna, low and variable rainfall (474–540 mm per annum) and poor-quality soils” were published in 2008.⁵²

At the time, the model was not fully tested. However, it raised interesting conservation questions concerning options between wildlife production systems and those of agriculture, options that indeed also faced the GPG officials tasked with establishing the best land use in northeastern Gauteng in the mid-1990s. Lindsey *et al.* saw the Savé experimental model as a valuable one for cooperative wildlife management in southern Africa with the potential to assist local community development.⁵³ Among other aspects of conservation, they looked at and responded to the

⁴⁹ N.H. Carter, B.K. Shrestha, J.B. Karki, N.M.B. Pradhan & J. Liu, “Coexistence Between Wildlife and Humans at Fine Spatial Scales”, *Proceedings of the National Academy of Sciences (PNAS)*, 109(38), 2012-09-18, p. 15360, [doi:10.1073/pnas.1210490109](https://doi.org/10.1073/pnas.1210490109).

⁵⁰ J. Carruthers, “Pilanesberg National Park, North West Province, South Africa: Uniting Economic Development with Ecological Design - A History, 1960s to 1984”, *Koedoe*, 53(1), n.p., [doi:10.4102/koedoe.v53i1.1028](https://doi.org/10.4102/koedoe.v53i1.1028).

⁵¹ D.A. De La Harpe, “Wildlife Versus Cattle in Conservancies”, in B.L. Penzhorn (ed.), *The Future Role of Conservancies in Africa?*, Wildlife Monograph No. 1, 1994, pp. 23-30.

⁵² P.A. Lindsey, R. du Toit, A. Pole & S.S. Romañach, “Savé Valley Conservancy: A Large-Scale African Experiment in Cooperative Wildlife Management”, in B. Child, H. Suich and A. Spenceley, *Evolution and Innovation in Wildlife Conservation in Southern Africa*, Chapter 11, (Earthscan, 2008), p. 170, https://www.researchgate.net/publication/257207193_Save_Valley_Conservancy_A_Large-Scale_African_Experiment_in_Cooperative_Wildlife_Management, accessed 2024-03-08.

⁵³ P.A. Lindsey, *et al.*, “Savé Valley Conservancy: ...”, in B. Child, *et al.*, *Evolution and Innovation ...*, Chapter 11, p. 170.

criticisms of conservancies, fault-findings of which might well be applied by critics of the DGR model. The researchers' responses were drawn from a wide range of research data, the authors of which are credited by Lindsey *et al.* in their article.

If one were to consider the range of advantages and disadvantages that conservancies present, one could extrapolate that on balance, they may be of greater value under certain conditions. Critics might cite conservancies as being underused land that could be used for crops or livestock; however, this is not a valid argument in low rainfall areas with poor soils. Additionally, stock farming, often unprofitable, may require subsidies, and if overstocking occurs, ecological degradation will result. Wildlife-based economies depend on hunting and tourism, which can generate higher incomes than marginal stock or crop farming. Livestock production systems cannot cope as effectively with low rainfall and capricious environmental conditions as indigenous ungulates can. Provided that wildlife production systems are professionally overseen, they are more sustainable and have less of an environmental impact than stock farming. Through managing meat supplies from surplus game and hunting, venison as a healthy protein option could be provided at affordable prices. The authors, based on their research sources, argue that the employment opportunities are both more plentiful and of better quality for wildlife production systems than for those of livestock.⁵⁴

Reference has already been made to Chris J.J. Pieterse's close association with the Bonsmara stud industry and to the Pretorius family, who had a long farming association within what is now the DGR. As with Pieterse, the Pretorius family had a close attachment to cattle farming. As early as 1987, Pretorius experimented with bush camps on his farm where visiting students were introduced to bush crafts and the basics of cattle farming such as milking and branding techniques. The family cattle business grew from small beginnings in the 1980s to a more substantial farming concern in the 1990s, all the while farming simultaneously with game, which, as Pretorius recalled, was a common thing for farmers in the area to do in the 1980s.⁵⁵

Gradually, as wildlife tourism began to gain traction, the Pretorius family phased out cattle, and tourism became the dominant focus of the family business. When asked whether he preferred, cattle farming or tourism, Pretorius replied light-heartedly that with the devastating effects that Covid-19 had on the tourist industry between 2020 and 2021, he would have probably said cattle. He then, however, confirmed the extraordinary advantages of living and working in a Big 5 game reserve, adding that if ever he farmed cattle again, it would be elsewhere and not in the Dinokeng

⁵⁴ P.A. Lindsey, *et al.*, "Savé Valley Conservancy: ...", in B. Child, *et al.*, *Evolution and Innovation ...*, Chapter 11, p. 170.

⁵⁵ LSPC, SOA13B, C. Pretorius, 2021-09-19.

area, and he would not wish to replace his tourism business at Kwalata Lodge in DGR. Regarding the emotional side of cattle farming, he added that there is something that “lingers”, making it difficult to separate oneself from the experience of farming with cattle.⁵⁶ The Pretorius family were early supporters of the game reserve concept; however, not everyone was equally confident of the game reserve idea.

Core to the success of the game reserve project was the co-operation of several hundred landowners with farms ranging in size from 20 ha to 3 000 ha and above. These landowners included active farmers relying on their farms for a living who were concerned that a transition from farming to tourism could put them out of pocket. Steve Fourie, Director of Nature Conservation at the time, while not committing to immediate financial rewards for landowners, was able to offer in return for private land, something different from farming, namely ecotourism as “... a natural resource, land use practice which might be able to generate something more than what they are actually doing”.⁵⁷ This “might” approach by government in the mid to late 1990s worried commercial farmers seeking more definite guarantees about their livelihoods and led to their adopting a wait-and-see attitude. As one farmer bluntly stated, “... the question is, how long will it take these guys [Directorate Nature Conservation] to bring the whole reserve into operation and make it work? If Nature Conservation can prove that it will be worth my while to stop operating completely, I would need to see an immediate financial result. And I’m not sure that that financial result can be forthcoming immediately”.⁵⁸

One more well-established farmer in what was then Northern Province (Limpopo today), Meyer Glasser, was equally sceptical: “What guarantee have we got that they are going to make a success of the whole enterprise that they have in mind? There are 2 000 of us in the pudding. Whoever puts this scheme together has to satisfy the aspirations of 2 000 landowners and I just don’t see it working”. His brother, Aaron Glasser, as already mentioned, also a farmer, added “... if the income was there from the game side to compensate for the loss of the cattle farming, then we could certainly look at it more seriously, but right now I can’t see that they can justify that sort of income to me or to us as cattle farmers”.⁵⁹

Rose farmer, Peter Pentz, believed a game reserve project could only work if the management was of a high standard, and as of 1997, he said no one really knew who was going to manage it. Pentz expressed his enthusiasm for the project, stating, however, that if he were to participate,

⁵⁶ LSPC, SOA13B, C. Pretorius, 2021-09-19.

⁵⁷ SABC, “The Big Five for Gauteng”, *Focus Features*.

⁵⁸ SABC, “The Big Five for Gauteng”, *Focus Features*.

⁵⁹ SABC, “The Big Five for Gauteng”, *Focus Features*.

they would have to fence off their greenhouses due to the significant investment they had made. They had a thousand hectares of land that was not being used for intensive rose farming to offer a reserve. Whether they were to participate in the game reserve project depended on their prospects. The project's impact on farmers and the potential for increased revenue remained crucial in achieving their goals. One farmer expressed that what worried him most was that "... if you don't get enough people who are positive and go along with it, it could delay it, or maybe even scuttle the idea".⁶⁰

Following soon after the recommendations of the Swart Report, GDACE embarked on the NEGI Feasibility Study as an attempt to establish a biosphere-type reserve in the north-east quadrant of Gauteng. The rationale for this was that several studies had "... found the area to be economically depressed, the main problem being unemployment". The terms of reference for the feasibility study were intended to enable the GDACE researchers "... to undertake a development planning process that will result in the formulation of a development master plan for NEGI".⁶¹

3.3 Findings of the 1999 Northeastern Gauteng Initiative Feasibility Study

Between September 1998 and February 1999, the NEGI Feasibility Study took place within guidelines set out by GDACE, for release in March 1999. It was commissioned to assist GDACE in undertaking a development planning process as a basis for a master plan for the NEGI.⁶² The study resulted from collaboration between the IUCN Consortium; Arup (a collective of engineering and sustainability consultants, designers, and architects); and Moolmans Attorneys. Saliem Fakir, project leader of the IUCN in South Africa, acknowledged the efforts put into the project by GDACE members, Peter Mills, Jo-anne Yawich, and Melinda Swift.⁶³

The NEGI aimed to attract tourists by developing a large conservation area with a primary focus on a Big 5 game reserve, with varying protection and conservation status levels. The plan aimed to provide employment and protect semi-pristine features from urbanisation, utilising activities like ranching and game farming.⁶⁴ The feasibility study noted that for a biosphere reserve to become a reality, agreements had to be reached between authorities and landowners. A biosphere reserve, according to the study, allows for managing both utilisation and preservation of an area.

⁶⁰ SABC, "The Big Five for Gauteng", *Focus Features*.

⁶¹ RSA, Gauteng Provincial Government (GPG), Laurence Shee Personal Collection (LSPC), Jimmy Brümmer Archive (JBA), Gauteng Department of Agriculture, Conservation and Environment (GDACE), "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 6.

⁶² RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 6.

⁶³ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 5.

⁶⁴ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 6.

The core area "... typically encapsulates biodiversity objectives such as the conservation of genetic diversity, biotic communities, plants and animals". The feasibility team chose to use the term "Biosphere Reserve" as an overarching concept having concluded that the study area was unlikely to meet the United Nations Educational, Scientific and Cultural Organization's (UNESCO) strict criteria for their Man-in-Biosphere programme.⁶⁵ After nearly a quarter of a century, the idea of a biosphere has not been realised, perhaps because of the complexities involved with sealing agreements between many disparate groups.

The study emphasised the need for a shared vision for the area, focusing on enhancing tourism potential and providing a unique experience, suggesting the theme of "All of Africa in One Day", which combined cultural and wildlife experiences. It suggested that Amakulu, a private initiative entrenched in the early NEGI proposals, created the impetus that persuaded other lodges to develop in anticipation of the formation of a larger regional game reserve.⁶⁶ Amakulu's history is discussed in Chapter Four. While the NEGI began to identify three core areas for tourism development, it had not yet employed the name "Dinokeng", which came to incorporate the three Dinokeng hubs: DGR, Roodeplaat, and Cullinan.

While Cullinan and Roodeplaat Dam were among the few tourism initiatives in 1999 that attracted substantial visitors, the NEGI viewed a potential Big 5 reserve as an additional project for a destination route. To combine these attractions into a destination, later to become Dinokeng, an integrated development plan was necessary. A key to the plan was to have DGR as the main anchor project. Of the three initiatives, DGR is the focus of this thesis. The overall goal of the NEGI was "... to improve the quality of life of local communities through meaningful participation in tourism".⁶⁷ The feasibility study suggested that it was possible to develop a contiguous Big 5 game reserve in and around Northeastern Gauteng that could expand from a core area of approximately 20 000 ha to between 50 000 and 100 000 ha. It would be stocked with a wide range of species over time to create an enthralling "bush experience".⁶⁸ The entire NEGI area, if it were to extend into the Northern Province (later named Limpopo) and Mpumalanga, could potentially

⁶⁵ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 10.

⁶⁶ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 13.

⁶⁷ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 19.

⁶⁸ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 25.

cover approximately 242 000 ha.⁶⁹ There were very real obstacles to overcome for a project such as the NEGI to be realised.

Some “killer assumptions”, as they were labelled in the feasibility report, included, firstly, the real possibility of land claims having an impact on the NEGI’s plans. Secondly, the rights and livelihood of informal settlers had to be considered and dealt with through appropriate agreements. Thirdly, it was essential for the NEGI’s success that jobs be created for the local people. Finally, GDACE had to ensure that the NEGI project was not interpreted “... as a further entrenchment of white interests in the area”.⁷⁰ For this reason, community participation was a priority.

In order to implement the NEGI plan, a number of interventions were recommended. While these are described in some detail in the report, a synopsis adequately indicates the path that was to be followed. At the outset, a land use plan had to be devised together with developing a tourism concept along the lines of the “All of Africa in one day” ecotourism concept. In addition, a suitable name for the destination (later named Dinokeng) had to be found. The second intervention was to establish a reserve that could accommodate the Big 5. Thirdly, community-based projects were seen as vital to the NEGI’s success. The fourth intervention was to seek the support of local government, while the fifth was to liaise with neighbouring provinces. The sixth intervention was to use DACE’s Roodeplaat infrastructure as an advisory centre in the south, while Leeufontein would serve community projects in the north once GDACE’s Leeufontein infrastructure was in place. The seventh intervention was to establish law enforcement and regulation, and the final intervention required liaison with provincial and national departments.⁷¹ Within two years of the release of the NEGI feasibility study, a master plan was concluded for the broader Dinokeng Project.

3.4 The International Union for Conservation of Nature Master Plan

3.4.1 The sequence of management plans

In December 2001, five years after the presentation of the Swart report to provincial government and landowners, the IUCN Master Planning study, in several volumes, was completed. This was followed in 2009 by the DGR planning team’s Integrated Environmental Management Plan, which was built upon the Master Plan Objectives and Goals as defined by the IUCN consortium in 2001. Thus, the 2001 IUCN report and the 2009 Master Plan were integrated over time. The Master

⁶⁹ RSA, GPG, LSPC, JBA, GDACE, “North Eastern Gauteng Initiative Feasibility Study: Final Study Report”, March 1999, p. 36.

⁷⁰ RSA, GPG, LSPC, JBA, GDACE, “North Eastern Gauteng Initiative Feasibility Study: Final Study Report”, March 1999, p. 34.

⁷¹ RSA, GPG, LSPC, JBA, GDACE, “North Eastern Gauteng Initiative Feasibility Study: Final Study Report”, March 1999, pp. 47-64.

Plan, currently represented by the 2018 revised version of the 2009 Master Plan, is still consulted, when necessary, by DGR management. The Master Plan outlined a Master Vision for Dinokeng, including the DGR as one hub of the broader Dinokeng Project. These studies formally established the need, desirability, and feasibility of the Dinokeng Project.⁷²

3.4.2 An Integrated Development Framework for land use in Gauteng

In 2001, a thorough IDF for Dinokeng was released based on the bioregional approach.⁷³ It considered environmental and land use priorities, infrastructural needs and capacity, as well as policy implementation plans for Dinokeng's development. While not having legal status on its own, the IDF contained infrastructural analyses at the general and subregional levels of Dinokeng. In the interests of integrated development in the Dinokeng area, the IDF report emphasised the need to combine the land use and environmental development frameworks to facilitate the management of development in the area.⁷⁴ The relevance of the framework to the discussion in this chapter is that it commented on past land use in the Dinokeng area and recommended future land use in the broader area by zone or subregion. Only the zones or subregions pertinent to DGR's establishment are examined here.

The large area envisaged in 2001 for incorporation as the future DGR did not eventually materialise. The IDF report was highly ambitious and overly optimistic regarding the size of the future game reserve. Nevertheless, certain correlations did hold, making an examination of the value of what was termed Sub-region 6: Dinokeng Game Reserve, relevant. This region extended from the N1 in the west across to the RdeW area, including the Vergenoeg fluorspar mine, and large farms with limited potable water. Farming was mainly game and cattle, with some farms permitting hunting. The DACEL already supported many farms that had conservation goals, but farmers needed convincing that their livelihoods would not be jeopardised by linking their land to a developing reserve. Potential participants in conservancies in Dinokeng's southern part wanted similar assurances.⁷⁵

⁷² LSPC, Dinokeng Game Reserve, Combined Landowners Association's Integrated Business Plan, Preamble and Executive Summary Discussion Document, 25 February 2005.

⁷³ Bioregional planning is an appropriate term because it refers to the entire Dinokeng area (a region).

⁷⁴ RSA, Gauteng Provincial Government (GPG), Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (DACEL), S. Berrisford, A. Adam, C. Madel, A. Adams, N. Pather, P. Chipwanya, G. Rossouw, G. Breedlove & P. Theron, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume C – Land-Use, Environmental Management and Infrastructure Development Framework", 2001/12, p. 9.

⁷⁵ RSA, GPG, DACEL, S. Berrisford, *et al.*, Gauteng Department of Agriculture, Conservation, Environment and Land Affairs, "Development of Strategies and Systems ...", Integrated Tourism Development Framework Volume C – Land-Use, 2001/12, p. 88.

Evidence of tourist activities in the proposed area prior to the development of DGR lies in the number of tourism lodges and activities that were in the proposed game reserve area. Some of the better-known ones inside DGR include Mongena, Kwalata, and Pride of Africa. Phumula and Loodswaai, among others, were originally anticipated to be included in DGR; however, although never included, these places are still situated within the broader Dinokeng tourist region. Kwalata, owned by the Pretorius family, and featuring prominently in this thesis, had been a productive farm and venue for school and university students' nature learning experiences prior to DGR's opening in 2011. Mongena, which also features regularly in this thesis, had an earlier life as a farm in 1995 and was commercialised in 2001, well before DGR's opening. Pride of Africa, developed by Joe Marincovitz, is a substantial nature estate registered as Pride of Africa Nature Reserve (Pty) Limited, although the property is inside DGR. It consists of co-owners who are shareholders and members of the company. It is characterised by elegant bush style dwellings that comply with company standards, and has a mix of both commercial and private lodges. With the establishment of the DGR, eight 16-bed lodges were developed in Pride of Africa and a dozen for private use only. Phumula, now known as Camp Discovery, is a multi-million rand childhood development venue that plays host to leadership programmes, sports events, and sports clinics, within a 270 ha game reserve that borders DGR. Developed by businessman, Wouter van Deventer, it is an enormously impressive venue with extensive, manicured sports fields and accommodation for over 1 250 students and 250 staff at any one time in dormitories and chalets. Loodswaai, which is close to Vergenoeg Mine was sold by the Bester brothers to the current owners, the Ericsons, and operates as a commercial hunting venue not far from DGR's boundary. No studies appear to have been done on the histories of these venues. However, there were already a number of commercial products in the DGR area prior to 2011, which included venues for weddings, conferences, youth groups, and hunting.

Other land use inside the boundaries of the proposed game reserve subregion included small areas of commercial agriculture as well as areas of alien infestation along streams. Regarding the indigenous vegetation of the proposed reserve area, various forms of savanna and sandy grasslands dominate the area with a unique thornveld found on sandstone and shale in the west. In the northern section of the proposed reserve, savanna clay supports the palatable sweet veld which is attractive to most grazers. As one moves east, the landscape includes ridges, gorges, and low mountains, creating very likely habitats for red data (endangered) fauna and flora⁷⁶ (Figure 3-2). Several factors made the proposed reserve area potentially attractive to tourists.

⁷⁶ RSA, GPG, DACEL, S. Berrisford, *et al.*, Gauteng Department of Agriculture, Conservation, Environment and Land Affairs, "Development of Strategies and Systems ...", Integrated Tourism Development Framework Volume C – Land-Use, 2001/12, p. 89.



Figure 3-2: Potential expansion topography. The undulating landscape of a farm east of DGR and bordering the properties of both Bill Venter and Vergenoeg fluorspar mine, 2023-07-30. By permission of photographer, Rina Mears, on 2023-07-30.

The proposed area was not disturbed beyond redemption and was topographically diverse with four vegetation habitat types. The Pienaars River, Elands River, and RdeW Dam offered aesthetically appealing aquatic environments. In addition, the RdeW Dam provided opportunities for fishing and other water-based activities. The landscape was suitable for nature-based land use activities. A wilderness atmosphere was enhanced by limited light pollution, which contributed substantially to creating a wilderness ambience.⁷⁷

Following the release of the Master Plan in 2001 until the opening of the reserve in 2011 there was a period of discussions and uncertainty about the game reserve's future. This period is covered in Chapter Five. As a result of research conducted during 2008 and 2009, the Gauteng Department of Economic Development issued a report titled "Environmental Management Framework and Environmental Management Plan for the Dinokeng Project Area". This report is discussed in Section 3.5.

3.5 Land use recommendations for the Dinokeng Project Area in the final report of the Dinokeng Environmental Management Framework and Plan of 2009/2010

The plan detailed in the Dinokeng Project Area (DPA) final report referred to the management of the broader Dinokeng area, including the development hubs of Roodeplaat Dam and Cullinan,

⁷⁷ RSA, GPG, DACEL, S. Berrisford, *et al.*, Gauteng Department of Agriculture, Conservation, Environment and Land Affairs, "Development of Strategies and Systems ..., Integrated Tourism Development Framework Volume C – Land-Use, 2001/12, pp. 89-90.

which fall outside the scope of this thesis. This DPA final report was commissioned by the Gauteng Department of Economic Development (Blue IQ Projects), who appointed SSI Engineers and Environmental Consultants (trading as Bohlweki – SSI Environmental) to help develop an Environmental Management Framework (EMF) and Strategic Environmental Management Plan (SEMP) for the DPA that would, among other advice, give guidance on land use. In the opening paragraph of the final report's executive summary, the emphasis on land use is apparent: "Core to the project is the establishment of a Big-5 collaborative game reserve, with a mix of land uses in the surrounding area ranging from high density urban development to diverse tourism establishments".⁷⁸

By consulting the reference lists in the various Dinokeng-related reports, plans, and feasibility studies conducted since the Swart report in 1996, one notices that they all rely to some degree on preceding research. For example, the EMF and SEMP being considered in this section are, in turn, cited in the most recent Environmental Management Plan (EMP) for DGR that was released in 2018, the year coinciding with the temporal end point of this thesis. The 2018 comprehensive EMP, entitled, "Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plan for Dinokeng Game Reserve (DGR)",⁷⁹ was kindly provided for this study by Emmanuel Tshilamulele, Deputy Director, Dinokeng Projects. In its reference list are credits to several of the Master Plan reports released in 2001 as well as one to the EMF and SEMP of 2010, discussed in this section.

With reference to land use, the 2010 EMF and SEMP analysed both the current and desired states of the biophysical and socio-economic environments while interpreting spatially the management approach necessary to attain the desired environmental state of the Dinokeng area. The developers of the Dinokeng Project and the Gauteng Department of Agriculture and Rural Development,⁸⁰ drew up this joint strategic environmental plan to ensure that development would not undermine the environmental features and resources of the area. The approach to achieve this was to delineate management zones which were identified as follows: DGR, Dinokeng Rural North, Cultivation Zone, Development Corridors, Consolidation Areas, Roodeplaat Recreation Area, and Dinokeng Rural South.

⁷⁸ RSA, Gauteng Provincial Government (GPG), Gauteng Department of Economic Development (GDED), "Environmental Management Framework and Environmental Management Plan for the Dinokeng Project Area, Final EMF Report", Bohlweki-SSI Engineers and Environmental Consultants (trading as Bohlweki-SSI Environmental), March 2010, pp. 1-140.

⁷⁹ RSA, GPG, GDED, EMP and Specific Species Management Plans for Dinokeng Game Reserve (DGR), compiled by Contour Project Managers cc, La Terra Earth Sciences (Pty) Ltd, 2018.

⁸⁰ The Gauteng Department of Agriculture and Rural Development (GDARD) was previously known as the Gauteng Department of Agriculture, Conservation and Environment (GDACE).

Based on feedback from public participation initiated in 2008, the Integrated Development Planning (IDP) process and Spatial Development Frameworks were intended to assist with environmental management and decision making; provide an objective environmental sensitivity overview; define and categorise environmental, economic, social and heritage resources; and set out institutional mechanisms for all the Dinokeng management zones. However, as this thesis concerns DGR specifically, consideration is given only to land use issues relevant to DGR's development and management.⁸¹

The researchers involved in constructing the Master Plan for DGR, stated that to reach the conservation objective outlined in the plan, it should be understood "... that the biophysical processes and ecological functions" existing in the Northeastern Gauteng region before the arrival of the Voortrekkers in the 1840s were considerably altered over the course of 200 years. Alterations to, and interference with the landscape saw the demise of many wildlife species. Landscape changes resulted from new activities such as the advent of domestic livestock, ploughing for crop production, mining, the expansion of urban settlements concomitant with road construction, and the erection of power lines. Fences interrupted age-old game migration patterns while roads affected natural veld fires. Consequently, it would be ingenuous to think of DGR as a pristine landscape requiring a non-interventionist approach to management.⁸²

The 2001 Master Plan was guided by the primary objective of economic upliftment through ecotourism, and it focused on the importance of protecting endemic species, although it did not discount accommodating rare animals not endemic to the area (roan and sable antelope, for example).⁸³ The Master Plan considered the vegetation types of the approximate area that would become DGR. Broadly speaking this area fell within South Africa's largest biome, the Savanna Biome, which is generally used for cattle or game farming. Several savanna vegetation types were identified in the study area and described in accordance with John Acocks', *Veld Types of South Africa*.⁸⁴ A summary of the predominant vegetation types in DGR, recorded in the Development Framework and based on Acocks' classification, follows.

⁸¹ RSA, GDED, "Dinokeng Environmental Management Framework (EMF) and Strategic Environmental Management (SEM) Plan", Final Project Report (compiled by Bohlweki SSI Environmental), 2010, p. 2.

⁸² RSA, GPG, DACEL, R. Collinson, W. Boonzaaier, M. Brett & M. Magakgala, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 5.

⁸³ RSA, GPG, DACEL, R. Collinson, *et al.*, "Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 6.

⁸⁴ J.P.H. Acocks, *Veld types of South Africa* (Botanical Research Institute, Pretoria, 1988).

Clay Thorn Bushveld. Acocks Equivalent: Springbok Flats Turf Thornveld (Acocks 12), Other Turf Thornveld (Acocks 13). According to Acocks, Turf Thornveld is found on black, or red vertic clay soils derived from basalt. The northeastern part of the study area contains vegetation that is characteristic of this savanna type. The Clay Thorn Bushveld vegetation is dominated by various *Acacia* species: Umbrella Thorn (*Vachellia tortilis*), Scented Thorn (*Vachellia nilotica*), and Sweet Thorn (*Vachellia karroo*). Other common woody species include Buffalo Thorn (*Ziziphus mucronata*, widely referred to in South Africa as the wag-'n-bietjie tree), Sicklebush (*Dichrostachys cinerea*), and Wild Raisin (*Grewia flava*). The principal grass species include Turf Grass (*Ischaemum afrum*) and Canary Millet (*Setaria incrassata*). The basalt-derived clay soils are commonly exploited economically for crops such as wheat, maize, and sunflowers, and this vegetation type is suitable for stock farming.⁸⁵

Mixed Bushveld. Acocks Equivalent: Mixed Bushveld (Acocks 18), Sourish Mixed Bushveld (Acocks 19). Many varieties and transitions of plant communities are present in the Mixed Bushveld areas where the soil overlying quartz, granite, sandstone, or shale is coarse and sandy. Varying from dense, short bushveld to open tree savanna, this vegetation type spreads across undulating plains covering most of the Dinokeng region. On shallow soils Red Bushwillow (*Combretum apiculatum*) dominates the vegetation. Other trees and shrubs include Common Hook-thorn (*Senegalia caffra*), Sicklebush (*Dichrostachys cinerea*), Live-long (*Lannea discolor*), and various *Grewia* species. Grazing here is sweet and the herbaceous layer is dominated by grasses such as Finger Grass (*Digitaria eriantha*), Kalahari Sand Quick (*Schmidtia pappophoroides*), and Wool Grass (*Scirpus cyperinus*). On deeper and sandier soils, Silver Clusterleaf (*Terminalia sericea*) dominates, while other trees include Peeling Plane (*Brackenridgea zanguebarica*) and Wild Raisin (*Grewia flava*). Broom Grass (*Eragrostis planiculmis*) and Purple Spike (*Polygala virgata*) are usually present in the scanty grass sward.⁸⁶ The Mixed Bushveld is suitable for both cattle and game farming, crop cultivation, and ecotourism. One of the Mixed Bushveld areas that was already being conserved at the time of the Master Plan study was RdeW Dam Nature Reserve.⁸⁷ The latter has consistently been eyed as an area for potential inclusion in DGR due to its proximity.

As the GPG was pushing for ecotourism development locally, nature tourism opportunities were being promoted globally as a means for states to develop their economies. To establish whether

⁸⁵ RSA, GPG, DACEL, R. Collinson, *et al.*, "Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework", 2001/12, pp. 7-8.

⁸⁶ RSA, GPG, DACEL, R. Collinson, *et al.*, "Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework", 2001/12, pp. 7-8.

⁸⁷ RSA, GPG, DACEL, R. Collinson, *et al.*, "Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework", 2001/12, pp. 7-9.

South Africa's recognition of the role of tourism in economic development was in line with international best practice, one has to consider what tourism-related International Government Organisations were recommending. Going back to 1980, evidence shows that nature tourism was already becoming important in various government developmental sectors as illustrated at the World Tourism Conference in Manila, capital of the Philippines, in 1980.

3.6 The Manila Declaration and the recognition of tourism as a land use and driver of development

The 1980 Manila Declaration on World Tourism emphasised the importance of modern tourism and its opportunities in a fast-changing world. The World Tourism Conference was convened in Manila, Philippines, by the World Tourism Organization. Nature tourism was recognised here as a state responsibility whereby states were expected to develop nature tourism so it could play an essential role in social, cultural, educational, and economic sectors.⁸⁸ Over two decades later, developers in Northeastern Gauteng had recognised the responsibilities of modern tourism in determining land usage for development. The declaration acknowledged that domestic tourism contributed to the national economy and promoted activities favourable to the general economy. However, it also highlighted the importance of human rights to holidays, cultural awareness, national identity, and solidarity among citizens.⁸⁹ Whether the Manila Declaration directly influenced the trajectory of South African tourism is speculative; however, this approach aligned with efforts to enhance the overall development of Gauteng and promote sustainable tourism practices.

The Manila Declaration acknowledged that tourism development contributed positively to social development in all countries through the provision of required services and the creation of new activities and products. It also emphasised the responsibility of tourism development stakeholders to improve employment conditions for workers and to provide access to professional trade unions and collective bargaining. Additionally, the declaration emphasised the importance of protecting the environment and heritage of mankind, ensuring that tourism requirements did not harm the social and economic interests of the population, natural resources, and historical and cultural sites.⁹⁰

⁸⁸ United Nations World Tourism Organisation (UNWTO), Declarations: Manila Declaration on World Tourism, 1(1), 1980, Madrid, Spain, Point 8, p. 1, <https://doi:10.18111/unwtodeclarations.1980.01.01>.

⁸⁹ UNWTO, Declarations: Manila Declaration on World Tourism, 1(1), 1980, Madrid, Spain, Point 8, p. 3.

⁹⁰ UNWTO, Declarations: Manila Declaration on World Tourism, 1(1), 1980, Madrid, Spain, Point 8, pp. 3-4.

By 1996 the South African Government had prioritised tourism as the most effective industry upon which the sustainability of its RDP depended.⁹¹ In the 1990s, international researchers such as Agnes Gannon highlighted tourism's role in driving economic development in rural areas, emphasising innovative responses and mobilising skills, resources, and partnerships for self-reliant development.⁹² These were exactly the partnerships that constituted the cornerstone of DGR's development.

The DGR planners had recognised two of the focus areas to which Gannon referred as being the need for "... rural diversification for sustainable economic community development" and "... rural tourism as a factor in the economic development of rural communities".⁹³ Gannon argued that key to entrepreneurial efforts in rural economic development were flexibility, which allowed for adjustment in the face of unexpected developments; and creativity, which entailed finding ways to make resources increasingly productive.⁹⁴ As one traces the history of DGR's development, it is evident that both elements, flexibility and creativity, played major roles. That the promoters of DGR's development understood these considerations, is repeatedly shown in the aims and objectives outlined in DGR's founding documents. For example, the Dinokeng Game Reserve Development Framework stated as its primary objective that the overall purpose of the Big 5 DGR should be "... to contribute significantly to economic growth and poverty alleviation in the Gauteng Province generally and the Dinokeng area specifically through the stimulation of a wildlife-based tourism industry". It listed three supporting objectives as nature conservation, tourism, and empowerment of the previously disadvantaged local people.⁹⁵

The principles underlying the DGR's Institutional Framework clearly indicated the positive degree to which DGR's development aligned with principles acceptable to the Manila Declaration. An outline of the more relevant institutional principles of DGR, set out in 2001, follows below. It shows that DGR was on a solid footing regarding best international practice of land use for purposes of conservation, tourism, and community development.

The GPG aimed to develop guidelines for Community Public-Private Partnerships (PPPs) to increase direct stakeholder participation in tourism governance and to engage with the Dinokeng Tourism Company. Tourism-related initiatives had to empower communities through employment

⁹¹ RSA, DEAT, May 1996, *White Paper: The Development and Promotion of Tourism in South Africa*. (Government Printer: Pretoria), p. 14.

⁹² A. Gannon, "Rural Tourism as a Factor in Rural Community Economic Development for Economies in Transition", *Journal of Sustainable Tourism*, 2(1-2), 1994, p. 51, [doi:10.1080/09669589409510683](https://doi.org/10.1080/09669589409510683).

⁹³ A. Gannon, "Rural Tourism as a Factor ...", *Journal of Sustainable Tourism*, 2(1-2), 1994, p. 51.

⁹⁴ A. Gannon, "Rural Tourism as a Factor ...", *Journal of Sustainable Tourism*, 2(1-2), 1994, p. 53.

⁹⁵ RSA, GPG, DACEL, R. Collinson, *et al.*, "Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 5.

opportunities and economic benefits using an investment fund to assist local entrepreneurs, and to return proceeds to the communities. The GPG had to encourage investor participation and investment in tourism, including development of facilities and lodges, while it also needed to focus on strategic planning and regulating to assist private entities to capitalise on investment opportunities. For these principles to be realised, a central managerial institution had to oversee the broader Dinokeng destination; however, each hub had to have its own management and staff. The DGR, therefore, had to have its own, separate management company. For the successful implementation of the GPG's IDP, the Development Framework had to link to IDP aspects through clear agreements between the local government and participating institutions.⁹⁶

In 2013, 12 years after the Dinokeng Integrated Tourism Development Framework was released, Dawn Robertson, Chief Executive Officer of Gauteng Tourism, announced on television that DGR had created "... viable tourism products and development that would provide job creation for communities living in the area because there was very little manufacturing or agriculture taking place there".⁹⁷ The television report described DGR as a unique concept, highlighting the successful implementation of the Development Framework's principles. Private landowners had agreed to incorporate their land into a game reserve, with government investing in infrastructure. This arrangement allowed landowners to retain ownership and develop ecotourism products, while the government benefited from economic development, job creation, and tourism stimulation without purchasing land to form a reserve.⁹⁸ At this point in the discussion, it is worth asking why tourists would be attracted to visiting DGR, or for that matter, any South African game reserve.

As suggested by Bresler, experiences that engage tourists on an emotional, physical, intellectual, or spiritual level, should be interactive, of a high quality, and incorporate both info-tainment and education.⁹⁹ Reynolds and Braithwaite commented in 2001 that experiences of seeing animals in the wild were increasingly outweighing those of observing captive or semi-captive animals. This experiencing of wildlife tourism is essentially predicated on creating exciting, positive encounters for tourists while simultaneously protecting the wildlife resource.¹⁰⁰ If one applies Reynolds and

⁹⁶ RSA, GPG, DACE, B. Ngeleza, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume G – Institutional Arrangements", 2001/12, pp. 1-2.

⁹⁷ CNBC Africa, "Growing Tourism in Dinokeng Game Reserve", *Latitude*, 2013-06-20, https://www.youtube.com/watch?v=LV9buNPR_Rs, accessed 2021-09-15.

⁹⁸ CNBC Africa, "Growing Tourism in Dinokeng Game Reserve", *Latitude*, 2013-06-20, https://www.youtube.com/watch?v=LV9buNPR_Rs, accessed 2021-09-15.

⁹⁹ N. Bresler, "Wildlife Tourism: Creating Memorable and Differentiated Experiences", *Acta Academica*, 39(3), 2007, p. 166.

¹⁰⁰ P.C. Reynolds & D. Braithwaite, "Towards a Conceptual Framework for Wildlife Tourism", *Tourism Management*, 22, 2001, p. 31.

Braithwaite's main categories of wildlife products appropriate for wildlife tourism to DGR, then it has met the core of them.

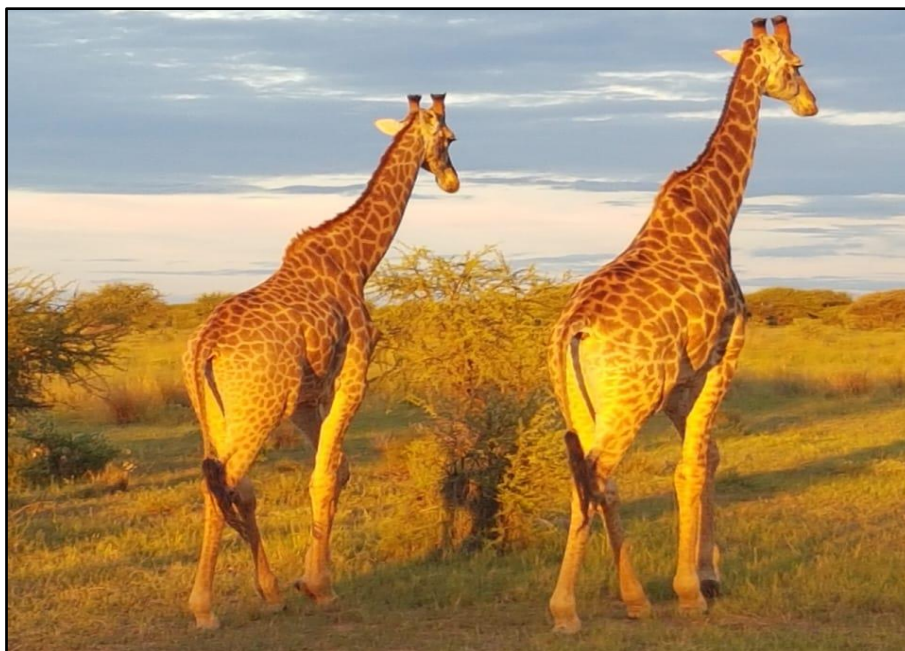


Figure 3-3: Giraffe in DGR, 2016-12-30. By permission of photographer, Catherine Prinsloo, on 2023-10-03.

For instance, DGR meets Reynolds and Braithwaite's wildlife products' categories by offering nature-based tourism with a wildlife component and a wildlife location with good wildlife opportunities and convenient accommodation establishments in the proximity of a wildlife-rich habitat. It also offers animal watching opportunities that cater for specialist interests in a species or group of species such as bird watching; specific tours, based on a habitat rich in wildlife accessible by vehicle; and thrilling tours or game drives, in DGR's case, to view dangerous or large species.¹⁰¹ An increasingly popular attraction in DGR is the self-drive route. Figures 3-3, 3-4, and 3-5 show wildlife sighted in the reserve as well as the natural habitat in which these animals live.

¹⁰¹ P.C. Reynolds & D. Braithwaite, "Towards a Conceptual Framework for Wildlife Tourism", *Tourism Management*, 22, 2001, pp. 32-33.



Figure 3-4: A cheetah in DGR, 2021-02-28. By permission of photographer Catherine Prinsloo, on 2023-10-03.

Should one want to enjoy guided drives in game vehicles, many lodges either offer such experiences or can arrange them for guests. Should one prefer a self-drive option, DGR offers more than 140 km of interesting, winding roads suitable for most cars. Permits are available online or at the entrance gates of which there are five, all named after the Big 5 South African animals: Yingwe (leopard in isiXhosa), Ts'ukulu (white rhino in South Sotho), Nyathi (Cape buffalo in seSwati), Ndlovu (African elephant in isiZulu/siNdebele), and Tau (lion in seTswana/sePedi).¹⁰² To increase the DGR's feasibility and sustainability, the DGRMA created self-drive routes to enable visitors to explore different ecosystems inside the reserve and to enhance the likelihood of Big 5 sightings. Higher visitor numbers have been recorded as a result, and the reserve's viability, sustainability, and resilience have increased because of the implementation of these self-drive routes. This has benefited landowners, the government, tourists, and neighbouring towns. Prior to their implementation, visitors were restricted to game viewing only on parcels of land on which they were booked to stay. A much wider variety of habitats within the reserve is now available to visitors to enjoy, which has increased chances of seeing the Big 5.¹⁰³

Reynolds and Braithwaite suggested six quality criteria that would make for a rich and intense wildlife experience. The DGR can rightly claim to meet all these criteria, perhaps with the rider

¹⁰² A. Paton (ed.). Written for Dinokeng Game Reserve by Paton, A., Cochran, D., Daymond, M., Helm, L., Pretorius, C., Prins, S., Ramcharan, A., Soate, K.V. and Van der Merwe, V., *Dinokeng Game Reserve, the First Decade* (HPH Publishing, Johannesburg, 2022), p. 11.

¹⁰³ RSA, GPG, Content Project Managers, Dinokeng Game Reserve, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve (DGR), updated by La Terra Earth Sciences (Pty) Ltd, March 2018, p. 142.

that regarding the duration of a game viewing moment, a fleeting experience, in this researcher's view, can be as rewarding as a prolonged view. The six quality criteria are as follows:

- *Authenticity*, widely used to estimate the "honesty" of the attraction or the degree of natural behaviour exhibited by the fauna in a natural environment.
- *Intensity*, suggesting the excitement generated by an experience, or for some, an adrenalin rush.
- *Uniqueness*, being the sense of a special and unusual and, therefore, privileged experience.
- *Duration*, refers to the length of exposure to the stimuli to a certain point where the experience is heightened, after which the visitor is saturated with the particular experience.
- *Species popularity*, is driven by a range of factors, such as physical attractiveness, its size, the danger and drama associated with the species, and the publicity that the species has enjoyed in the public media.
- *Species status*, refers to the rarity of the animal, and rare and endangered species lists appear to hold a special attraction.¹⁰⁴



Figure 3-5: Always a popular sighting, a lion kill in DGR, 2014-10-16. By permission of photographer, Catherine Prinsloo, on 2023-10-03.

3.7 Eco expansion into military land

A land use not usually associated with game reserves is land used for military purposes. In its need to expand, DGR management, together with the Department of Economic Development has consistently eyed the conveniently placed military and state-owned land both inside and outside DGR's boundaries since the mid-1990s. The Hyde Mew *Focus* documentary on the NEGI plans for a game reserve revealed the SANDF's cautious initial response to an invitation to contribute

¹⁰⁴ P.C. Reynolds & D. Braithwaite, "Towards a Conceptual Framework for Wildlife Tourism", *Tourism Management*, 22, 2001, pp. 35-36.

land to a game reserve. As one would expect from a professional, experienced military officer in a public interview, Colonel Seakle Godschalk responded in a non-committal, yet non-dismissive manner to the question of possible military involvement in a large game reserve. The military land in question was over 15 000 ha and stocked with game under the responsibility of the military. Its use by the army and air force was for both military training and wildlife conservation purposes. Godschalk described the Defence Force's general policy regarding good neighbourship as one of co-operation with environmental projects in the immediate vicinity of their properties. Concerning the game reserve project, he said discussions were underway with the Provincial Department of Nature Conservation to ascertain whether co-operation was possible, and if so, to what extent. While willing to keep channels open, he was reluctant to create expectations that the military might not be able to fulfil later.¹⁰⁵ As is shown later in this chapter, the Department of Defence did in fact begin constructive dialogue with Dinokeng management bodies resulting in the inclusion of Ditholo Nature Reserve in 2009 and the distinct possibility of including further military land in future remains.

When discussing land use in the Dinokeng area, one cannot discount the historical importance of land use for military purposes. Regarding the potential and necessary expansion of DGR, the parcels of military-owned land offer one of the best opportunities for inclusion. This is so because the military land parcels are relatively large compared with the complicated configuration of, for example, small, privately-owned 20-ha plots. At the time of DGR's official opening in 2011, the reserve already included 2022 ha of the SAAF's Pienaar's River training area/Ditholo Nature Reserve, acquired in 2009. Of this property, 765 ha was retained for military purposes. The Wallmannsthal military facility spans almost 12 000 ha of which about 8 500 ha of the Murray Hill military training area could potentially be included into DGR (Figure 3-6). Further, there is a strong possibility that the Boekenhoutskloof military facility of about 800 ha could be included as of 2024 (Figure 3-6). Submissions to include these have already been lodged by DGR management with both the Department of Defence and the Department of Public Works. Altogether 15 600 ha of state-owned land in military use skirts the DGR.¹⁰⁶

¹⁰⁵ SABC, "The Big Five for Gauteng", *Focus Features*.

¹⁰⁶ LSPC, "Expansion Notes" provided by Lt Col E. Van Blerk's regarding prospects for expansion of the Dinokeng Game Reserve onto state land in use by the Department of Defence, during a meeting in Groenkloof, Pretoria, on 10 July 2018, p. 3.

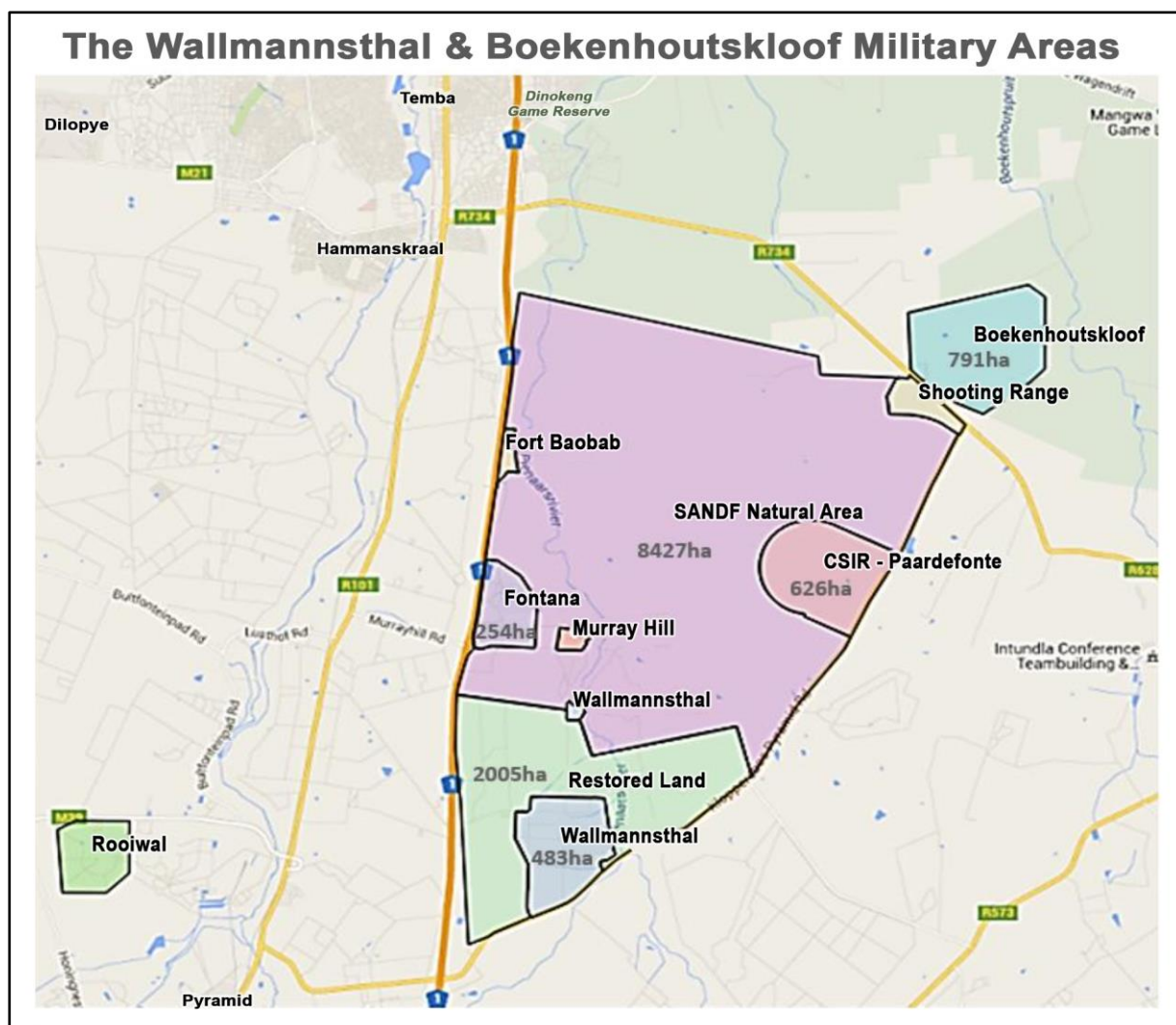


Figure 3-6: Wallmannsthal and Boekenhoutskloof military areas. Kind permission for map use was granted by Lt Col E.F. van Blerk SAAF, Staff Officer: Air Force Environmental Plan, Directorate Logistics, 2023-08-09.

The Wallmannsthal facility, situated in the triangle formed by the N1 motorway in the east, the R734 arterial route in the north and the Kloppersbos/ Pyramid secondary road to the south-east, includes the Fontana Estate used by Defence Intelligence, the Murray Hill Estate in use by the Special Forces School, the General Piet Joubert Shooting Range of the South African Army, in addition to 43 South African Brigade Headquarters, the Special Forces Supply Unit, and the 4 Vehicle Reserve Park (4VRP) Maintenance Unit. The Boekenhoutskloof facility, nestled between the R734 arterial route and the river course of the Boekenhoutspruit, directly to the north-east of the Wallmannsthal military facility, accommodates military communications installations operated by 2 Signal Regiment.¹⁰⁷ The main value of including further military land in DGR is that, firstly, it is the most promising of expansion options and involves the inclusion of large parcels of land of

¹⁰⁷ LSPC, "Expansion Notes" provided by Lt Col E. Van Blerk's regarding prospects for expansion of the Dinokeng Game Reserve onto state land in use by the Department of Defence, during a meeting in Groenkloof, Pretoria, on 10 July 2018, p. 3.

thousands of hectares. Secondly, the inclusion of military land would widen the narrow corridors characteristic of DGR making it easier to manage and allowing greater movement of animals while enriching the biodiversity.

This second point remains topical. As Boekenhoutskloof farm was centrally situated, it was seen as an important block for future expansion. A quarter of a century later, DGR management is still optimistically trying to include a crucial block of Boekenhoutskloof farm belonging to the military, to widen a narrow southern portion of the game reserve. Expansion can be a slow process and the Department of Defence and DGR have worked hard to have the inclusion accepted by the higher levels of a dilatory government. It requires both diligence and patience on their part. Their efforts suggest an inexorable image from Cullen Gouldsbury's poem, *The Pace of the Ox*:¹⁰⁸

Men may strain and women may strive in busier
lands to-day,
But the Pace of the Ox is the pace to thrive in
The land of veld and vlei.

Despite the slow pace of realising GPG's expansion plans for DGR, there is ample evidence that expansion discussions are ongoing. It is promising that fresh ideas about DGR's offerings on state-owned land are also being exchanged.

3.8 Exciting state concepts on state-owned land in Dinokeng Game Reserve

It is encouraging to note that interesting tourism concepts to convert latent state land into exciting tourism concepts have been under consideration, even prior to 2018. The first is the "Bundu Boma Network". The concept involves the construction of a network of small, unobtrusive, overnight hosting bomas on state-owned land within the DGR. The infrastructure at each boma is to be constructed using natural materials and to include a 15 m round boma, a thatched structure for catering and refreshments, a central fire pit, an eco-friendly toilet, and a bush shower filled manually. Each boma will be operated by a fully qualified Field Guides Association of Southern Africa host/guide, offering safe experiences for visitors. The boma tourists would be met at reception points such as Safari Mall. Itineraries would vary from one to five days, and the hospitality services would be provided by a boma service team.¹⁰⁹

¹⁰⁸ C. Gouldsbury, "The Pace of the Ox" from *Rhodesian Rhymes* (Books of Rhodesia Publishing Co (Pvt) Ltd, Bulawayo), n.d.

¹⁰⁹ RSA, GPG, Content Project Managers, Dinokeng Game Reserve, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve (DGR), updated by La Terra Earth Sciences (Pty) Ltd, March 2018, pp. 142-143.

The second idea was that of the “Ditholo Bush Stop” which would be located on state-owned land near the Pienaars River on an old easily accessible camp site which could be rehabilitated and operated without extensive infrastructure. It would provide a range of catering services, including dawn breakfasts, late afternoon gatherings, and special bush receptions. Energy supply would be portable gas, and waste would be removed to an official disposal site. The hope would be to secure support from hospitality operators within the DGR and those undertaking adventure activities. The Ditholo Bush Stop could potentially enjoy “must do and see” status within a natural wilderness environment, similar to the famed tented hosting areas of East Africa. For visitor safety and the environment, no more than 30 visitors should gather at once. Business planning would need to be carried out by potential contracting entities. Once DGR has obtained protected area status, the commercial sustainability of the Ditholo Bush Stop could be realised.¹¹⁰ Time will tell whether these exciting concepts will take off commercially to provide much needed employment and to give tourists a wider range of satisfying wilderness experiences.

3.9 Land use in the Dinokeng Game Reserve region until 2018

During the few years leading up to the DGR Master Plan in 2001, many landowners were already farming game, and a number were transitioning to game farming. The area was characterised by a mix of both small and large properties, but the population was low. Some larger properties had been sub-divided into smaller units. Prior to DGR’s establishment, game animals endemic to the area such as kudu, warthog, and impala were still present in substantial numbers; however, many endemic species had been lost and needed to be re-introduced. The region’s proximity to Pretoria, a mere 40 km away, and its suitability for many game species, had ensured that ecotourism was already underway and providing a living for some landowners through the conference market, game breeding, and trophy hunting.¹¹¹

The 2001 Master Plan noted that despite sand mining in the upper reaches of the Elands River, the water quality was good, and the condition of the riverine vegetation satisfactory. The presence of water and riverine areas provide significant attractions for ecotourists. Anyone who has experienced the thrill of driving parallel to Kruger Park’s major rivers will understand the added value of sightings along such rivers as the Sabie, Crocodile, and Timbavati. Knowing the appeal such aquatic features have for tourists, the Master Plan researchers saw the potential for lodges to be placed amidst substantial-sized trees located near water. An example of tourist accommodation located near water can be found at Mongena Dam where a luxury tented camp

¹¹⁰ RSA, GPG, Content Project Managers, Dinokeng Game Reserve, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve (DGR), updated by La Terra Earth Sciences (Pty) Ltd, March 2018, p. 143.

¹¹¹ RSA, GPG, DACE, R. Collinson, *et al.*, “Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework”, 2001/12, p. 9.

has been constructed on the banks of this water body. The Master Plan researchers also saw the need to preserve the Elands and Pienaars Rivers and Boekenhoutspruit in their present state.¹¹² The most recent environmental report, dated 2018, described the quality of water in DGR as “acceptable”; however, it noted that as the catchment included large residential areas, a future risk of pollution was high. In fact, an action plan on aquatic chemical and biological surveys was recommended.¹¹³

On completion of the Master Plan, the researchers had identified several positive qualities indicating that a large game reserve could potentially be developed in the Dinokeng area. Many lodges and game farms, for example, already operated successful ecotourism businesses such as hunting and the breeding of rare or endangered game species. Mention has been made of DGR’s vegetation types, which, in combination with the soils, dams, rivers, and landforms, created landscapes and habitats that potentially offered an authentic *African* safari experience. Generally, the area did not offer high agricultural potential. Large parcels of unallocated and largely undeveloped state-owned land, together with three provincial nature reserves within the study area suggested great expansion potential into Limpopo and Mpumalanga. The landscape was remarkably free of road networks; major Eskom power lines and pylons; and radio, television, and cell phone transmitting antennae. These factors, together with the absence of towns, major settlements, and dense human populations within much of the northern part of the study area helped reduce intrusive visual pollution. The northern part had only a limited amount of unsightly environmental degradation resulting from mining, overgrazing, agriculture, and other forms of land use. The northern section also experienced less detracting nightglow than the southern area which was closer to settlements and cities to the south. This is particularly so throughout most of the northern parts of the study area due to the screening effect of hills and ridges. Most importantly perhaps, was the apparent support that the game reserve as an anchor project had from landowners, rural communities, and land claimants.¹¹⁴

The DGR’s tourism offerings by way of activities and lodges have boomed despite the near catastrophic coronavirus lockdown. In May 2020, Sky News international correspondent, John Sparks, interviewed David Boshoff, General Manager of DGR, and Etienne Toerien who runs Mongena Game Lodge. At the time, DGR was in a very bad way with hundreds of jobs under

¹¹² RSA, GPG, DACEL, R. Collinson, *et al.*, “Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework”, 2001/12, p. 9.

¹¹³ RSA, GPG, Content Project Managers, Dinokeng Game Reserve, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve (DGR), updated by La Terra Earth Sciences (Pty) Ltd, March 2018.

¹¹⁴ RSA, GPG, DACEL, R. Collinson, *et al.*, “Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework”, 2001/12, pp. 9-10.

threat and no income being generated. A worried Boshoff bewailed the complete loss of the park's income stream and wondered how he would pay his 60 dedicated employees. Boshoff also had increased poaching to worry about. Poaching tripled during the lockdown as intruders hunted for bushmeat or lucrative ivory or rhino horn. The loss of a lion to a snare meant the loss of one of a key species that are so important to attract tourists. The crack Anti-Poaching Unit, led by Tim Higgs, was kept exceptionally busy during the Covid-19 pandemic lockdown.¹¹⁵ As people like Boshoff, Toerien, and Higgs had a vested interest in the park, they had to keep it going.

Some respite came, according to Boshoff, by keeping costs as low as possible, rotating staff, and putting some on short leave. He added that the reserve applied for Covid-19 relief and was fortunate to receive R500 000 to help towards salaries from the Kevin Richardson Foundation, as well as R630 000 from the Oppenheimer family, yet these amounts were way insufficient to cover all the running costs.¹¹⁶

Some consolation came, however, when the Gauteng Province relaxed its lockdown travel restrictions to Level 3. Tourists desperate to get outdoors began to discover DGR's self-drive routes, and this major income stream for the reserve was restored.

3.10 Concluding comments

The success of DGR has come about because of the ideas and trials that emerged from the founding documents' constant point of agreement. After exhaustive studies, this point of agreement was that the decision to use the marginal farmland in the Gauteng Bushveld for a Big 5 game reserve as an anchor project for the broader Dinokeng Project was a justifiable one. The prospect of one day including further military land, as well as RdeW Dam and Nature Reserve, or even small, established nature reserves in Mpumalanga to the east, is not too far-fetched as long as channels of communication remain open between the DGR Management Association, the South African National Defence Force, and local communities, particularly the large-landowning Ga Mashung Matlala community. An ongoing task of both the Chairman of the DGR Management Association and the Chairman of the DGR Landowners' Association is to search for ways to expand DGR's boundaries for the sake of both conservation and ecotourism.

¹¹⁵ J. Sparks, "Coronavirus: Survival of 'Big Five' Game Reserve Rests on Return of Tourists Soon, *Sky News*, 2020-05-30, <https://news.sky.com/story/coronavirus-survival-of-big-five-game-reserve-rests-on-return-of-tourists-soon-11997345>, accessed 2023-10-04.

¹¹⁶ S. Mohamed, "National lockdown tightens its grip on game reserves and their staff", *Daily Maverick*, 2020-05-20, <https://www.dailymaverick.co.za/article/2020-05-20-national-lockdown-tightens-its-grip-on-game-reserves-and-their-staff/>, accessed 2023-10-04.

Despite obstacles to transforming cattle farming and agricultural land into a game reserve, DGR has thrived. The results obtained from an online search for DGR accommodation and activity options or products (as they are referred to in DGR) are astounding. A popular accommodation site, Lekkerslaap, for example, reveals no fewer than 90 accommodation options in and around DGR. These options include lodges, tented camps, caravan parks, camp sites, cottages, safaris, bush camps, self-catering chalets, and guest houses. Similarly, an online search for things to do in DGR lists a host of activities including self-drives, bush walks, game drives, biking trails, cultural tours, birding, horseback riding, fishing, and star gazing. Some lodges offer romantic bush dinners and picnics, and there is a wide range of restaurants, wedding venues, and even a brewery. The future of the DGR appears promising, and the unique DGR model could potentially pave the way for other reserves to be developed in areas where the land has been disturbed, or fragmented, or where low-yield agricultural land would be more suited to wildlife tourism through a similar rewilding process.

On the surface, the image created might appear somewhat idyllic. However, South Africa's post-apartheid history carries the legacy of inequality. What might appear rosy to affluent holidaymakers oblivious of the desperate poverty of local communities close to DGR, may not be seen in the same light by those trapped in lives of hardship. Thakholi has expressed this well in her doctoral thesis where she demonstrates "... how 'sinking' capital in conservation landscapes occurs within the context of persistent apartheid geographies and white imaginations about nature to reproduce spatial injustices".¹¹⁷ In any social history of South Africa, it would seem both wise and respectful to keep this in mind. While the future of the DGR seemingly appears bright, a deeper reflection on its origins is important for a fuller understanding of how it came about, and who those were whose creative thinking and perseverance brought a fledgling conservation idea to fruition. When discussing the origins of the DGR with those who still have the institutional memory, the name "Amakulu" invariably surfaces. In Chapter Four, the focus shifts to the role of Amakulu and other conservancies in the DGR's developmental history.

¹¹⁷ L. Thakholi, "Conserving Inequality: Subjugating Black Labour by Accumulating and Defending Property in South Africa's Private Nature Reserve's". PhD, Wageningen University, 2021, p. 22.

CHAPTER FOUR

AMAKULU CONSERVANCY: AN IDEA IS BORN

4.1 Introduction

In Chapter Four, the researcher traces the origins and subsequent challenges facing Dinokeng Game reserve (DGR) as it evolved from the Amakulu phase in the mid-1990s to its current status in 2024. Within an environmental history and boundary studies framework, insights are sought to help understand the complexities of DGR's development from the Amakulu phase to its present-day configuration as a public-private partnership (PPP).

Three areas within the region, Amakulu, Leeuwfontein, and Rust de Winter (RdeW), were considered by the Gauteng Provincial Government (GPG) as potential start-up areas for a game reserve in Northeastern Gauteng. Each represented an attempt to secure support for a larger regional game reserve for economic upliftment and conservation. The GPG planned to connect these start-up conservancies into a trans-provincial game reserve, potentially also to include Mkhombo Nature Reserve (11 223 ha) and Mdala Nature Reserve (11 223 ha) in Mpumalanga. Swart confirmed that the plan was to expand east and west of Leeuwfontein, including Trust Land in Mpumalanga and properties on the Moloto/RdeW Road. However, Swart's zoning and development proposals were never implemented.¹

According to Peter Mills, a GPG conservationist working in the RdeW area in the mid-1990s, many of these inclusive ideas and dreams were discussed informally among provincial conservationists and landowners. Mills, recalls that officially co-ordinated and structured efforts to form a game reserve only began with the GPG's request for, and implementation of, the International Union for Conservation of Nature's (IUCN's) feasibility study in the form of the DGR Master Plan in the late 1990s.²

4.2 Geographical and historical orientation of Amakulu, Leeuwfontein, and Rust de Winter Dam

4.2.1 Envisaged game reserve inclusions in the 1990s

The North-Eastern Gauteng Initiative (NEGI) initially aimed to create a game reserve, but by the early 2000s, it expanded its programme to include Cullinan and Big 5 Roodeplaat Dam. In 1996, efforts had begun to form a conservancy reserve, Amakulu, with the GPG and private landowners

¹ Laurence Shee Personal Collection (LSPC), D. Swart, Retired GPG landscape architect, WhatsApp/L. Shee, 2023-10-04.

² LSPC, SOA23, P. Mills, Former Gauteng Provincial Government conservationist, Pretoria Botanical Gardens/L. Shee, 2022-03-11.

working together. Despite their vested interests, each had different expectations for the project's goals and success.³ Landowners hoped Dinokeng would provide financial rewards, surpassing marginal agricultural pursuits. The GPG, through its Gauteng Department of Agriculture, Conservation, Environment, and Land Affairs (GDACEL), aimed to attract international visitors, generate revenue, create employment, and integrate disadvantaged black individuals into the economy.⁴ South Africa's increasing unemployment rate necessitated urban local governments to shift from a declining manufacturing industry to competitive tourism economies, which were expected to stimulate economic growth, create employment, and develop small enterprises.⁵ Moeng has noted that the idea of a large game reserve in Northeastern Gauteng was discussed by landowners in the 1990s and became a government-led project in 1995, driven by GDACEL, but disagreements arose between the two parties on how best to proceed.⁶ Since the end of apartheid in 1994, South Africa had been analysing its space economy and proposing interventions to address economic inequality and income disparity. These first attempts to establish a game reserve in Northeastern Gauteng coincided with national government's (NG) implementation of the National Spatial Development Framework.

A space economy comprises "... special regions as contiguous spaces that share common or related flows and markets for economic activities such as labour and land markets and infrastructure platforms".⁷ The Dinokeng Project, a provincial initiative, was not officially recognised as an official Spatial Development Initiative (SDI), but it manifested hallmarks of the NG's policies. Similar reasoning and tenets were found in SDIs, with the DGR often referred to as the Dinokeng "anchor project", a term commonly used for SDI programmes. Jourdan has outlined three key SDI concepts for South Africa's development programme, which appear to align with DGR's justification for development. These concepts include addressing unfulfilled economic potential in certain areas due to historical and political factors, directing new investment into these areas, and promoting job creation and wealth generation in localised regions through

³ Dinokeng Game Reserve website, "History and Timeline", 2015, <http://www.dinokengreserve.co.za/About/History.aspx>, accessed 2016-06-20.

⁴ M.W. Moeng, "The Impact of Eco-Tourism on Land-Use Patterns: The Case of Dinokeng-Tourism Pilot Project in Gauteng Province", M Inst Agrar (Rural Development Planning), University of Pretoria, 2004, p. 80. <https://repository.up.ac.za/bitstream/handle/2263/24964/dissertation.pdf?sequence=1&isAllowed=y>, accessed 2018-01-21.

⁵ C. Burton & J.M. Rogerson, "Challenges of Planning and Developing an Urban Ecotourism Destination in South Africa", *Studia Periegetica*, 1(43), 2003, p. 3.6, <https://doi.org/10.58683/sp.367>.

⁶ M.W. Moeng, "The Impact of Eco-Tourism on Land-Use Patterns: The case of Dinokeng-Tourism Pilot Project in Gauteng Province", M Inst Agrar (Rural Development Planning), University of Pretoria, 2004, p. 6.

⁷ Republic of South Africa (RSA), National Department of Economic Development (DED), South African Cities Network, "The Space Economy: An Important Consideration in Spatial Development Planning", Social Dialogue Report, 2013-04-19, p. 5.

strategic interventions.⁸ The DGR, currently a GPG project involving Gauteng and Limpopo, could potentially expand to Mpumalanga. In the mid-1990s, NG endorsed the idea of PPPs. Dinokeng, a co-operative game reserve, operates on similar principles to those of SDIs and PPPs, as it includes government land and assistance, private land, and landowner management structures. These similarities highlight the prevailing government development ideas at the time of discussions about a Big 5 game reserve in Northeastern Gauteng in 1995 and subsequent years.

The GPG initially focused on the Amakulu start-up, but later considered Leeuwofontein conservancy, a PPP, and RdeW Dam and Nature Reserve as core to an expanded Big 5 game reserve. Amakulu is probably better remembered as it involved more landowners and left a legacy of government-private correspondence, group photographs, and marketing artifacts. The GPG also considered including adjoining land holdings in state ownership, but these were often encumbered by lease agreements, permits, and land claims.⁹

There should be no illusion as to how difficult the connecting of the various points or conservancies would be. Ten years after discussions began in 1995, just how far there was still to go is indicated by E.J. Van Rooyen writing from a Public Affairs perspective.¹⁰ Already in 1995, he concluded that while all stakeholders, including the GPG, believed that the region's developmental yield was potentially large, such big projects inevitably take time to plan. Taking a project management point of view, Van Rooyen said that "... it could be assumed that the stakeholder negotiations part of the venture to establish a mutually agreeable partnership is intricate".¹¹ Van Rooyen stated that in a 2005 personal interview with E. Fuls, the Dinokeng Big 5 Game Reserve Project Manager at the time who was involved in those negotiations, Fuls had said that partnership modalities for the fledgling project were at times both tedious and emotional,¹² probably because of the stresses involved, the delays, and the mutual suspicions between landowners, communities, and the GPG.

Figure 4-1 shows the positions of several provincial nature reserves seen as potential inclusions for the once envisioned potential 200 000 ha inter-provincial game reserve in Northeastern

⁸ P. Jourdan, "Spatial Development Initiatives, (SDIs) – the Official View", *Development South Africa*, 15(5), 1998, pp. 717-718, <https://doi:10.1080/03768359808440046>.

⁹ RSA, Gauteng Provincial Government (GPG), LSPC, Jimmy Brümmer Archive (JBA), Gauteng Department of Agriculture, Conservation and Environment (GDACE), "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 40.

¹⁰ At the time, E.J. van Rooyen was in the School of Public Management and Administration, University of Pretoria.

¹¹ E.J. van Rooyen, "The Dinokeng Big 5 Game Reserve: Envisaging a Socio-Economic Development Partnership", *Journal of Public Administration*, 40(4.1), 2005, p. 617.

¹² E.J. van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40(4.1), 2005, p. 618.

Gauteng.¹³ These included RdeW Nature Reserve, Mdala Nature Reserve, and Mkhombo Nature Reserve, none of which have, to date, been included in the DGR.

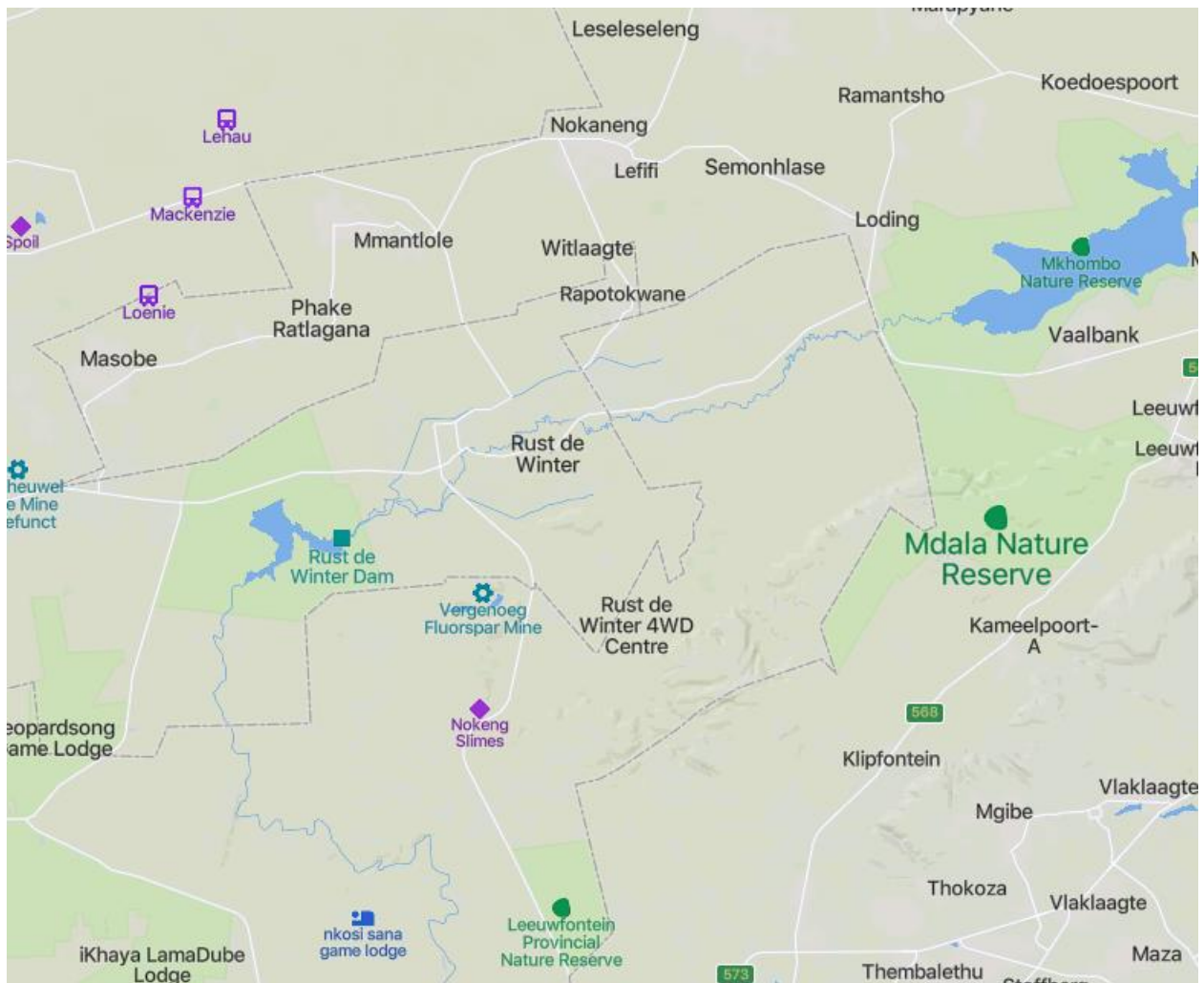


Figure 4-1: Potential expansion points for DGR. Potential expansion areas considered historically from the mid-1990s included Leeuwfontein Provincial Nature Reserve, Rust de Winter Dam and Nature Reserve, and Mkhombo Nature Reserve. A portion of DGR is visible in the southwestern corner of the map. Permission to use this map was conditional upon acknowledging Mapcarta, OpenStreetMap as the source under the Open Database License, accessed 2024-01-30.

Mpumalanga's established reserves, Mdala and Mkhombo, are both in the north-east quadrant of the map. For DGR ever to expand eastwards from its current configuration of approximately 20 000 ha, it would require the consent of provincial authorities, local communities, and hundreds of landowners, all with their own interests at stake. For conservationists, the connecting of numerous corridors must surely remain a tantalising prospect, albeit a seemingly unattainable one.

¹³ This is an estimate as reports on the potential size vary.

4.2.2 Informal landowner discussions give rise to the Amakulu Conservancy idea

Interviews with landowners who had lived in the proposed Amakulu Conservancy in the 1990s, indicate that as early as 1994, there was an attempt by themselves – independent of provincial government – to form a game reserve. Initially, interested landowners would meet socially over weekends to discuss possible formations. One of them, Theo Ferreira, hosted several informal meetings on his own property. Some current landowners, for example, Etienne Toerien of Mongena Lodge, concurred that talks had started prior to government's involvement, and that government had latched on to the momentum started by the landowners.¹⁴

In 1994, Ferreira met landowner, Johan Krüger, who introduced him to the idea of a Big 5 game reserve. Krüger was to go on to lead the drive to create Amakulu as a conservancy. The name, “Amakulu”, meaning “big”, and indicative of the intended reintroduction of the Big 5 wild animals (buffalo, lion, elephant, leopard, and rhino), evolved during these meetings. Ferreira recalled that the resident artist at the local Argilla Potteries, Peter Grosskoph, where Ferreira himself worked, designed what was to become the official Amakulu Nature Reserve logo depicting the Big 5, as shown in Figure 4-2. Lengthy attempts by the researcher to confirm this information were, however, in vain. Ferreira began working with Krüger as he felt that the many ideas about the proposed Amakulu Nature Reserve “floating around”, needed traction. He recalled considerable political resistance and suspicion from landowners fearful that it might lead to confiscation of their land by government.¹⁵



Figure 4-2: The Amakulu logo on a license disc presented to the researcher by landowner Jimmy Brümmer as a memento. Extensive enquiries did not establish with certainty who designed the Amakulu advertising material.

¹⁴ LSPC, SOA21, E. Toerien, Owner of Mongena Lodge, Dinokeng Game Reserve, Mongena/L, Shee, 2017-04-20.

¹⁵ LSPC, SOA24, T. Ferreira, Past landowner involved with the promotion of Amakulu, Monument Park, Pretoria/L. Shee, 2022-03-16.

From the archive of landowner, Jimmy Brümmer, came discussion notes, correspondence, and reports relating to efforts made to form the Amakulu Nature Reserve. At this stage it is appropriate to establish, as far as possible, what land was envisaged to be included in Amakulu. A map in the Brümmer archive, titled, Amakulu II Zoning (Figure 4-3), provided at least some record of the privately-owned land intended for inclusion in the formation of Amakulu, and is the only map that an extensive search yielded. The conservancy was to be bounded by the R573 (Moloto Road) in the south, to have a western expansion no further than the N1 freeway and was to be limited by two other roads: the D1333 to the east, and the D48 in the north.

The Amakulu II Zoning map, produced by Conservation Advisory Services, was, according to Swart, the only map at the time, and there was never a map entitled “Amakulu I”. The Amakulu II map (Figure 4-3), shows portions of land north of the Moloto Road and south of today’s DGR bounded by the D1333 in the east. Land portions in the lower reaches of the proposed Amakulu Nature Reserve, running from west to east included Paardefontein 282 JR, Kloppersbos 128 JR, Doornfontein 291 JR, Boekenhoutskloof 284 JR, Leeuwkloof 285 JR, and Sonskyn 242 JR. Moving further north, and overlapping to a certain extent with DGR’s current inclusions, were Welgedacht 130 JR and a portion of Hartebeesfontein 240 JR. The most northerly section of Amakulu included Boekenhoutkloof 129 JR, the portion of Boveneind Groenfontein 126 JR that borders the western side of the D1333, Hartebeesfontein 123 JR, Rooibank 89 JR, and what appears to be a small section of Welgevonden 93 JR, located west of the D1333.

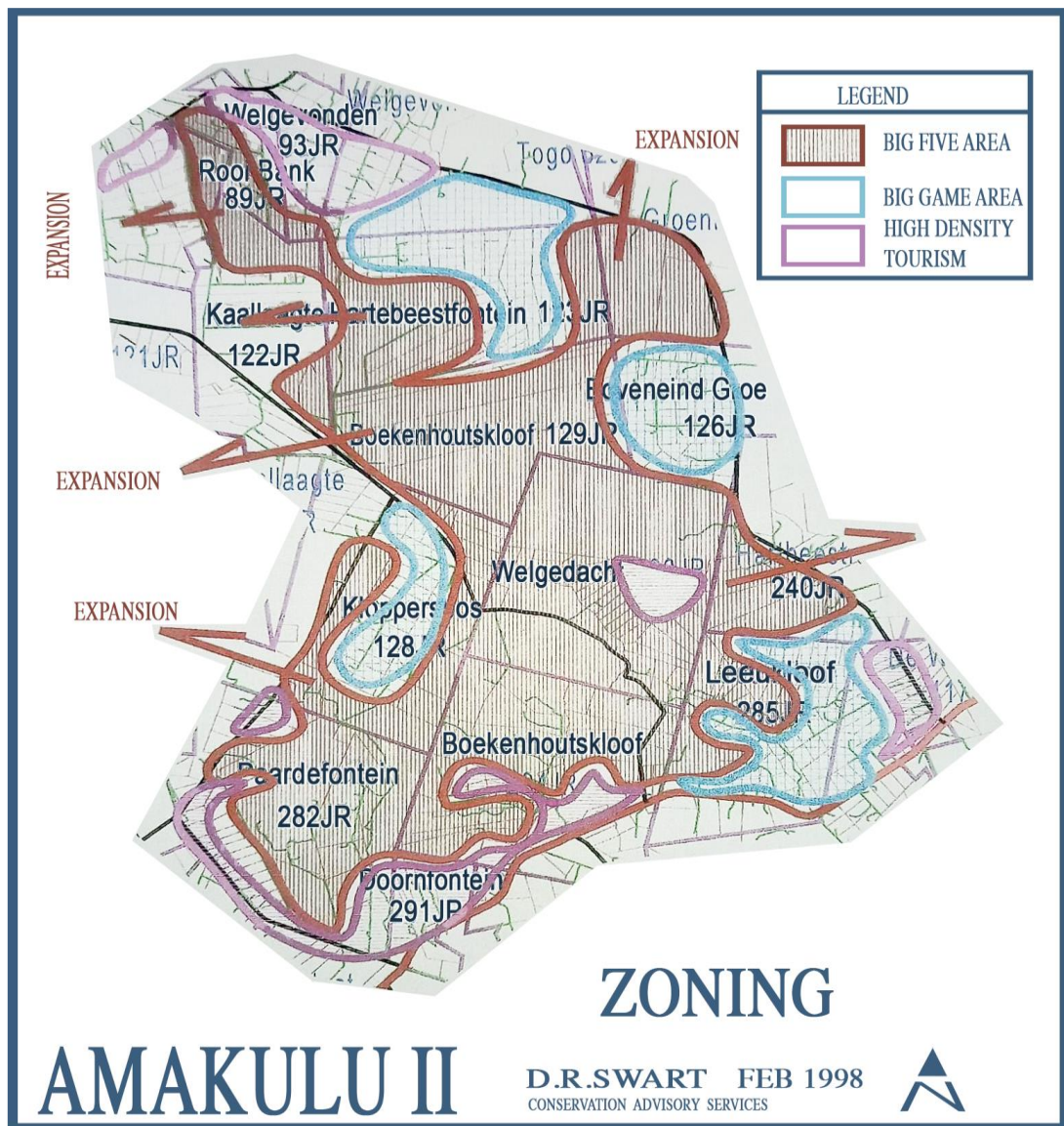


Figure 4-3: Map by D.R. Swart, Conservation Advisory Services, February 1998, entitled Amakulu II Zoning. Digitally enhanced by Marius Whittle. Permission to use DGR maps was granted by the DGR Management Association on 24 April 2023.

Further orientation is possible by comparing Swart's map with the latest Dinokeng expansion map, Figure 4-4, as supplied to the researcher by DGR Management late in 2021. The reader will observe that portions of the southern part of DGR, as it is constituted today, do include some of the northern portions of Amakulu. These portions are Welgedacht 130 JR, Hartbeesfontein 240 JR, Boekenhoutskloof 129 JR, Hartbeesfontein 123 JR, Rooibank 89 JR, and the small section of Welgevonden 93 JR, located west of the D 1333. However, Boveneind Groenfontein 126 JR, bordering the western side of the D 1333, while earmarked for Amakulu, is not included in DGR today. If one compares the more recent map in Figure 4-4 with the earlier map in Figure 4-5, one can see that expansion had taken place by 2021 in De Witskraal 68 JR and De Witskraal 86 JR,

[illegible]

Attempts were made to improve the readability of this detailed map. However, it is best read when zoomed.

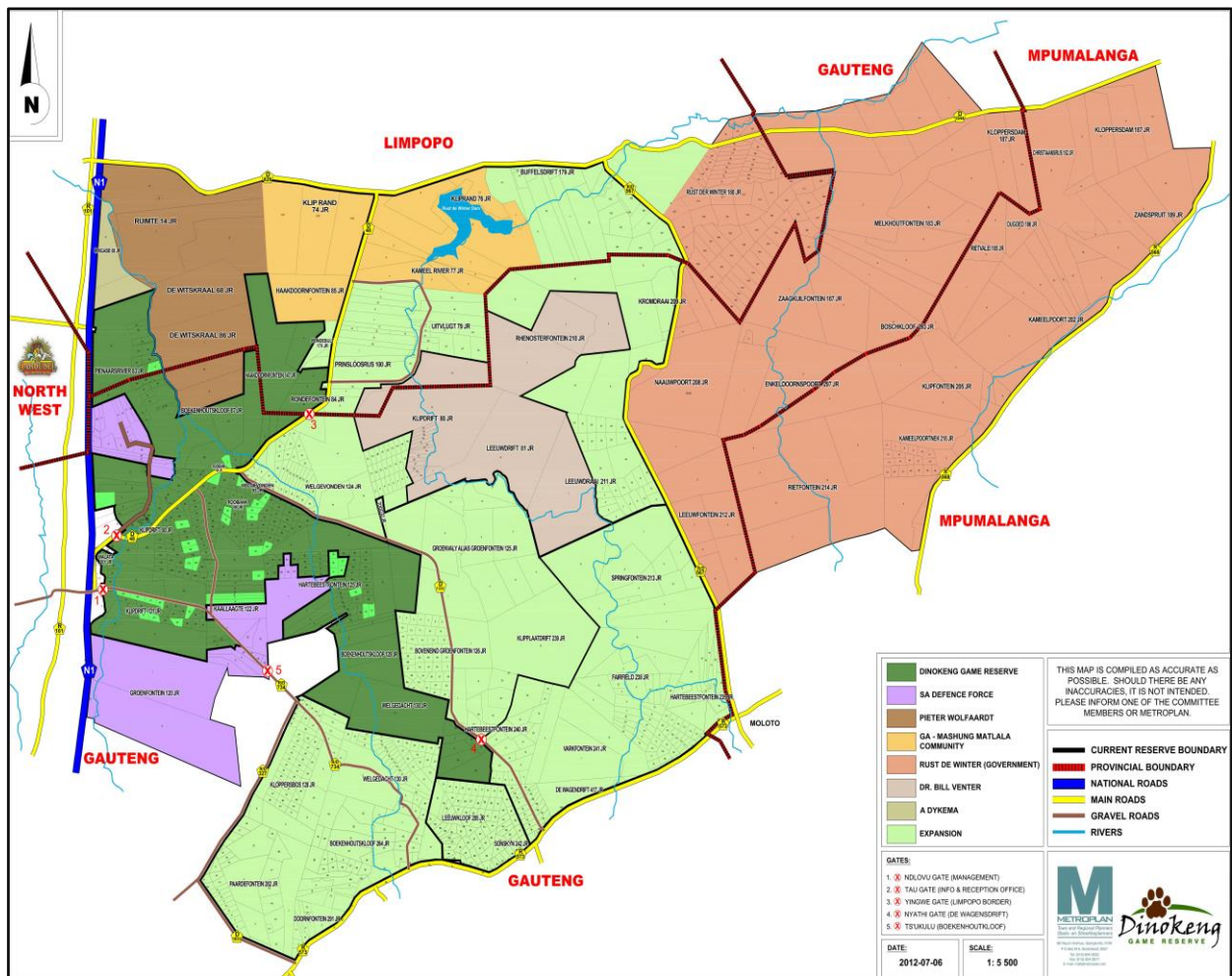


Figure 4-5: DGR map, 2012, for comparison with the 2021 map in Figure 4-4. Provided with the kind permission of the DGR Management Association on 24 March 2023.

Attempts were made to improve the readability of this detailed map. However, it is best read when zoomed.

4.2.3 Amakulu talks begin in earnest

Amakulu could be considered as a prototype private conservancy in the northeastern section of Gauteng which was driven by a small group of determined landowners in the mid-1990s. On an Amakulu Facebook page, the Amakulu game reserve was described as a “blue print for the Dinokeng Game Reserve”.¹⁶ It is difficult to pinpoint the exact date on which the GPG became aware of the preliminary Amakulu discussions among landowners. However, there is some evidence that it did briefly consider the possibility of leveraging off the Amakulu idea in the 1990s. What can be shown, by way of clear evidence, is that discussions and correspondence were carried out between the GPG and Amakulu landowners. These interactions, as might be expected when discussing any land issue, were not always cordial. Mutual suspicions and frustrations

¹⁶ Amakulu, https://m.facebook.com/photo/?fbid=846049663478841&set=ecnf.100070572776143&locale=hi_IN, accessed 2024-02-13.

eventually stalled the Amakulu start-up concept. The researcher's sense is that the discussions that started over a quarter of a century ago were challenging and often frustrating and disappointing. Reasons for this, as evidence, follow in Chapter Five.

Nico Grobler, representing Gauteng Nature Conservation, recalled meetings with Johan Krüger and his wife, Marie, on the Krüger farm in the latter part of the 1990s. He pointed to 1995 as the year in which Dr Gert Willemse, as a senior government conservation official, led a government delegation to explore the possibilities of a partnership with Amakulu landowners.¹⁷ These discussions were to result in the formal registration of the conservancy called Amakulu, which would, a few years later, be de-registered by the landowners who were frustrated by, in their opinion, a dilatory GPG.

Some records of meetings exist, and some of these records were made available to the researcher through the generosity of landowners who offered access to their archives in support of this DGR study. For example, minutes exist of a meeting between organised agriculture and Nature Conservation concerning the establishment of a nature reserve in the Northeastern portion of Gauteng.¹⁸ Several farm landowners met in the area on the 30th of May 1995 for a pilot meeting. Subsequent meetings were held with owners of relevant farms in the area during June 1995, and farming representatives were nominated. Present at the May meeting were Dr G.T. Willemse and N. Grobler representing Gauteng Nature Conservation (Gauteng Natuurbewaring). The Chairman of the Pretoria Distrikslandbou-Unie (DLU or District Agricultural Union), J.S. Krüger, was present along with his wife, Marie, who acted as secretary of the DLU. Completing the list of those present were landowners J.A. van der Walt (Boekenhoutkloof)¹⁹, G.A.C. Ehlers (Leeuwfontein), L.W. Krause (Downbern), J.A.J. and B. Redelingshuys (Paardefontein), W.C. Thomson (Kaallaagte), G. Marais (Groenfontein), and Anna Kuit (Welgevonden).²⁰

At the meeting on the 30th of May 1995, Willemse maintained that for several decades Nature Conservation had been considering a project of this nature. If that is so, the seed for the Big 5

¹⁷ LSPC, N. Grobler, Email, Ecologist, Retired Deputy Director, Dinokeng Projects, DED, GPG/L. Shee, 2021-03-04.

¹⁸ LSPC, JBA, Distrikslandbou-Unie (DLU), Pretoria, Bewaringsgebied, Notule, 30 Mei 1995.

¹⁹ Various spellings of "Boekenhoutkloof" occur. On some maps, it appears as "Boekenhoutskloof". Lt Col E. van Blerk checked several official documents on the researcher's behalf, including Chapter 12 of the *South African Defence Review* of 1998, which refers to "Boekenhoutskloof" Military Area. In a WhatsApp communication on the 8th of February 2024, Van Blerk suggested that this spelling might not be consistent with farm names on the original title deeds as the name of the Boekenhoutskloof Military Area may have been transformed. Generally, "Boekenhoutkloof" is used in this thesis unless it explicitly appears in documents or on maps as "Boekenhoutskloof". "Boekenhout" refers to the tree, Boekenhout (*Faurea saligna*), and "kloof" refers to a gorge or ravine.

²⁰ LSPC, JBA, DLU, Bewaringsgebied, Notule, 30 Mei 1995.

concept could have been sown as early as the 1970s. Having been introduced by Johan Krüger, Willemse explained that an ongoing conservation development programme had the support of senior Provincial Government officials including Derek Hanekom (Minister of Land Affairs and Agriculture, 1996-1999), John Mavuso (who in 1996 was Minister for General Services), and Tokyo Sexwale (first Premier of Gauteng, 1994-1998). Conservation, Willemse argued, would be the vehicle for uplifting poor people through job creation. He stressed the urgency of discussing the proposals with landowners as the total area would be determined by the number of people wanting to join. He was aware that military land would be available, and he also estimated that 70% of envisaged land already included game farming to some degree. The introduction of the Big 5 would be a drawcard for tourism and trophy hunting, while the reserve's proximity to regional airports would facilitate access for tourists.²¹

Willemse noted that co-operative reserves were not new in the Republic and that their success depended on the landowners' willingness to participate. The process would involve erecting entrance gates, removing fences, and the election of a management board by residents. The area would be managed by the board including management of all matters of domestic interest in the area. Owners would retain ownership of their properties and would be allowed to sell or rent their properties at their discretion. In areas where owners did not want to become involved, fences around their homes would be for their own account. Willemse tried to persuade landowners that there would be no question of expropriation of farms to expand the proposed game reserve's boundaries.²²

Initially broad proposals had to be discussed with landowners, while the finer details could be considered later. The expected period of development was three to five years. Many meetings were set for 1995.²³ The dates and places of these meeting are listed in a footnote below.²⁴ From provincial government's perspective, Amakulu was "... a conglomerate of private landowners, which potentially could cover the bulk of the central area of the NEGI", and whose members saw the value of moving away from traditional cattle ranching and moving towards game farming as a tourism venture. At that stage, Amakulu was already promoting landowner participation. Attempts

²¹ LSPC, JBA, DLU, Bewaringsgebied, Notule, 30 Mei 1995.

²² LSPC, JBA, DLU, Bewaringsgebied, Notule, 30 Mei 1995.

²³ LSPC, JBA, DLU, Bewaringsgebied, Notule, 30 Mei 1995.

²⁴ Meetings in 1995: 12 June: Laerskool Kameelfontein (involving Kloppersbos, Paardefontein, Downbern, Doornfontein, Krokodilspruit, Buffeldrift, Boekenhoutsloof 284, and Welgedacht); 14 June: Klipdrift Laerskool (involving Klipdrift Laerskool, Kaallaagte and Hartebeesfontein, Klipdrift 90 and 211, Welgevonden, De Witskraal, Boekenhoutsloof 87 and 129, and Groenfontein 120); and 15 June: Corrie Muller Saal (involving Moloto, Leeuwkloof, Hartebeesspruit, Springfontein, Groenfontein 125, Klipdrift, Fairfield, Hartebeesfontein, and Boveneind-Groenfontein 126).

were being made to expand Amakulu and game fences were being erected in certain areas.²⁵ In theory, Amakulu was in line with the idea behind the NEGI of facilitating, and then linking start-up conservancies, to develop one large game reserve.

According to Grobler the idea of the Amakulu as a start-up for the larger NEGI was, however, short lived, and that despite passionate stories one might hear about Amakulu, it to the contrary, died a silent death.²⁶ Grobler stated that no written document existed confirming landowner consent for NEGI, or Amakulu at that stage. Nor was there any official document from government declaring that Amakulu was a protected area in any category of the National Environmental Management: Protected Areas Act. Grobler observed that Amakulu was, like many other properties in the area, at most, just part of a government wish list for inclusion.²⁷ In fact the NEGI feasibility study investigators in 1999, while suggesting a Biosphere Reserve Concept, acknowledged that under the IUCN and the Man-in-Biosphere programmes, umbrellaed by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the NEGI was unlikely to gain international status owing to UNESCO's stringent criteria. It did, however, acknowledge the possibility of registering the NEGI as a Biosphere Reserve under national legislation.²⁸ To date, nearly quarter of a century later, this ambitious suggestion has not materialised.

The task of forming Amakulu Conservancy depended on the permission and co-operation of many landowners. Getting it off the ground was a monumental task requiring broad consultation through many farming community meetings. As stated in the 1999 NEGI feasibility study, "... in the Amakulu area the sheer size and number of land-divisions makes forging agreement between 100s of landowners an onerous task".²⁹ Therefore, a possible landowner resistance could not be excluded as one of the reasons delaying the progress of the envisaged reserve.

4.2.4 Landowner resistance to Amakulu

Etienne Toerien, owner of Mongena Game Lodge, believed there had been resistance to the Amakulu project; however, he understood the concerns of landowners opposed to establishing a reserve. The resistance, he pointed out, came from both "island landowners" and from some

²⁵ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 36.

²⁶ LSPC, N. Grobler, Email, Ecologist, Retired Deputy Director, Dinokeng Projects, DED, GPG/L. Shee, 2021-03-04.

²⁷ LSPC, N. Grobler, Email, Ecologist, Retired Deputy Director, Dinokeng Projects, DED, GPG/L. Shee, 2021-03-04.

²⁸ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 10.

²⁹ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 11.

neighbours on the borders of Dinokeng. Certain landowners were already making a living from their land and could not afford to give up their livelihoods for the proposed large game reserve. The risk of no longer generating an income from their land, as they had done over the years, was simply too high.³⁰

Others, he said, used their land for recreational purposes such as horse riding. Removing their fences for the sake of a game reserve, would immediately expose their horses to dangerous game which would mean the end to their enjoyable activities. Another problem was that the materialisation of the reserve appeared interminably slow. Toerien pointed to the difficulties of having a couple of hundred landowners with limited budgets interacting with a dilatory government, and having to raise money without government guarantees in place. Inevitably, the delays caused considerable frustration to landowners, many of whom withdrew from discussions. Some landowners had started investing in the development of their properties for tourism purposes. However, as the process dragged on, these developments became unaffordable for some.³¹ Toerien's observations are supported by those of Terence Venter who worked for Gauteng Nature Conservation in the area at the time.

Venter maintained that government was taking too long with the Big 5 idea, so the landowners "... just went and consolidated their conservancies and created this, Amakulu". Venter cited Johan Krüger as the driving force behind Amakulu, while adding that John Baker of Nature Conservation had promoted the idea based on his intimate knowledge of the landscape acquired from his past law enforcement experience gained through anti-poaching patrols in the area. Venter and Baker knew the landowners well and would on occasions sleep over at Amakulu properties while on anti-poaching duties.³²

Inevitably, animosity arose between those for and those against the Amakulu Conservancy reserve. Ferreira recalled an incident where he and other promoters of Amakulu, including Johan Krüger, began fixing small Amakulu signs to fences to indicate proposed boundaries for Amakulu's development. He recounted an incident where "a particularly grumpy gentleman", who owned a large piece of land that would have been central to Amakulu's success, responded aggressively to Krüger's determined push to include farms and threatened to shoot them. Ferreira

³⁰ LSPC, SOA21, E. Toerien, 2017-04-20.

³¹ LSPC, SOA21, E. Toerien, 2017-04-20.

³² LSPC, SOA17, T. Venter, Former Gauteng Provincial Government conservationist, Roodeplaat/L. Shee, 2022-02-22.

recalled thinking that at the tender age of 25 or 26, he had no desire to be shot over a fence dispute.³³

Other tense incidents occurred between landowners, particularly when proponents of Amakulu approached small landowners, many of whom had 18 to 20-ha plots, and a number of whom were financially stretched and fearful of losing their properties. Perhaps the idea of everyone removing fences and being regionally empowered by Amakulu as a collective conservancy, was not presented convincingly enough.

In their attempts to convince audiences at meetings in church and school halls, the proponents consistently cited Amakulu's proximity to international airports as a significant advantage. This, they argued, could attract overseas visitors to Amakulu rather than their having to travel much further distances to Big 5 game reserves such as Kruger Park and Pilanesberg. Also citing location as the proposed game reserve's greatest drawcard, Toerien described the convenient drive on the N1 freeway from Johannesburg or Pretoria to the proposed game reserve as far more pleasurable than the longer, dangerous drive to the Pilanesberg Game Reserve. He concluded that the proposed game reserve was on the doorstep of the biggest financial hub in Africa with a huge concentration of people in the Gauteng area.³⁴

Ferreira maintained that the Amakulu process came to be seen as politically conservative by the GPG who wanted to avoid any association with what might be interpreted as a "white only" enclave. He believed that no single person could claim ownership of the Amakulu idea as that would be unfair to all parties involved. He recalled having considerable interaction in the mid to later 1990s with Peter Mills of Gauteng Nature Conservation who was promoting the NEGI. Ferreira believed far more could have been done had there not been, in his opinion, an Afrikaans and English divide, as well as general suspicion of government's motives.³⁵

³³ LSPC, SOA24, T. Ferreira, 2022-03-16.

³⁴ LSPC, SOA24, T. Ferreira, 2022-03-16.

³⁵ LSPC, SOA24, T. Ferreira, 2022-03-16.



Figure 4-6: Amakulu's first Board of Directors (April 1997): Back row left to right: Rudie Potgieter, Jimmy Brümmer, Peet Bruyns, Johan Krüger (Chairperson), Giel Groenewald. Seated left to right: Takkie Marais, Marie Krüger, Marie Robbertse.³⁶



Figure 4-7: Various Amakulu committee members (no date). Back row left to right: Rudie Potgieter, Jimmy Brümmer, Peet Bruyns, Hennie Lombard, Dewald Smit, Fritz van Hammersveld, Bart Dideriks. Seated left to right: Marie Krüger, Takkie Marais, W.T. Marais, Marie Robbertse.

³⁶ Photographer, Hanneltjie Marais, taken on the farm of Takkie Marais, 10 Boveneind, Groenfontein, April 1997.

As mentioned in Chapter Three, the NEGI feasibility study requested by the GDACE, was undertaken between September 1998 and February 1999 by the IUCN Consortium, inclusive of ARUP³⁷ and Moolman's Attorneys. It was to assist GDACE in undertaking a development planning process to formulate a larger master plan for the NEGI. The South African IUCN project leader was Salim Fakir who cited the valuable contributions to the study by Peter Mills, Jo-Anne Yawich, and Melinda Smith.³⁸ The greater IUCN Master Plan became the focus of inclusive negotiations between landowners, local communities, and provincial government, as will be discussed in Chapter Five.

As facilitator, GDACE articulated NEGI's vision as that of establishing a biosphere reserve that would achieve the dual objectives of creating a Big 5 reserve and promoting a local economy based on ecotourism and wildlife that would create jobs and generate revenue for the province.³⁹ Amakulu, and Leeuwfontein, could then be described as playing a part in NEGI's bigger vision of building a game reserve anchor project, which "... could be the major catalyst that will pull together the various products along a single marketable route".⁴⁰

Summing up at the meeting, Grobler suggested necessary conditions for the envisaged game reserve to succeed. The area would have to be large because size determines viability; there had to be joint management, but with retained ownership; the establishment of a conservation area would likely increase the land value for owners; the Big 5 would have to be established to create tourist potential; the proposals had to align with the Reconstruction and Development Programme (RDP) to secure provincial support, which would require developing job opportunities; the accessibility of the area, which offered great tourist potential through its proximity to large metropolitan centres and international airports, would have to be promoted; and individual participants' boundary wires/fences would have to be removed, but their boundary beacons retained and indicated.⁴¹

The first meeting of the Interim Management Committee was held on the 29th of July 1995 at Kwalata Lodge. Owner, Charl Pretorius, had offered his lodge as a venue for drawing up a constitution. Minutes taken record the meeting as "Conservation area: meeting of farm

³⁷ The Arup Group Limited industries include global design, engineering, and business consultation. Arup is headquartered in London, but has offices in Johannesburg, Cape Town, and Durban.

³⁸ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, pp. 5-6.

³⁹ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 7.

⁴⁰ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 8.

⁴¹ LSPC, JBA, DLU, Pretoria, Bewaringsgebied, Notule, 30 Mei 1995.

representatives". The minutes of the meeting note that there would have to be an ordered, responsible approach to forming a game reserve. Willemse explained that the purpose of the meeting was to work out a strategy for the planned conservation area.⁴²

Willemse assured those present that while all information concerning land was being plotted on maps by government, the process was hampered by landowner title deeds that had either not been submitted for inclusion or were not up to date. He requested farm representatives to assist with updating land details. Those landowners present acknowledged the need for uniform marketing and the distribution of accurate information. They also agreed that for the professional advancement of the Amakulu Conservancy, a constitution should be drawn up.⁴³ As preparation, landowners were requested to study the constitutions of Atherstone Nature Reserve, and the Klaserie and Olifants River Game Reserves as possible blueprints. Why these three reserves were cited is possibly because, at the time, all three were small to medium-sized game reserves formed collectively by landowners removing fences for the greater good of protecting biodiversity and assisting local communities. A short description of each of these private nature or game reserves as they exist today, follows.

Atherstone Nature Reserve, situated near Dwaalboom in Limpopo Province, is characterised by extensive savanna plains and grasslands, and is bigger than DGR at 23 500 ha. Edward Atherstone, originally a cattle farmer, transitioned from cattle to game farming. Having no heirs, he bequeathed his farms to the former Transvaal Nature Conservation Department. As Dan Koehl, elephant researcher, recorded: "In 1990 the Atherstone Nature Reserve was founded and it became the Atherstone Collaborative Nature Reserve in 1994, after some private farms were also incorporated into the reserve".⁴⁴ The second reserve mentioned, Klaserie, is a private reserve, one of the collective properties making up the Greater Kruger Private Reserves. At 60 000 ha, it is over three times the size of DGR. Like DGR, it consists of land contributed by private landowners. The first farms were included from the late 1930s. Klaserie was officially declared a protected area in 1972, a status for which a DGR application was submitted in 2023. Like DGR, Klaserie has the dual purpose of preserving biodiversity and uplifting local communities. In this regard, Eco Children was founded, with a view to creating inclusive prosperity through educational programmes that encourage local communities to be partners in protecting biodiversity.⁴⁵ Thirdly, Olifants River Game Reserve, three times the size of DGR, is, unlike DGR, not open to the public. A Share Block, under the Share Block Control Act, it has had proclaimed

⁴² LSPC, JBA, Bewaringsgebied: Vergadering van plaasverteenvoordigers, Notule, 29 Julie 1995.

⁴³ LSPC, JBA, Bewaringsgebied: Vergadering van plaasverteenvoordigers, Notule, 29 Julie 1995.

⁴⁴ D. Koehl, Atherstone Nature Reserve, *Elephant Encyclopedia*, 2023, https://www.elephant.se/location2.php?location_id=3075, accessed 2023-06-21.

⁴⁵ Klaserie Private Nature Reserve, video, <https://www.klaseriereserve.co.za/>, accessed 2023-06-21.

Nature Reserve status since 1993. Like Klaserie, it is an ecologically integral part of the Greater Kruger National Park/Great Limpopo Transfrontier Park.⁴⁶ Undoubtedly, aspects of other game reserve models such as Vhembe, Pilanesberg, and Madikwe were considered. Their similarities and differences with DGR are touched on in Chapter Five.

Returning now to the planning discussions of a potential game reserve in Northeastern Gauteng, elections were held at the Interim Management Committee meeting, and the following committee appointments were made: Johan Krüger, Chairman; Marie Krüger, Secretary; and Frans Furstenberg, Treasurer. In addition to Dr Willemse (Nature Conservation), Charl Pretorius (Klipdrift), and the committee members mentioned, other landowner representatives were also in attendance.⁴⁷

In November 1995, the management, together with Willemse, sent out a questionnaire and a preliminary draft constitution to all landowners to identify the level of interest in the project and establish whether to proceed with it. Results showed an 80% level of support from landowners who provided signed letters of confirmation.⁴⁸ A strategic planning meeting then took place on the 24th of February 1996. The strong contingent present from Gauteng Nature Conservation, namely G. Willemse, N. Grobler, T. Venter, and D. Swart, indicated GPG's serious interest in the project. About 16 landowners attended the strategic planning session. The name, Amakulu, does not appear in the minutes of the meeting. Instead, the minutes are mentioned as those of the Gauteng Co-operative Reserve, indicating the working relationship between landowners and Nature Conservation. The minutes were forwarded to Grobler two days later for Nature Conservation's comment and approval, further showing the Provincial Government's serious interest in the welfare of the project. The mission statement was in line with the Gauteng Government's determination that the upliftment of local communities should be prominent. It read: "Die vestiging van 'n Samewerkingsreservaat tot voordeel van die natuur en die gemeenskappe" (The establishment of a Cooperative reserve for the benefit of nature and the communities).

A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, a strategic management and strategic planning method, indicated strong points in favour of the Co-operative Reserve,

⁴⁶ Olifants River Game Reserve, About ORGR, <https://olifantsreserve.co.za/about/>, accessed 2023-06-21.

⁴⁷ Bewaringsgebied, Vergadering van plaasvertegenwoordigers (Conservation area, Meeting of farm representatives), held at Kwalata Game Ranch, on the 29th July 1995. Other participants recorded as present: Johan van Zyl (Kloppersbos), Ludwig Krause (Downbern), M.C. van der Walt (De Wagensdrift), Pieter Smuts (Leeuwkloof), Marie Robbertse (Leeuwkloof), S.S. Blom (Leeuwdraai), A.R. Krüger (Hartebeesfontein 240), Takkie Marais (Boveneind/Groenfontein), Kol A.D. Boshoff (SANW/SANDF), and Danie Vermaak (Buffelsdrift).

⁴⁸ LSPC, JBA, "Amakulu Natuureservaat Beperk Stigtingsvergadering", *sine anno*, a chronological summary of Amakulu progress.

which was loosely based on Amakulu. It had a strategic, accessible location; production potential; economic viability; relatively intact scenery; legislative support; established infrastructure; security; role-player support; and sizable land potential. In contrast, the weak points noted were the number of landowners reluctant to join the conservancy, problems with communicating the messaging about the conservancy, high financial costs, the complexity of a project involving many landowners, and fears of splitting the landowning community into those for and against the project.⁴⁹ Awareness of the needs of the local communities was also displayed in both the opportunities and threats identified by the working group.

Opportunities included job creation, the upliftment of communities, attraction of both domestic and foreign tourists, economic growth, and an influx of foreign currency. Likely threats to the development of the envisaged reserve were opposition from landowners unwilling to join, the possibility of unsettled land claims, questions of representation, and concerns over the time scale of such a project. To deal with these opportunities and threats, participants set various goals, namely, to establish management and communication networks, encourage maximum representation, generate relevant documents, establish sound financing, and proclaim an official co-operative conservancy. To achieve these goals, a management structure would have to be established by nominating an interim management committee. It would also be necessary to establish community forums, introduce the reserve concept and obtain nominations for interim representations, convene farm meetings, and determine voting protocols. Concerning communication, the project would need to be strategically marketed to identify target groups. The creation and maintenance of a database operated from an information centre would be required. Then, to get maximum participation, the database could provide information on landowner attitudes and could identify those unwilling to participate, but who might possibly be persuaded to join the initiative, with Nature Conservation assisting with difficult cases.⁵⁰

Drafting a constitution would start with a draft being sent to the community for comment before finalisation and ratification. Drafting an agreement document for landowner participation would need to be done in consultation with lawyers. Contracts had to be drawn up and a valid business plan put in place to request state or private financing. Finally, relevant documentation had to be presented to Nature Conservation for proclamation of the reserve.⁵¹ The Amakulu constitution and business plan were finalised in 1997.

⁴⁹ LSPC, JBA, Bestuurskomitee van Gauteng Samewerkingsreservaat, Notule, 24 Februarie 1996, p. 2.

⁵⁰ LSPC, JBA, Bestuurskomitee van Gauteng Samewerkingsreservaat, Notule, 24 Februarie 1996, p. 3.

⁵¹ LSPC, JBA, Bestuurskomitee van Gauteng Samewerkingsreservaat, Notule, 24 Februarie 1996, p. 4.

Several sub-committees for the effective operation of the project were elected from the Interim Management Committee to take responsibility for administration/documentation, fencing, garnering maximum participation and representation, communication, and generation of funds. Indications were that farm owners from the neighbouring Northern Province (Limpopo today) were supportive of the project and were willing to make their properties available for the reserve. In addition, conservation area suggestions appeared to be gaining momentum. These were that the area should be large, jointly managed with retained ownership, that the Big 5 would attract tourists, land value would increase, and that the proposals must accord with the RDP to get provincial support. These suggestions were supported by the area's proximity to international airports and metropolitan centres.⁵²

In September 1996, Swart presented a report⁵³ to the Interim Management Committee. Beginning with provincial support, he confirmed that the project to develop a Big 5 game reserve had full provincial government support and had been presented to the Minister at Zebra Lodge by provincial government conservationists, Swart himself and Peter Mills. The Minister had visited the area twice, on the 20th of August and 16th of September 1996.⁵⁴ Nomvula Mokonyane, MEC for Agriculture, Conservation and Environment at the time, was at the Zebra Lodge meeting on the 20th of August 1996. The Directorate Nature Conservation had planned the visit which would have included a helicopter flight over the area for the MEC. However, bad weather scuppered that plan on the day. Also present at the Zebra Lodge meeting was Dr Pieter Mulder, Chief Director of the Department as well as members of the local community. It was here that Swart and Mills presented a report on the project's scope and progress. The MEC expressed her excitement about the project and the benefits it held for the region's economy.⁵⁵ These discussions, it must be understood, extended to a wider game reserve plan than Amakulu alone.

On 16 September 1996, Swart identified Boekenhoutskloof as an important development point for establishing a core area. This was in part due to the expected acquisition of military land there. The transfer of the farm Boekenhoutskloof 129 JR, a section of military land not being used by the South African National Defence Force (SANDF) Signal Corps, had come a long way towards being included. Landowners at neighbouring Welgedacht were also showing considerable interest in participating in the proposed development. At the time, Peter Mills was the conservationist in

⁵² LSPC, JBA, Bestuurskomitee van Gauteng Samewerkingsreservaat, Notule, 24 Februarie 1996, "Bestuurskomitee van Gauteng Samewerkingsreservaat", Notule, 24 Februarie 1996, appendix to Notule, n.p.

⁵³ The Swart Report, "Proposed North-Eastern Conservation/Resource Area for Gauteng", June 1996, is discussed in detail in Chapter Three.

⁵⁴ LSPC, JBA, D.R. Swart, Projekleier: Wallmannsthal Inisiatief, *Verslag aan die Interim Bestuurskomitee*, GN 3/2/110, 1996-02-03, p. 1.

⁵⁵ LSPC, JBA, "MEC Visits the Area", *The Reserve Gazette*, 1(1), 23 August 1996.

charge of the Enkeldoornspoort section of the project, while Swart headed the Wallmannsthal Initiative. Government conservationist, James Williams, was at the helm of attempts to acquire state land and took army personnel on exploratory tours through the project area. Indications are that the military displayed some reluctance to yield their state land to the project, but this disinclination was later overcome to the extent that military land does now form part of the current configuration of DGR, which includes sections of Boekenhoutskloof and the SANDF's Ditholo Nature Reserve in the north-west section of DGR.⁵⁶ Positive discussions concerning further acquisitions of military land continue today.

The name Amakulu does not always appear at meetings, which suggests that broader game reserve discussions were gaining momentum both privately and with government involvement and not necessarily only with the Amakulu leaders. Also, the private project led by Johan Krüger, referred to in this chapter for convenience as Amakulu, had its name, Amakulu Nature Reserve Limited, registered only on the 7th of January 1997 by the Registrar of Companies. The company itself was registered on the 14th of April 1997.⁵⁷ It is not precisely known when the name was first and subsequently used in public discourse. Also, the names Dinokeng, and Dinokeng Game Reserve were not yet in use and came into use only after the Master Plan's release in 2001.

In the meantime, the Amakulu project moved ahead. By 24 March 1997, the first fence pole had already been planted. The event was attended by many landowners, government officials, and members of the media. The Amakulu Nature Reserve Mission Statement adhered to the principle of conservation through sustainable use for the benefit of the nature and the communities of the northeastern part of Gauteng. Amakulu Nature Reserve was restricted to acting as an official legal entity on behalf of the landowners, and to issue shares to raise capital to erect the fence and to purchase game. The decision to form a public company was made to give landowners a vested interest, but also to enable adjoining residents to take up shares at an affordable one Rand per share. By July 1997, the Amakulu constitution had been drafted, while still allowing landowners to make amendments if so desired.⁵⁸

It would be an almost prohibitive task to document all discussions and meetings, formal and informal, that took place in the latter part of the 1990s. Swart does mention some of these. For example, on the 27th of July 1996, a meeting was held at Uitvlug arranged by Murray Faure. Rudi

⁵⁶ LSPC, JBA, D.R. Swart, Projekleier: Wallmannsthal Inisiatief, *Verslag aan die Interim Bestuurskomitee*, GN 3/2/110, 1996-02-03, pp. 1-2.

⁵⁷ LSPC, JBA, "Amakulu Natuurreseervaat Beperk Stigtingsvergadering", *sine anno*, a chronological summary of Amakulu progress.

⁵⁸ LSPC, JBA, "Amakulu Natuurreseervaat Beperk Stigtingsvergadering", *sine anno*, a chronological summary of Amakulu progress.

Potgieter arranged a meeting on the 3rd of August 1996 at Klipdrift Primary School, attended by over 70 people. Leon van Biljon held a meeting at his home with a Welgedacht group on the 12th of August 1996. Meetings were also held by those opposed to the project such as Mr Mollense from Kloppebos. Swart engaged cordially with the latter on troubling questions, resulting in some resolutions. Delegations seeking inclusion also visited other landowners including Danie Opperman from Klipplaatdrift and Danie Erasmus, Professor Cocks, and Professor van Deventer, all from Welgevonden.⁵⁹

At various stages, interest in the project waned, to some extent at least, because of the dilatory progress feedback from provincial government. As a result, Swart considered it essential to start a newsletter to keep landowners informed of developments. He indicated that the Development Bank of Southern Africa (DBSA) and other sources of funding had expressed interest in financing the creation of infrastructure. At that stage, the broader project area, later to become DGR, still did not have a name. South African journalists were beginning to show an interest in these developments in Northeastern Gauteng. It was around this time that Julie Hyde-Mew made her intentions known to produce a 30-minute documentary of the various Northeastern Gauteng conservation initiatives. Filming was expected to start in mid-October 1996. With permission of the Amakulu Communications Committee, Swart took the opportunity to promote an independent, core-area proposal made by landowner, Rudi Potgieter, in September 1996, to the effect that Boekenhoutskloof as a core central area had great possibilities.⁶⁰ Potgieter had seen Bill Venter's land and RdeW as likely inclusions. However, to date (2024), neither of these land areas has been included in the DGR.

In collaboration with Gauteng Nature Conservation, a planning committee was established which conducted a survey of all landowners' development plans. As a result, land use had to be rezoned for all commercial development. In the meantime, the fencing was started after identification of a Phase 1 in the Moloto area. Mr W.T. Marais made this possible by allocating a large amount of capital to take up financial shares, and a contractor with a team of 30 employees worked for about one year to erect the approximately 60 km of fencing.⁶¹ A Phase 2 was later identified, and government assisted with the planning of this phase, which included provision for a Big 5 area. A call was made by some landowners for a master plan to determine the economic viability of the project. Some landowners in favour of the project ceased their farming activities and started to

⁵⁹ LSPC, JBA, D.R. Swart, Projekleier: Wallmannsthal Inisiatief, *Verslag aan die Interim Bestuurskomitee*, GN 3/2/110, 1996-09-21, p. 2.

⁶⁰ LSPC, JBA, D.R. Swart, Projekleier: Wallmannsthal Inisiatief, *Verslag aan die Interim Bestuurskomitee*, GN 3/2/110, 1996-09-21, pp. 2-4.

⁶¹ LSPC, JBA, "Amakulu Natuureservaat Beperk Stigtingsvergadering", *sine anno*, a chronological summary of Amakulu progress, circa 1997.

dismantle their internal fences in anticipation of participating in the project. In August 1997, the committee began its strategic planning, but lacked funds to carry it through. At the board's request the authority agreed to appoint and pay a consultant to draw up a master plan. The NEGI feasibility report was completed in 1998 with positive results⁶² and was to form the basis for the eventual DGR Master Plan. With some positives that the game reserve trailblazers celebrated, other challenges surfaced.

4.2.5 Indications of inadequate government communication

Signs that all would not be smooth sailing became apparent as early as 1996. In a communication in Afrikaans between Johan Krüger and Nature Conservation's Steve Fourie, the former expressed the Amakulu Interim Management's dissatisfaction regarding Nature Conservation's lack of communication. Krüger maintained that 15 months had passed since the Interim Management Committee had heard anything from the GPG. Kruger said that "Dit het tyd geword dat ons oop kaarte met mekaar speel" (It is time to play open cards with each other). He complained that after 15 months the GPG had still not identified or demarcated an area suitable for the initial development of a game reserve for the landowners.

The landowners, through the planning committee, insisted that the area be identified and demarcated, and that Nature Conservation provide them with its plan for a game reserve including projected costs, profits, and risk factors. They also requested clarity on how government planned to control access to provincial roads crossing the envisaged game reserve area.⁶³ One such road of concern was the busy public tarred road, the D48, an important route for those travelling between Hammanskraal and RdeW for business or family purposes. Today, the D48 bisects DGR, and passage remains free for transport passing through the reserve as long as vehicles travelling this stretch of road do so within the ample one-hour's grace allowed. Roads are not necessarily the only corridors of human or animal movement. One thinks of the observation made by historian, Jacob Dlamini, that throughout the 20th century, the region in which Kruger Park lies "... was an important corridor for the movement of humans, animals, epizootics, and commodities".⁶⁴ Corridors, whether paved or not, provide lifelines for both humans and animals, and current DGR expansion efforts attempt to widen natural corridors to benefit biodiversity and freedom of movement for wildlife. Regarding human movement, besides the D48, DGR is crossed by several busy gravel roads that provide lifelines for people in the region. Questions about roads

⁶² LSPC, JBA, "Amakulu Natuurresewaat Beperk Stigtingsvergadering", *sine anno*, a chronological summary of Amakulu progress, circa 1997.

⁶³ LSPC, Alexandra Roessingh Archive (ARA), (J. Krüger correspondence), faxed letter, J. Krüger, Chairman of Amakulu, to Steve Fourie, GPG, Directorate Nature Conservation, 1996-05-20.

⁶⁴ J. Dlamini, *Safari Nation: A Social History of Kruger National Park* (Jacana Media (Pty) Ltd, Auckland Park, 2020), p. 13.

then, as well as other practical concerns, were ones which the GPG was unable to answer satisfactorily. The researcher was unable to find a response from the GPG to this faxed letter of complaint from Krüger dated 20 May 1996.

Despite the landowners' disgruntlement with the GPG, co-operation continued, as evidenced by a combined, undated letter from Krüger (Chairman) and Willemse (Nature Conservation) to landowners submitting a constitution to them for comment. The landowners were asked whether they would be interested in going ahead with the planning of a Co-operative Reserve, in collaboration with the Directorate Nature Conservation in the area. At this stage, an expression of interest was requested without obligation.⁶⁵

Attempts at communicating information to landowners took place at intervals. For example, an undated report simply titled, *Amakulu Natuurreseervaat/Nature Reserve*, was put out, possibly late 1998, by the Amakulu Nature Reserve directors. At the time, the directors were J.S. Krüger (Chairman), J.M. Brümmer, P.J. Bruyns, G.J. Groenewald, M.M. Krüger, H.R. Potgieter, and M.M. Robbertse. For the most part, this report recapped, for landowners, the salient points of the Amakulu initiative, as detailed in the information provided so far in this chapter. However, it also included what would prove to be an overly optimistic announcement that owners of farms in the Northern Province (Limpopo), adjacent to the proposed game reserve area, had decided to support the draft constitution and make their properties available for the project. At this stage, Amakulu had two phases, Phase 1 and Phase 2, which were already fenced off to cover an area of approximately 25 000 ha. This was a large area if one considers that the current configuration of DGR is just 19 000 ha. Game animals were released into Phase 2 on the 24th of October 1998. The final point made in the feedback to landowners was that Amakulu Nature Reserve Limited maintained the principle of conservation through sustainable use as summarised in the Mission Statement, which was written in both English and Afrikaans:

"To establish a Nature Reserve in the Northeastern part of Gauteng that will benefit nature and the communities".

"Om in die Noordoostelike deel van Gauteng 'n Natuurreseervaat te vestig wat tot voordeel van die natuur en die gemeenskappe sal wees".⁶⁶

Johan Krüger received a letter dated 12 September 1997 from S.P. Mashatile, MEC for Gauteng Transport and Public Works, apologising for not providing prompt feedback to his questions.

⁶⁵ LSPC, ARA, (J. Krüger correspondence), "Call for comment on the Amakulu Draft Constitution" by J. Krüger and G. Willemse, n.d.

⁶⁶ LSPC, ARA, (J. Krüger correspondence), "Amakulu Natuurreseervaat/Nature Reserve Report", presented by the Directors, possibly late 1998, n.d.

Mashatile vaguely explained that information was never passed on to him as MEC because of an administrative review affecting his department.⁶⁷ Mashatile was subsequently appointed Deputy President of South Africa in March 2023. Krüger's letter from Mashatile was a reminder that final decisions were slow to come from government departments, especially regarding road queries. This correspondence highlighted the frustration that the landowners experienced in dealing with the presiding bureaucracy. Krüger also reminded S. Fourie, T. Roux, and Jack van der Merwe, Head of Gautrans, that queries faxed to the Provincial Roads Department had remained unanswered since the 26th of June 1997, so delaying Amakulu's planning and fencing.⁶⁸

4.2.6 What constitutes a “milestone”?

Considering the GPG's unhurried administrative processes at the time, it is reasonable to surmise at what point it began to take concrete steps to implement the game reserve project. Worth noting here are Grobler's reflections on the value of the Amakulu initiative because, as a government ecologist working on the Dinokeng Projects, he interacted with all the stakeholders (government, communities, and landowners), making him well placed to comment on the role Amakulu played in the lead up to DGR's establishment. The researcher suggests that Grobler's views and assessment of Amakulu's importance are those of a realist ecologist, guided and perhaps constrained by departmental rules and regulations. During several of the researcher's discussions with Grobler, he has downplayed Amakulu's significance by rather emphasising the importance of the development and approval of a master plan that had been a work in progress between 1999 and 2001. The publication of this master plan in 2001 indicated a closer step to DGR's formation as it is today and is explored in detail in Chapter Five.

Grobler maintained that the granting of approval by the GPG for developments in the broader Dinokeng region, including the DGR, showed the first real commitment from government as it involved establishing an official collaborative nature reserve, known today as Leeuwfontein. This, he concluded, was a “milestone” as it represented a 2 300 ha micro-model of the greater NEGI concept, which would act as a test run for a larger reserve model based on collaboration between a state authority and private landowners in the Dinokeng region. In the context of the development of the DGR, he defined a milestone as a real commitment confirmed by “... signed agreements of consent by either government or a constitutional assembly of private stakeholders that implicates land-use”. Anything coming before that, such as grouping of land parcels, Amakulu for example, remained, in his view, a mere “wish list”. The existence of Amakulu, he continued, could only be found in minutes of meetings and perhaps references in some documents such as the

⁶⁷ LSPC, ARA, (J. Krüger correspondence), Letter from S.P. Mashatile, MEC Transport and Public Works to J. Krüger, Chairman of Amakulu Nature Reserve, 1997-09-12.

⁶⁸ LSPC, ARA, (J. Krüger correspondence), (KPC), Letter from J. Kruger, Chairman of Amakulu Nature Reserve to S. Fourie, T. Roux, and J. van der Merwe, Head of Gautrans, 1997-11-20.

2001 Master Plan "... as part of the broader scope of Dinokeng to identify nodes of growth for the outdoor tourism market". A milestone, he continued, is a real commitment that confirms progress by way of a signed document from a management authority that formally approves budget allocations and has clear commitments for a specific land use (in this case as a protected area). Amakulu was not, he said, a management authority at any stage of its existence.⁶⁹

The idea was that the NEGI concept could spread from the Leeuwfontein Collaborative Nature Reserve (LCNR) to surrounding land. This did not happen, and as Grobler wryly noted, it is of no value having numerous people, including landowners, getting excited but not being prepared to sign an agreement to remove expensive fences to consolidate a seamless open ecosystem for the Big 5. The remaining obstacles, he asserted, were "... lack of evidence for income streams, land tenure security, and assets". In further response to the researcher's question about DGR's final positioning, Grobler wrote that the "punchline" was that the DGR finally originated unexpectedly far away from the two initial possible localities, Amakulu and LCNR, to reach the "milestone" that was the opening of DGR, a mere 19 000 ha reserve with a legal basis and formal constitutional arrangements in place. This, he added, included "... signed agreements of consent from 176 landowners, and a governing constitution, amongst others" as well as the full complement of the free-roaming Big 5, which was a "first for Gauteng". Grobler maintained that the dropping of internal fences marked a "major breakthrough in this project".⁷⁰

Despite the amount of exploratory work; numerous meetings; investment in fencing, communications, and marketing; and infrastructural expenditure, Amakulu ultimately never met initial expectations. Why GDACE did not pursue its collaboration with Amakulu is not clear. During interviews, several Dinokeng landowners, and government officials involved "on the ground" in the late 1990s, believed that senior provincial politicians considered Amakulu landowners to be very conservative. They, therefore, reasoned that the Amakulu landowners were planning a type of "Orania", although no evidence has emerged to support this view.⁷¹ The NEGI did not provide clarity on the reasons either and vaguely stated that several factors made Amakulu not a good option in the near future. However, the NEGI Implementation Plan came close to recognising the possibility of Amakulu having ulterior motives by way of a short reference in the report which reads

⁶⁹ LSPC, N. Grobler, Email, Ecologist, Retired Deputy Director, Dinokeng Projects, DED, GPG/L. Shee, 2021-03-04.

⁷⁰ LSPC, N. Grobler, Email, Ecologist, Retired Deputy Director, Dinokeng Projects, DED, GPG/L. Shee, 2021-03-04.

⁷¹ Orania is a small town in the Northern Cape on the Orange River populated by mainly self-declared Afrikaners. Aims of Orania people are to preserve their language and culture. Amakulu was likely suspected by the NEGI of having separatist motives based on race in a similar way to Orania.

as follows: “There is a possible tendency to make Amakulu into a security cordon by fencing the area off. This may be one of the underlying reasons for its establishment”.⁷²

Several landowners have expressed “off-the-record” umbrage at this insinuation and have suggested that many landowners were so discouraged by the GPG’s attitude that it became a causal factor in Amakulu’s eventual dissolution. The process of consultation that took place between the release of the 2001 Master Plan and the opening of DGR is discussed in Chapter Five. Gradually, the GPG moved its attention away from Amakulu in order to consider other inclusion possibilities, particularly those of RdeW and Leeuwfontein, and by 2009, the Amakulu chairman and a majority of shareholders had reached the decision to deregister the Amakulu Nature Reserve. This researcher believes that while the Amakulu story officially ended with deregistration, its legacy has lingered. It is sometimes mentioned informally by older landowners with whom the researcher has had informal conversations as having historically provided an impetus for the development of what was to become the DGR.

4.2.7 The 2009 deregistration and official ending of Amakulu

In a letter to the Registrar of Companies dated 30 June 2008, J.M. Brümmer, Chairman of Amakulu Nature Reserve, requested the deregistration of Amakulu Natuurreservaat Beperk: Reg No 1997/005509/06. Brümmer confirmed that a special general shareholders’ meeting was held on the 24th of May 2008, during which 75% of the shareholders had decided to deregister the company. Two reasons were given. Firstly, Brümmer maintained that “Dinokeng Big Five Game Reserve, a Blue IQ Project of the Gauteng Government, took over the project”. Secondly, he stated that because this had happened, he saw no reason why Amakulu Game Reserve should proceed with its activities as the company would be “dormant”. He added that the company was selling their game and some of their fencing. Most of the fencing, however, would be donated to Dinokeng Big 5 Game Reserve as requested by Dr Patricia Hanekom who oversaw the reserve. Further, Brümmer pointed out that while the game was supposed to be taken over by DGR, some landowners, who had not been willing to sign on to Amakulu had objected. Had this delay not occurred, Brümmer believed that the company would have been deregistered far earlier.⁷³

On the 30th of June 2009, T.G. van Niekerk, representing Amakulu, received confirmation from the Registrar of Companies that “... on publication of Government Notice No. 200904 in the

⁷² RSA, GPG, LSPC, JBA, GDACE, “North Eastern Gauteng Initiative Feasibility Study: Final Study Report”, March 1999, p. 36.

⁷³ LSPC, JBA, Letter from J.M. Brümmer to The Registrar of Companies, Amakulu Natuurreservaat Beperk: Reg No 1997/005509/06, 2008-06-30.

Government Gazette No. 200904 of 22/06/2009” Amakulu Nature Reserve “... was deregistered in terms of Section 73(5) of the Companies Act 1973 (Act 61 of 1973)”.⁷⁴

As indicated several times in this chapter, other areas regarded as potential start-up nodes for a greater reserve in Northeastern Gauteng were RdeW Dam, RdeW Nature Reserve, and Leeuwfontein. The focus now turns to the trials and disappointments of the RdeW inclusion effort.

4.3 Rust de Winter – A lost opportunity for conservation

4.3.1 Background to rural Rust de Winter

Rust de Winter, a small residential town in Northeastern Gauteng is located 12 km east of RdeW Nature Reserve and RdeW Dam. The town was part of the apartheid-era KwaNdebele and is separated from a portion of state-owned land, RdeW 180 JR, by a large section of privately-owned land, Buffelsdrift 179 JR. The early, optimistic projections of realising a large game reserve in Northeastern Gauteng were based on the expectation of achieving broad landowner agreement, local community consent, government willingness to include military and state land, and the inclusion of provincial nature reserves. The Gauteng Directorate Nature Conservation had provincial nature reserves that could potentially have formed part of the proposed regional game reserve. These included RdeW Nature Reserve in Limpopo, and the Mkhombo and Mdala Reserves in Mpumalanga whose addition would have added valuable land, ecosystems, and biodiversity to the larger game reserve. Unfortunately, their inclusion was never realised.⁷⁵ The combined size of the two Mpumalanga provincial reserves is comparable to the current size of DGR and would have made a wonderful addition to the proposed large game reserve allowing for big free roaming animals such as elephant.

The GPA was enthusiastic about including both RdeW Nature Reserve, and the RdeW Pilot Project, which was on RdeW 180 JR, in the plan for an expansive game reserve. The land on RdeW 180 JR was on state land ear-marked for the resettlement of black farmers in the mid-1990s. It had been expropriated from small scale white farmers for incorporation into the apartheid construct, KwaNdebele. Research has been conducted on the expropriation of white land in RdeW. Olaf Zenker, for example, investigated “... the contested field of moral entitlements emerging from divergent discourses about the true victims and beneficiaries of apartheid”. In so doing, he examined land claims relating to “... the western frontier of KwaNdebele – the wider Rust de Winter area, which used to be white farmland expropriated in the mid-1980s for

⁷⁴ LSPC, JBA, Letter from M. Maseko, Registrar of Companies to T.G. van Niekerk, representing Amakulu, Notice of Deregistration: Amakulu Natuureservaat, 2009-06-30.

⁷⁵ South African Broadcasting Corporation (SABC), “The Big Five for Gauteng”, *Focus Features*. <https://www.youtube.com/watch?v=VaYafATicNE&t=1367s>, accessed 2021-09-01.

consolidation (which never occurred) and currently vegetates as largely neglected no-man's-(state-) land under multiple land claims". Zenker stated that owing to its range of interested parties, including "... state officials, former white farmers, Ndebele traditionalists, local residents, and other citizens and subjects, this homeland frontier" had to be "... analysed as a fateful zone of contestation, in which the terms of a new South African moral community are negotiated".⁷⁶ Ongoing contestation has hindered social upliftment in the area, including the determined efforts of the RdeW Pilot Project that started with such enthusiasm, only to fail when local communities refused to sign it off on the appointed day.⁷⁷

Gauteng's Directorate of Nature Conservation became involved in a land reform programme in the hope that approximately 5 000 people in the Pilot Project area would benefit from the establishment of black cattle farmers in the area, while simultaneously reintroducing game species. Domestic and wildlife stock would then be farmed side-by-side in a management partnership between the farmers and Nature Conservation, thus requiring a coming together of Northern Province (Limpopo), Mpumalanga, and Gauteng role-players. Pre-1994, the northern region of the Transvaal Province was known as the Northern Transvaal. With the advent of a democratic government in 1994, the Northern Transvaal was renamed Northern Province. On the 11th of June 2003, Northern Province was renamed Limpopo after the Limpopo River that separates South Africa from Zimbabwe and Botswana.⁷⁸ The NEGI Document and Implementation Plan recognised the need for inter-provincial co-operation, evidenced by the statement that "Rust de Winter is not viable as a node if Northern Province (Limpopo) and Gauteng do not work together".⁷⁹

A Northern Province Department of Nature Conservation official noted towards the end of the 1990s that while inter-provincial discussions were essential, they had not yet taken place. He could see the advantage of attracting tourists, particularly fishermen, to the RdeW Nature Reserve. Noting that the future lay in tourism, he was in favour of inclusion of this nature reserve in a larger game reserve for the long-term benefits of all provinces involved.⁸⁰

Terence Venter, a conservationist with Nature Conservation at the time of the RdeW initiative, believed that much credit for it should go to his former colleague, John Baker, who he said had a

⁷⁶ O. Zenker, "South African Land Restitution, White Claimants and the Fateful Frontier of Former Kwa Ndebele", *Journal of Southern African Studies*, 41(5), 2015, p. 1.

⁷⁷ The purpose and characteristics of the Rust de Winter Pilot Project were discussed in Chapter Three.

⁷⁸ RSA, Limpopo Provincial Government (LPG), "Background", <https://www.limpopo.gov.za/>, accessed 2024-02-06.

⁷⁹ RSA, GPG, LSPP, JBA, GDACE, "NEGI Framework Document and Implementation Plan", North Eastern Gauteng Initiative Feasibility Study (NEGI), March 1999, p. 20.

⁸⁰ SABC, "The Big Five for Gauteng", *Focus Features*.

passion for RdeW, the landowners, and their needs.⁸¹ Baker, who knew many farmers in the area, spent considerable time in the mid-1990s discussing with them the possibilities of starting a nature reserve in the RdeW area. Among those he and Venter visited was anti-apartheid activist, Abraham (Braam) Viljoen who, with two African partners, farmed land between RdeW and Leeuwfontein on the state-owned farm, Enkeldoornspoort. Venter and Baker promoted the idea of collaborative conservancies to take pressure off farmers who might only have visited their farms at intervals and who, as a result, were unable to give the conservation of their land full attention.⁸²

4.3.2 Land complexities of the Rust de Winter Pilot Project

The GPG saw RdeW as having the strongest potential to provide an enabling environment for black economic empowerment as it was a Land Reform Pilot Programme with high agricultural potential. With the benefit of the RdeW irrigation scheme, both cattle ranching and crop production could be highly successful. The land at the time had been surveyed and allocated to small-scale farmers who had the option to buy after five years.⁸³ While a brief description of RdeW's geographical location was given earlier in Section 4.9, the reader's attention is drawn to Figure 4-8 below which shows the position of RdeW 180 JR, east of RdeW Nature Reserve and Dam and on the eastern side of the RD567. The privately-owned Buffelsdrift 179 JR can be seen separating the RdeW Nature Reserve and Dam from the state-owned land, RdeW 180 JR. Whereas Buffelsdrift is divided into approximately 20 plots, RdeW has over 60 divisions of mostly small plots, which without irrigation and careful farming practice would not be agriculturally or economically viable.

⁸¹ LSPC, SOA17, T. Venter, 2022-02-22.

⁸² LSPC, SOA17, T. Venter, 2022-02-22.

⁸³ RSA, GPG, LSPC, JBA, GDACE, "NEGI Framework Document and Implementation Plan", North Eastern Gauteng Initiative Feasibility Study (NEGI), March 1999, p. 24.

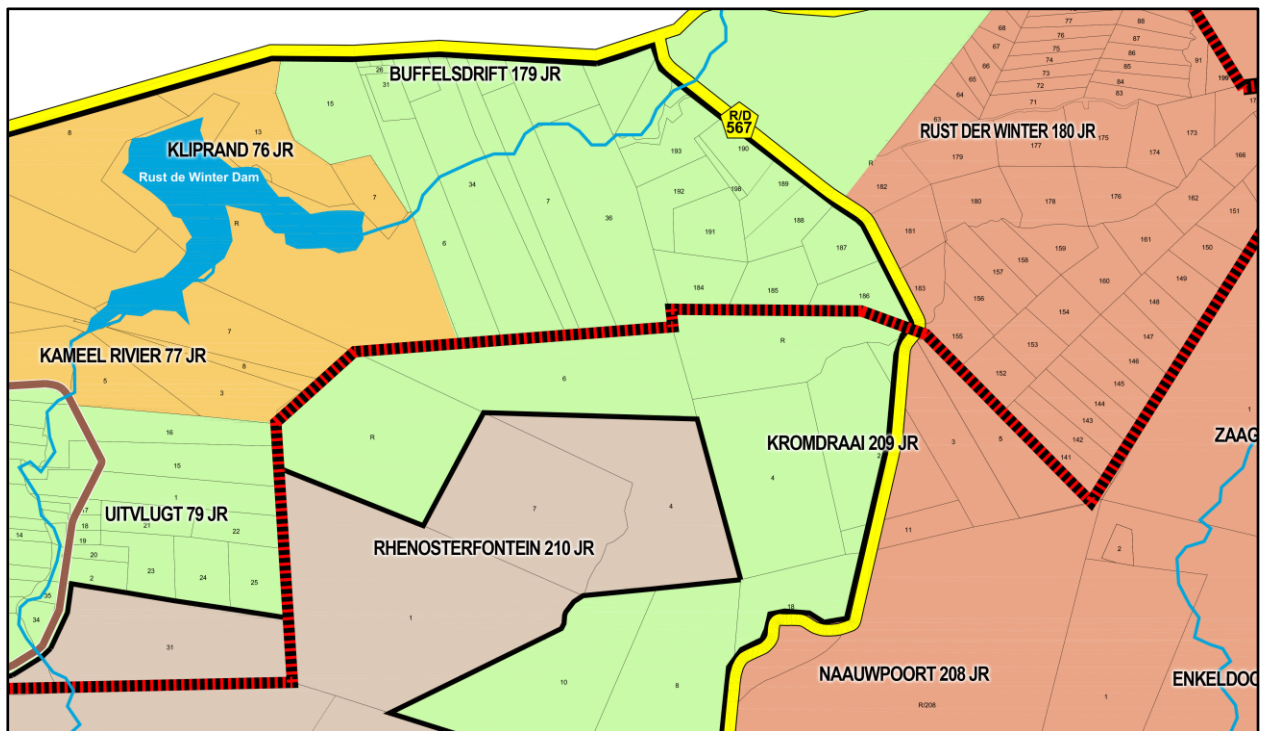


Figure 4-8: The position of the Rust de Winter development area centred on Rust de Winter 180 JR. Permission to use the map was granted by the DGR Management Association on 2023-04-24. Map digitally enhanced by Marius Whittle.

The Government identified RdeW 180 J as a land reform project, and R35 million was made available for its development. White private landowners, not realising the money was destined for the land reform programme, kept asking where the money was. At the time, Robert Mugabe's ZANU government was expropriating white farms in Zimbabwe, often violently, and white South African farmers were concerned that similar expropriations might take place in South Africa. Nature Conservation's Peter Mills recalled that there were development plans on small holdings at RdeW itself with vegetable gardens, an irrigation area, a cattle area, and a game area.

It is difficult to establish how the complex RdeW Project was structured, although it is established that plots were small and that the state saw them as a way of resettling thousands of land claimants. It is also clear that the project was not well organised, nor was it going well in the late 1990s. This was brought to the public's attention in a *Mail and Guardian* article on the experiences of just one RdeW community.

About 40 farming families in the Vuka Nzensele Co-operative, part of the RdeW Project, had expected their farming attempts on state expropriated land to be easier and more lucrative. Vuka Nzensele was only one of six groups competing for a portion of state-owned agricultural land in the Rust de Winter Project. They soon learned that although the land was fertile, it was also dry. The RdeW Project was one of the projects selected by the Gauteng Province Land Reform Pilot

Program for "... redistribution, restitution and land tenure reform". The issues over access to water for agricultural purposes almost immediately became contentious once payments for water from RdeW Dam and Rhenosterkop Dam were due. Referring to complaints from the project's farmers that water had been cut and that they received less water than that received by the white farmers on the land before them, Northern Province Water Affairs chief engineer, Jan van Rooyen, said this was not true. He said that community members who applied for water would have received it. He added that other than the project farmers, almost the whole of the former KwaNdebele also depended on that water. Land leases were another problematic issue. The costs of rentals from the state and the exorbitant costs of farming without access to credit also made for an unstable agricultural project. Emerging farmers also felt that the risk of buying land was too high without the assurance that farming in RdeW was going to be too costly in the long run. As researcher, Keneuoe Mosoang argued there was "... no point seeing how many people can be settled on land without ensuring they can survive there and improve their lives".⁸⁴

Mills and a colleague, James Williams, spent considerable time trying to persuade community members to farm both cattle and game with a view to replacing cattle gradually with game, creating their own game reserve in the process. He and Williams went to the extent of taking the RdeW community leaders, basically cattle farmers, and some people from the MEC's office, to study the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) Project near Gonarezhou in Zimbabwe. They travelled in two personal double cab vehicles to their base at the community-owned lodge. Mills recalls little of the trip, other than that the logistics were complicated and noted that the trip would not be easily arranged today.⁸⁵ It was hoped that lessons learnt in Zimbabwe would go a long way to encouraging RdeW communities to follow suit.

Brian Child has said of the CAMPFIRE Project that the Zimbabwean Government entrusted the authority for wildlife to rural communities, which "... now manage and market their wildlife, receive benefits from its sale directly, and are beginning to value and conserve it".⁸⁶ Child argued that CAMPFIRE principles, which are anti-protectionist, are spreading with some success in Zimbabwe and that "... wildlife will only survive in most of Africa if profitable sustainable utilization is combined with defined access to resources".⁸⁷ While CAMPFIRE is not a central focus in this chapter, its mention as

⁸⁴ "The gift of land proves useless without support", *Mail & Guardian*, 1997-11-28, <https://mg.co.za/article/1997-11-28-the-gift-of-land-proves-useless-without/>, accessed 2024-02-14.

⁸⁵ LSPC, SOA23, P. Mills, 2022-03-11.

⁸⁶ B. Child, "Zimbabwe's CAMPFIRE Programme: Using the High Value of Wildlife Recreation to Revolutionize Natural Resource Management in Communal Areas", *Commonwealth Forestry Review*, 72(4), 1993, p. 284.

⁸⁷ B. Child, "Zimbabwe's CAMPFIRE Programme: ...", *Commonwealth Forestry Review*, 72(4), 1993, p. 284.

a Payment for Environmental Services (PES) model is important for the lessons it teaches. For example, Frost and Bond's study of CAMPFIRE progress between 1989 and 2001 suggested five main lessons for emerging PESs to be successful. These are: community-level commercial transactions can seldom be pursued in isolation, non-differentiated payments weaken incentives, start-up costs can be high and may need to be underwritten, competitive bidding can allow service providers to hold on to rents, and schemes must be flexible and adaptive.⁸⁸ Ultimately, the CAMPFIRE visit did not appear to convince the RdeW communities to emulate the model, an imperfect one anyway that has recently come under scrutiny by environmental NGOs.

Mills recalled that Nature Conservation devised the idea of establishing a Big 5 reserve in Northeastern Gauteng because it had the most undeveloped land in Gauteng. In 1995, Nature Conservation decided that as they had so little land under protection, they should devise a meaningful project in the RdeW area. Gert Willemse, Daan Swart, and Peter Mills held the first of several meetings with landowners, including one near De Wagensdrift, one at a hotel close to Roodeplaat near Johann Krüger's farm, and one at Klipdrift School where they spoke to landowners and simply said, let's fence this area off.⁸⁹ Mills admitted that their planning could have been more strategic; however, in their defence, they were entering a new era of conservation in South Africa.

In the meantime, meetings continued with the white landowners wary of GPG's intentions, who were drawn together by Johann Krüger to form Amakulu. Mills recalls that they were upset about the money they thought they were going to get, which was in fact for black community development. Williams and Mills started working almost exclusively at RdeW in 1995/1996 when the GPG appointed consultants to plan the RdeW Pilot Project for the community. They met every second week with community leaders on Thursdays and Fridays at a community centre next to RdeW to discuss the possibility of transitioning from cattle farming to wildlife and ecotourism. In Mills' view, the RdeW Land Reform Project ultimately failed in part because community representatives kept changing, resulting in a lack of continuity that hindered progress. When it came to sign off on the RdeW Pilot Project, they just said no, claiming there had not been proper consultation, which Mills denies.⁹⁰

⁸⁸ P.G.H. Frost & I. Bond, "The CAMPFIRE Programme in Zimbabwe: Payments for Wildlife Services", *Ecological Economics*, 65(4), 1 May 2008, p. 776.

⁸⁹ LSPC, SOA23, P. Mills, 2022-03-11.

⁹⁰ LSPC, SOA23, P. Mills, 2022-03-11.

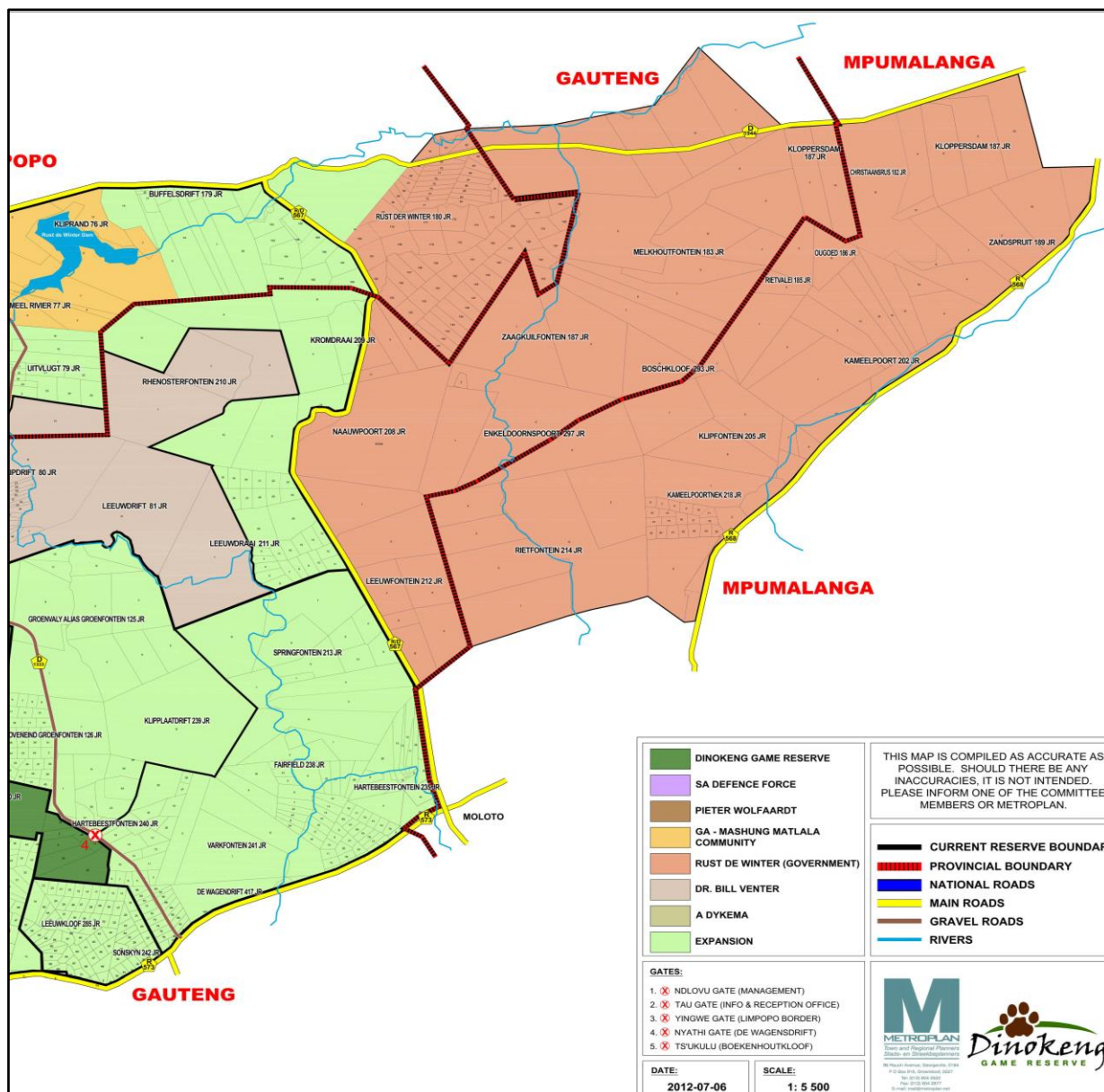


Figure 4-9: Potential eastern expansion areas considered for a large cooperative game reserve in the 1990s included Enkeldoornspoort, Zaagkuilfontein, and Melkhoutfontein neighbouring Mpumalanga. Permission to use DGR maps was granted by the DGR Management Association on 2023-04-24. Map digitally enhanced by Marius Whittle.

The small plots of RdeW 180 JR were part of the RdeW Pilot Project, and components of the land expropriated by the apartheid government for inclusion in KwaNdebele, which, although used, were never officially included in the homeland. Figure 4-9 shows the position of these and other swathes of state land including the farms Enkeldoornspoort, Zaagkuilfontein, and Melkhoutfontein stretching up towards Mpumalanga. These farms were used for extensive cattle farming by black communities who had no official ownership of the land. Naauwpoort, together with section 1 of Leeuwfontein is a game farm, collectively known as Loodswaai, which is privately owned by the Erikson family. Immediately south of the Eriksons' property, is the LCR. The original, optimistic

plan was that the total RdeW area, together with the state land, Enkeldoornspoort, Zaagkuilfontein, and Melkhoutfontein would amalgamate. However, land negotiations became too complicated regarding land claims and other complex issues to do with state land. Further, the privately-owned large cattle and game farms situated west of the RD567, namely Springfontein, Klipplaatdrift, and Groenfontein, were eyed for inclusion. To date (2024) these privately-owned farms have rejected invitations to amalgamate with DGR to the west or even with Leeuwfontein to the east. They are considered prime cattle and game farms.

4.3.3 The untapped potential of the Rust de Winter Dam and Nature Reserve

The RdeW Dam was built in the late 1930s and it, together with the surrounding game area, was proclaimed a game reserve and a nature flora reserve in 1954, to be known as RdeW Nature Reserve.⁹¹ The potential of this wonderful nature reserve and dam remains largely untapped. One possible future scenario is that the reserve and dam be incorporated into the nearby DGR. This incorporation remains elusive despite having always been part of the DGR's expansion plans. The Limpopo Government is aware of this possibility, one which was considered in its five-year 2013-2017 strategic plan for tourism. However, obstacles remain to opening a corridor to DGR, one of which is the Ga-Mashung Matlala community's reluctance so far to join DGR. Should they decide to do so, a corridor through to DGR could become a reality. An interesting point about the ga Mashung Matlala community is that the community represents a group that received its ancestral land back in a land claim.

The RdeW Nature Reserve is located in the Waterberg Region of Limpopo Province, some 88 km north of Pretoria, and, strategically for tourism, 132 km from the O.R. Tambo International Airport in Johannesburg. It is 40 km north of the Leeuwfontein Collaborative Reserve, also once part of the DGR's expansion hopes. The strategic plan acknowledged that the RdeW Nature Reserve was situated within the boundaries of the proposed DGR and was expected to be a major centre of wildlife-based industry.⁹² The strategic plan identified two communities in need of priority consideration. These were the Faan Basson Trust, owner of Portion 13 of the Farm Kliprand 76 JR. This portion is bounded by the west-east running D 626 in the north and RdeW Nature Reserve's northern border to the south. KwaNdaba Lodge is situated in this portion. Approximately 2 000 ha of land to the west of the RdeW Nature Reserve is owned by the Ga-

⁹¹ Notice No. 223 of the Transvaal Official Gazette Extraordinary No. CL (2473) of 8 September 1954, in terms of Section 11 of the Transvaal Game Ordinance, 1949 (Ordinance No. 23 of 1949) and Section 2 of the Transvaal Native Flora Protection Ordinance, 1940 (Ordinance No. 9 of 1940). RdeW Nature Reserve is legally defined as a provincial nature reserve in terms of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPAA) and falls under the legal protection of NEMPAA in terms of Section 12 thereof.

⁹² RSA, LPG, Department of Economic Development, Environment and Tourism (DEDET), Reserve Management Documents: Rust de Winter Nature Reserve, (Five-Year Strategic Plan 2013-2017) p. 19.

Mashung Matlala community, who have a settlement agreement with Fish Eagle Rust de Winter (Pty) Ltd. A portion of this land has been earmarked for the RdeW development and, according to the aforementioned company, the Gauteng Department of Rural Development and Land Reform approved the incorporation of a portion of this restored land into the RdeW Nature Reserve. The RdeW Nature Reserve covers an area of approximately 1 690 ha.⁹³

The draft Integrated Development Plan of the Bela-Bela Local Municipality for the period 2012-2013 mentions RdeW Nature Reserve as one of the nature conservation areas in the municipality suitable as a key development site of the Dinokeng Integrated Tourism Initiative. This indicates an awareness, at least, that DGR could benefit in the future from the inclusion of RdeW Nature Reserve.⁹⁴ If one considers some of the weaknesses of the RdeW Nature Reserve, it is reasonable to argue that inclusion within DGR would have many benefits. As happened with the incorporation of Ditholo military land into DGR, for example, the DGR management took over responsibility for fire protection, biodiversity management, anti-poaching demands, and fence maintenance. The RdeW Nature Reserve Five-Year Strategic Plan 2013-2017 envisaged possibilities for environmental education to spread to communities as well as the creation of community beneficiation through the development and operation of tourist accommodation such as lodges.⁹⁵

While there is much to recommend the participation of the ga Mashung Matlala community in the current DGR model, in post-colonial Africa, it is necessary to consider opposing viewpoints. Some researchers such as Thakholi have written critically of conservation areas marked by “... evictions from land and dispossession of resources”.⁹⁶ The ga Mashung Matlala case is, therefore, of particular interest because it represents a community back in possession of its land and in a position to map out its own future without being forced to submit to a dominant authority. One could also consider the views of Domínguez and Luoma who argue that: “Prevailing conservation policies, made possible by global non-governmental organisations (NGOs) and statutory donors, continue to harm indigenous peoples and their traditional territories”.⁹⁷ Their concern appears to lie mainly with protected areas that resort to fortress style conservation in areas “... that overlap

⁹³ RSA, LPG, DEDET, Reserve Management Documents: Rust de Winter Nature Reserve (Five-Year Strategic Plan 2013-2017), p. 19.

⁹⁴ RSA, LPG, DEDET, Reserve Management Documents: Rust de Winter Nature Reserve (Five-Year Strategic Plan 2013-2017), p. 34.

⁹⁵ RSA, LPG, DEDET, Reserve Management Documents: Rust de Winter Nature Reserve (Five-Year Strategic Plan 2013-2017), p. 35.

⁹⁶ L. Thakholi, “Conserving Inequality: Subjugating Black Labour by Accumulating and Defending Property in South Africa’s Private Nature Reserve’s”. PhD, Wageningen University, 2021, p. 21.

⁹⁷ L. Domínguez and C. Luoma, “Decolonising Conservation Policy: How Colonial Land and Conservation Ideologies Persist and Perpetuate Indigenous Injustices at the Expense of the Environment”, *Land*, 9(65), 2020, p. 1, [doi:10.3390/land9030065](https://doi.org/10.3390/land9030065), accessed 2024-03-10.

with indigenous territories” resulting in policies “... that restrict indigenous peoples’ access to and traditional use of their ancestral lands to the detriment of indigenous livelihoods”.⁹⁸ How the RdeW community, which is neither under full protected area status nor restricted from using their ancestral land, will decide to utilise their land options will eventually provide an interesting case study. For now, their options appear to be to continue with marginal farming or to join DGR while still maintaining the title deeds to their land. Either way, it is unlikely that those favouring the views of Domínguez and Luoma would be satisfied with any post-colonial model that failed to further recompense communities dislodged during the colonial era to the benefit of the coloniser. They believe colonial conservation models are alive and well.

Their suggested approach to reversing the legacy of colonial conservation comes from a legal perspective. It is difficult to ascertain how they would view the RdeW community, which has not been a victim of the “... large conservation NGOs and international donors that fund conservation initiatives in former colonies”, although they were victims of local land dispossession. They are also back in control of their land after a successful land claim. However, Domínguez and Luoma are adamant that exploited communities should be adequately compensated while funding should be channelled to indigenous and community conserved areas (ICCAs) – conserved territories administered by indigenous peoples and local communities themselves. Legal and political reforms, they maintain, should be directed towards making “... customary indigenous title enforceable”. There is a sense of urgency in their recommendations that funds be made available “... to better understand how indigenous traditional knowledge helps preserve the environment” while “... integrating it into modern conservation science” as the most effective approach to conserve the environment and allay climate change.⁹⁹ Admirable as these suggestions may be, their practical implementation in a South African context would be extremely difficult considering the NG’s poor record of implementing even basic municipal services.

Looking at the GDACE Implementation Plan retrospectively, it had little success. Their assumptions, in 1999, for their RdeW Project to be successful were that for a wildlife-based option to be viable, livestock in the RdeW Project area would have to be removed. This has not happened. In addition, extensive capacity building and training would have had to take place within the RdeW community to develop institutional and management arrangements for this new land use.¹⁰⁰ This too has not happened, reflecting poorly on the government’s divide between idealistic concepts and reality on the ground.

⁹⁸ L. Domínguez and C. Luoma, “Decolonising Conservation Policy: ...”, *Land*, 9(65), 2020, p. 2.

⁹⁹ L. Domínguez and C. Luoma, “Decolonising Conservation Policy: ...”, *Land*, 9(65), 2020, p. 15.

¹⁰⁰ RSA, LSPC, GPG, JBA, GDACE, “North Eastern Gauteng Initiative Feasibility Study: Final Study Report”, March 1999, p. 57.

4.3.4 Inclusion of Rust de Winter Farms, Dam, and Nature Reserve into DGR – just a pipe dream?

The RdeW Farms, shaded reddish-brown on the map, located east of the RdeW Dam and Nature Reserve, date back to the Voortrekker days in the 1800s. Rust de Winter also formed part of the NG's plans for relocating poor whites in the 1930s. The dam was built in 1920 for commercial arable production. In 1981 and 1982, white commercial farmers were bought out by the National Party government, who appointed the Suidelike Transvaal Koöperasie to maintain the farms until its withdrawal in 1992. The farms are now predominantly state land characterised by a mix of land claims, private ownership, and tenantry. Despite attempts to transform the area into viable farming use, land use and ownership issues remain unresolved and a hindrance to development. After the South African democratic transition in 1994, the farms were officially demarcated into two blocks, one block for each of the Gauteng and Limpopo Provinces. Before the demarcation, the Department of Agriculture in Gauteng Province provided extension services and guidance to all other farms. In the Limpopo block, the farms were further divided into portions ranging from 10 to over 200 ha.¹⁰¹

In the mid to late 1990s, Gauteng Nature Conservation's, Steve Fourie and Peter Mills, were optimistic about the inclusion of the RdeW Pilot Project into a broader collaborative reserve. Despite potential obstacles, Fourie believed that the project's scope was staggering, but emphasised the importance of solutions rather than problems. Mills expressed a positive outlook on the project's inclusion into a broader collaborative game reserve, stating that even if it took 10 to 15 years to conserve anything, different approaches had to be tried.¹⁰² In retrospect, Mills' projection was optimistic. Until today, the RdeW agricultural land continues to be a complicated experimental area for students and practitioners of development.

The RdeW Pilot Project to which Mills referred never took off. Nevertheless, the broader RdeW area, which includes not just the RdeW farming area (180 JR), but also the RdeW Nature Reserve and Dam (represented as Kliprand 76 JR and Kameelrivier 77 JR on the regional map) – areas returned to the Ga Mashung Matlala community – remains a sought-after acquisition for potential DGR expansion. The RdeW Project, which included the possibility of transitioning from cattle to game farming, was just one of many attempts to breathe order and prosperity into this impoverished region.

¹⁰¹ L. Botha, J.V. Mafu, D. Mmakola, M.D. Modiba, J. Mulaudzi & T.G. Ngcobo, "Can we Get Them There? A Case of Commercializing Arable Farming at Rust de Winter Farms of Limpopo Province", *Working Document Series* 124, South Africa, 2005, p. 8.

¹⁰² SABC, "The Big Five for Gauteng", *Focus Features*.

A study by the Limpopo Department of Agriculture aimed to develop RdeW Farms into viable agricultural entities by providing a practical evaluation of the area's farming possibilities and developing guidelines for revitalising the farms. This study aimed to identify opportunities for efficient land use, while also addressing limited irrigation provision, and to ensure financial success for farmers on the RdeW irrigation scheme. It also sought to provide an objective overview of the situation and to develop practical solutions.¹⁰³ Economically viable agricultural endeavours would contribute towards alleviating the high unemployment in the area.

In 1997, the short-lived RdeW Trial Project aimed to resettle 5 000 African people on state land near RdeW. Despite the Government's land reform intentions, their efforts were slow and hesitant, and the project never materialised. The idea was for the resettled population to farm cattle alongside game species and when the rewards of game farming and ecotourism outweighed cattle farming, the cattle were to be phased out, and fences removed. The new landowners could then have had their own 30 000 ha game reserve with the opportunity to run their own lodges.¹⁰⁴ Nature Conservation was desperate to try anything to conserve wildlife, and the RdeW Project had to be attempted, at least.

Gauteng's Department of Nature Conservation offered to oversee the management of conservation and to train the farmers in ecotourism and game farming. Mills emphasised the potential for additional income from game sales or hunting packages that could be made available to hunting outfits within five years. The trial project was expected to benefit the wider community of 25 000 people in the long term by way of the construction of lodges, fences, roads, and peripheral opportunities like food provision to lodges.¹⁰⁵ Eventually, mixed expectations, impatience with land issues, and community disagreements resulted in a failure by the communities to sign off on the project. However, nearly 10 years later, government attention was once again drawn to the RdeW area after large sections of expropriated farmlands were restored to the Ga Mashung community in the vicinity of RdeW Dam. On the 28th of October 2006, the MEC for Agriculture in Limpopo, Dikeledi Magadzi, who was also a beneficiary to the claim, together with the Chief Land Claims Commissioner, Thozì Gwanya, officially handed the land back to the Ga-Mashung community, adjudicated to be its rightful owners.¹⁰⁶

¹⁰³ L. Botha, *et al.*, "Can we Get Them There? A Case of Commercializing Arable Farming at Rust de Winter Farms of Limpopo Province", *Working Document Series* 124, South Africa, 2005, p. 2.

¹⁰⁴ SABC, "The Big Five for Gauteng", *Focus Features*.

¹⁰⁵ SABC, "The Big Five for Gauteng", *Focus Features*.

¹⁰⁶ RSA, Commission on Restitution of Land Rights, Year ended 31 March 2007, Annual Report 2006/2007, p. 26.

The commission's research revealed that by 1923, the Ga-Mashung Matlala community had become labour tenants on their traditional land. It is likely that these lands were granted to poor whites as early as the 1920s under the South African Party government. In due course, members of the Matlala community had also been moved to other areas, including Pankop, Lady Selbourne, and Phake. The state settled the claim, costing R21 782 560.00, by the end of 2007. The settlement included properties like Didimala Lodge and Kumnandi game farm.¹⁰⁷ The Limpopo Tourism and Parks Board promised support in 2007 to help the Ga-Mashung Matlala community become key stakeholders and landowners in the RdeW Nature Reserve under the concept of "People and Parks". However, the commission disagreed with landowners over claims and purchase prices, and the revised initiative faced challenges, such as limited capacity and resources, and poor understanding of the restitution process by local municipalities.¹⁰⁸

In 2007, the Regional Land Claims Commission (RLCC) in Limpopo, along with the Limpopo Tourism and Parks Board, assisted the Ga-Mashung Matlala Community in developing the RdeW Nature Reserve as an income-generating project. A master plan was developed to encourage economic opportunities and guide future land use. The RLCC requested the Department of Agriculture to facilitate a strategic partnership between claimants and experienced farmers, ensuring skills transfer and sustainability. While outstanding claims remained, the land continued to be leased to previous landowners, and long-term plans were implemented to prevent vandalism and deterioration.¹⁰⁹ Despite many setbacks, the dream of including the Ga Mashung Matlala RdeW community land into DGR remains possible. As recently as 2023, DGR confirmed that discussions remain ongoing with the Ga-Mashung Matlala community leaders regarding the possible future inclusion of their land in DGR's expansion programme.¹¹⁰

4.4 Leeuwfontein, the realisation of a public-private partnership

4.4.1 The lure of Leeuwfontein

Another potential start-up node considered as potentially linking with other nodes such as Amakulu and RdeW, was Leeuwfontein, located north of the Moloto Road, and east of the current DGR (Figure 4-10).

¹⁰⁷ RSA, Commission on Restitution of Land Rights, ... , Annual Report 2006/2007, p. 26.

¹⁰⁸ RSA, Commission on Restitution of Land Rights, ... , Annual Report 2006/2007, p. 22.

¹⁰⁹ RSA, Commission on Restitution of Land Rights, ... , Annual Report 2006/2007, p. 26.

¹¹⁰ LSPC, D. Boshoff, Email, DGR Manager, "Permission questions"/L. Shee, 2023-08-03.

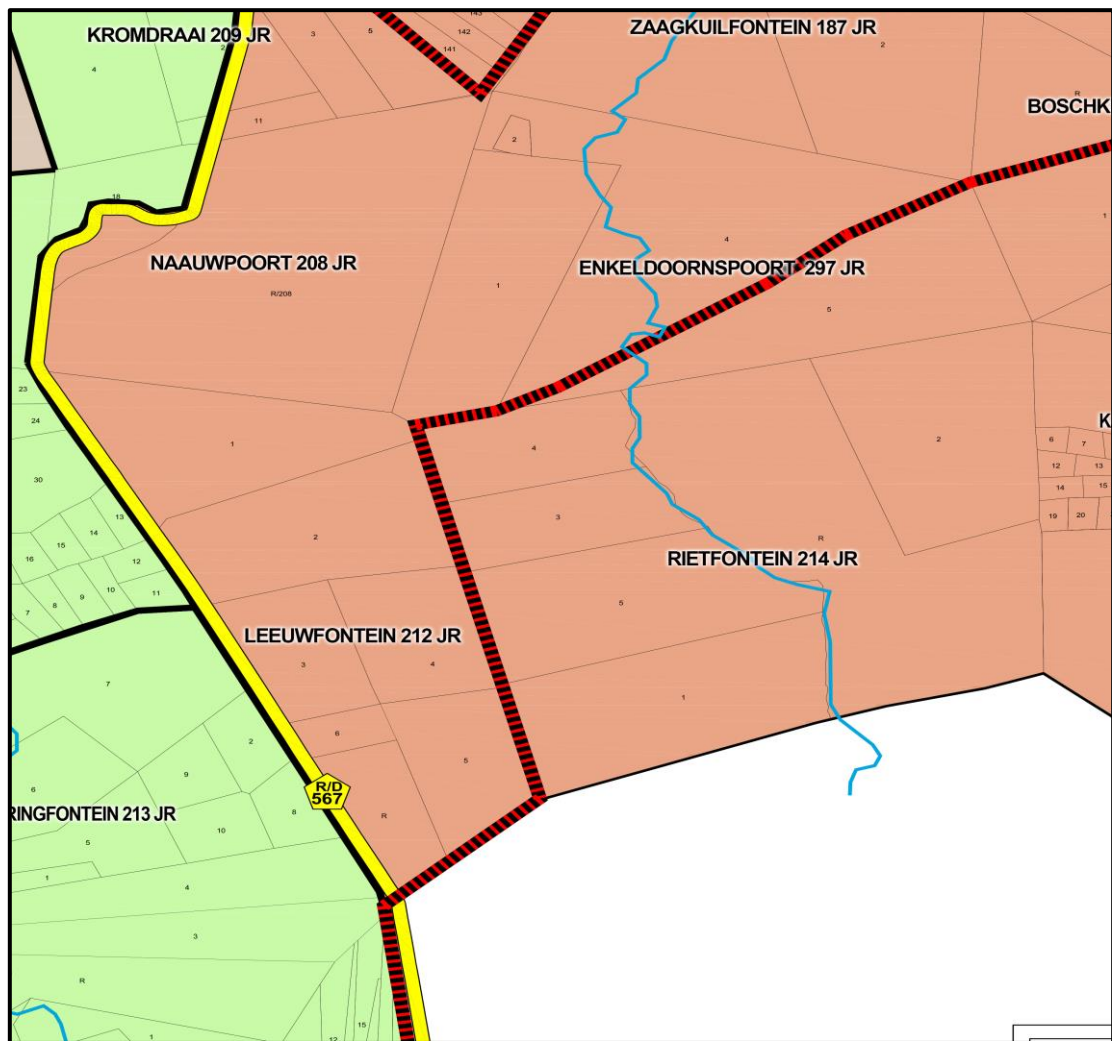


Figure 4-10: Position of Leeuwnfontein Provincial Nature Reserve. Permission to use DGR maps was granted by the DGR Management Association on 2023-04-24. Map digitally enhanced by Marius Whittle.

Formerly with Gauteng Nature Conservation, Terence Venter recalled how he and colleague, John Baker, searched the area around the RdeW Nature Reserve for land that could link it with a broader game reserve. Because they needed to establish such a link, the idea of a Leeuwnfontein nature reserve as a collaborative arrangement with several landowners was born. Led by Lourens Badenhorst, then Director of Nature Conservation, Venter, Baker and others, focused on creating conservancies with a view to eventually linking them for conservation purposes. They hoped Leeuwnfontein would become a model to encourage other landowners to do the same as they had had difficulty in persuading them to join hands with the GPG. Venter explained that the idea was to establish good relations with the private landowners of Leeuwnfontein as an example of how other landowners might be lured into opening their fences to join the project. Leeuwnfontein was once considered to be a launching pad for the Dinokeng Project as it was situated close to the

core area of where Nature Conservation initially thought the game reserve would be established.¹¹¹

The first Leeuwfontein Officer in Charge (OIC) of Leeuwfontein, Leon Labuschagne, identified another stalwart from the old Transvaal Nature Conservation, Willie du Toit, as an official who had also done considerable persuading of landowners to join the proposed game reserve. Labuschagne also acknowledged the contribution of Peter Mills as a major role-player in Leeuwfontein's development, and as the one who became responsible for arranging and supervising the impressive GPG conservation buildings that were constructed there.¹¹²

Venter recalled trans-provincial discussions taking place between conservation colleagues about potential game reserve options when they gathered at anti-poaching strategy meetings. At the time, their focus was on combining farms, conservancies, and various other parcels of land to make bigger land parcels to entertain larger game species and increase the biodiversity. Existing conservancies had small, patch-like biodiversity and they were adjacent to cattle farms, some of which had greater biodiversity than the land in the nature reserves. Venter credited conservationists Peter Mills and Steve Fourie with contributing many ideas to the process.¹¹³

One of the parcels of land eyed for a long time by Nature Conservation was the farm, Elandsdrift, belonging to well-known industrialist and entrepreneur, Bill Venter.¹¹⁴ The farm on the banks of the Elands River stands between the current DGR and Leeuwfontein. Terence Venter described it as one of the most scenic properties in the area, and had hoped that his colleague, John Baker, had he remained in Nature Conservation, would have managed to persuade Venter to open his fences to join a larger game reserve.¹¹⁵ To date (2024), both the Elandsdrift and Leeuwfontein properties remain outside of DGR's boundaries.

Terence Venter also maintained that many of the landowners told the conservationists in the field that their land did not have great potential for cattle farming, which partly explained why so many cattle farmers wanted to participate in a game reserve. It was Nature Conservation's task to proclaim nature reserves, so their personnel would go out to the cattle farms in an attempt to persuade farmers to switch from cattle to wildlife as a good economic and environmental choice.

¹¹¹ LSPC, SOA17, T. Venter, 2022-02-22.

¹¹² SPA, SOA25, L. Labuschagne, First Officer in Charge (OIC) of Leeuwfontein, Google Meet, Pretoria/Howick, 2022-03-16.

¹¹³ LSPC, SOA17, T. Venter, 2022-02-22.

¹¹⁴ In 1965, Bill Venter founded Allied Electronics Corporation (Altron), which specialises in providing technology solutions. While it has an international presence, it is headquartered in South Africa.

¹¹⁵ LSPC, SOA17, T. Venter, 2022-02-22.

Many landowners in the Leeuwnfontein core area lived in Johannesburg or Pretoria and were essentially weekend farmers. Joining a game reserve would likely be easier and less costly for them than cattle farming. However, an ethical issue arose with several conservationists who, as Venter said, “knew the truth” about financial returns on converting cattle farming to game farming. He cited conservationist, Nico Grobler, as a professional who did his research and knew that a game reserve was not a money-spinner in the beginning, although it could be in the end, after a long term, as there are many expenses incurred before any return on investment is gained.¹¹⁶

4.4.2 Preparatory work for Leeuwnfontein and the broader area

Conservationists working in the field knew the farming areas intimately. When the first suggestions of a large game reserve arose, they were sent to make firebreaks and join projects like The Working for Water (WfW) Project to eradicate all the alien invasives on both private and government land. This included removing aliens throughout Amakulu, RdeW, and Leeuwnfontein. As one goal was to reintroduce elephant, water would be needed, which necessitated the removal of exotics like lantana, eucalyptus and water-dependent poplars. Funding came from the Department of Water Affairs and Forestry and many job opportunities were created. Fourie was cited as a very good conservation manager, who, along with Baker, tried to get an initiative going in Northeastern Gauteng. Despite some “head-bashing” between some officials and landowners, conservationists in the field continued to believe that with Amakulu and Leeuwnfontein, a link could still be achieved at any moment, so they continued working towards the amalgamation of conservancies.¹¹⁷

As early as January 1998, DACE’s Directorate of Nature Conservation was already, as part of the NEGI Project, in the process of acquiring portions of Leeuwnfontein (212 JR) with the intention of fencing it and stocking it with game the same year.¹¹⁸ It appears that NEGI itself was officially launched on Monday the 24th of August 1998. The press release, however, is somewhat ambiguous as it could equally be referring to the launch of NEGI, or to the occasion of game release at Leeuwnfontein. The press release read as follows: “Launch of DACE’s Northeastern Gauteng Initiative (NEGI): Game release at Leeuwnfontein collaborative reserve”. GDACE was then entertaining the idea of a biosphere reserve concept, allowing for a variety of land use options, which meant stakeholders could choose options best suited to their needs and objectives while still being part of the NEGI. In this way, GDACE hoped to secure a greater conservation area to get 10% of the province under conservation management to meet the international mandate set out by the IUCN. The project’s intention, based on the wildlife industry and

¹¹⁶ LSPC, SOA17, T. Venter, 2022-02-22.

¹¹⁷ LSPC, SOA17, T. Venter, 2022-02-22.

¹¹⁸ LSPC, JBA, P. Mills, Directorate of Nature Conservation, GDACE, “Re: Status report on NEGI Project”, letter to J. Krüger, Chairman of Amakulu Nature Reserve, 1998-01-16.

ecotourism, was “... to create entrepreneurial and employment opportunities for the people in the area both during the implementation and after commissioning”.¹¹⁹

4.4.3 Leeuwfontein’s strategic objectives

The Gauteng government wanted Leeuwfontein to become part of a collaborative agreement with the private sector. The Leeuwfontein property became the first property transferred from the National Department of Agriculture to GDACE. A contract was signed in early May 1998 between GDACE and two private landowner neighbours adjoining Leeuwfontein, making it the first collaborative venture involving the GPG as part of the NEGI project. Between May and August 1998, over 120 animals were introduced to Leeuwfontein including red hartebeest, zebra, eland, blue wildebeest, and impala. The GDACE was optimistically looking to increase the reserve area to 143 000 ha over 10 years.¹²⁰

Grobler identified an important conservation objective achieved in the development of the LCR. This was the establishment of a resident, disease-free buffalo herd in the LCR, part of the concept of bringing the Big 5 into NEGI. Grobler credits the success of the buffalo capture, transport, and release operation to Johan Fourie who was the OIC of the largest provincial reserve in Gauteng Province, Suikerbosrand Nature Reserve. Fourie’s management skills, together with those of Mike Shepard from Head Office, and those of the OIC of the LCNr, Leon Labuschagne, saw to the successful introduction and future growth of the herd.¹²¹

A suggestion made in the NEGI Framework and Implementation Plan was the need for communication between the neighbouring Northern Province (Limpopo) and Mpumalanga Province concerning the possibilities of integrating the outer perimeters of the NEGI boundaries or the perimeter within the NEGI idea. Another proposed intervention was the idea of establishing a strategic advisory centre at Leeuwfontein as a one-stop facility for advice on conservation and ecological issues to support conservation and tourism development in the area. This intervention would also give DACE a physical presence and high profile in the area from which it could promote conservation activities.¹²² In 1999, Leeuwfontein was being considered as part of a Big 5 biosphere core area with the possibility of a lodge-based operation in the area and day visitor

¹¹⁹ LSPC, JBA, M. Jubasi, GDACE: Press Release, “Launch of DACE’s North East Gauteng Initiative (NEGI): Game release at Leeuwfontein Collaborative Reserve”, 1998-08-24, p. 1.

¹²⁰ LSPC, JBA, M. Jubasi, GDACE: Press Release, “Launch of DACE’s North East Gauteng Initiative (NEGI): Game release at Leeuwfontein Collaborative Reserve”, 1998-08-24, pp. 2-3.

¹²¹ LSPC, N. Grobler, Email, Ecologist, Retired Deputy Director, Dinokeng Projects, DED, GPG/L. Shee, 2021-03-04.

¹²² RSA, GPG, LSPC, JBA, GDACE, “North Eastern Gauteng Initiative Feasibility Study: Final Study Report”, March 1999, p. 8.

facilities in Leeuwfontein.¹²³ As things turned out, the rather grandiose GPG plans were never realised through the establishment of LCNR.

4.4.4 Recollections of Leeuwfontein Collaborative Reserve's first officer in charge

After cutting his teeth in various national parks as a young conservationist, including the Karoo National Park, which he found overly remote and isolated, Leon Labuschagne was appointed the first OIC of Leeuwfontein Nature Reserve in 1998. He credits Gert Willemse from the old Transvaal Provincial Administration with much of the thinking behind Leeuwfontein. When first posted to Leeuwfontein (he was posted there several times), he had a blank canvass. He recalled that the land for the Leeuwfontein project had been bought up by the apartheid government to incorporate into the old KwaNdebele homeland, rendering it all state land. At the time of Labuschagne's appointment, a farmer, N. Coetzee, still had a contract renting the land from the Government for his cattle. Peter Mills negotiated with the Department of Agriculture to allocate the land to Gauteng Nature Conservation. The greater Leeuwfontein was made up of several properties. The Government then took back the southern portions of about 1 300 ha that Coetzee had rented. When eventually combined with the private land through the Leeuwfontein agreement, the total area was approximately 2 280 ha.¹²⁴

Other large neighbouring farms eyed by government for inclusion were capable of generating sustainable income. One such farm with beautiful veld and scenery was Naauwpoort to the north, owned by the Erikson family. While no major river flowed through the Leeuwfontein area, there were several attractive dams fed by a stream. The Erikson farm of about 2 900 ha, commonly known as Loodswaai, had a viable hunting operation, so they were never keen to be incorporated with Leeuwfontein. Another possibility eyed by government was Enkeldoornspoort, also state land, but rented by Braam Viljoen. According to Labuschagne, Mills worked hard to persuade the owners to include this farm; however, incorporation was never achieved. Questions have arisen as to why Viljoen's land, which appeared eminently suitable for inclusion, was never incorporated. Further properties going up into what is colloquially referred to as the "scorpion's tail" to Mpumalanga, together with two of that province's reserves, Mdala and Mkhombo, were never included as negotiations with landowners simply became too difficult.¹²⁵

¹²³ RSA, GPG, LSPC, JBA, GDACE, "North Eastern Gauteng Initiative Feasibility Study: Final Study Report", March 1999, p. 24.

¹²⁴ LSPC, OA25, L. Labuschagne, First Officer in Charge (OIC) of Leeuwfontein Provincial Nature Reserve, Google Meet, Pretoria/Howick, 2022-03-16.

¹²⁵ LSPC, OA25, L. Labuschagne, First OIC of Leeuwfontein Provincial Nature Reserve, Google Meet, Pretoria/Howick, 2022-03-16.

When Labuschagne first arrived at Leeuwfontein on a transfer in early 1998 there were still cattle on the land. He would travel to work from Roodeplaat until accommodation was built. Fencing off the property began in February 1998 and the task provided considerable employment for local labourers from Moloto. They assisted a team of experienced fencers brought in from Suikerbosrand Nature Reserve in Southern Gauteng. Then came the infrastructure – an office, workshop, OIC’s house, and then a few small houses for staff. Labuschagne also understood that Leeuwfontein was developed to be an anchor from where the Dinokeng Project would start, and from where it would be managed. All the cattle fencing was removed and by June/July 1998, game was delivered. Impala came from KwaZulu-Natal as did blue wildebeest. There were already a lot of free ranging kudu. Other animals like the zebra and red hartebeest were sourced from game captures at Suikerbosrand Nature Reserve. Invasive plant species were destroyed, such as Queen of the Night (*Cereus jamacaru De Candolle*). Unwanted and unsightly infrastructure was removed, and roads were made where needed. Several years later, the buffalo herd to which Grobler referred, was introduced to become a nucleus herd for the whole of the envisaged Big 5 game reserve.¹²⁶

In July 2000, Agriculture and Environment MEC, Mary Metcalfe, signed an agreement with landowners, Marius Willemse and Nico Boezaart, in a ground-breaking collaboration, one they hoped would attract visitors, including overseas business people in search of a short African bush experience between meetings and conferences while also economically benefiting the nearby Moloto village community. This marked the official start of the LCR – a private-public partnership between Boezaart, Willemse, and the Gauteng Province. Boezaart hoped that the agreement would stimulate entrepreneurial ventures in Moloto, help reduce crime in the area, and keep it environmentally clean and free of litter.¹²⁷ Not everyone was happy, however.

Jack Gabeni, Chairperson of the Northern Highveld African Farmers Union, felt the GPG had tried to convert his members’ activities from stock farming to ecotourism against their will. Gabeni maintained that his farmers were not persuaded that the project would be economically viable. Gabeni expressed concern that the GPG was using the project to protect animals at the expense of land distribution. Metcalfe did acknowledge that the African farmers were not very enthusiastic;

¹²⁶ LSPC, OA25, L. Labuschagne, First OIC of Leeuwfontein Provincial Nature Reserve, Google Meet, Pretoria/Howick, 2022-03-16.

¹²⁷ LSPC, N. Boezaart, Email, Lama-Lama Lodge owner, Leeuwfontein Provincial Reserve/ L. Shee, 2023-10-05.

however, there appeared to be a more positive response from residents of Moloto who saw opportunities.¹²⁸

Boezaart explained that in 1999, negotiations over a constitution were held between the Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL) and the two landowners. The constitution was then formally agreed between GDACEL and Meyerspark Ontwikkelings (Pty) Ltd (owner of Portion 3 Leeuwfontein) and Portion 2 Leeuwfontein (Pty) Ltd (owner of Portion 2 whereon Lama-Lama was established). When the constitution was agreed upon, the reserve was called the Leeuwfontein Collaborative Reserve. However, with the proclamation of the reserve in 2018, the name was changed to Leeuwfontein Provincial Reserve (LPR). Lama-Lama, previously owned by Lama-Lama Safaris CC, was a basic operation. When Meyerspark Ontwikkelings (Pty) took it over, they upgraded the accommodation and developed Lama-Lama into the game reserve that it is today, that is, Portion 2 of LPR. The substantial infrastructure on the government land is used for conservation offices and staff accommodation.¹²⁹

Labuschagne commented that while he was working at Leeuwfontein (until 2018), few members of the public had access to the provincial land. However, being a form of public-private partnership, the private landowners at Leeuwfontein tended to retain privacy on their own land and they had their own tourist facilities. In contrast to the collaboration that led to the formation of the LPR, there were other large landowners in the area who declined to join the province in developing an extensive game reserve.

Immediately north of Leeuwfontein was the successful, privately owned Loodswaai game farm belonging to the Erikson family who had no need, nor intention, to join GPG's game reserve initiative. Similarly, across the RD567, immediately west of Leeuwfontein is a very large game farm, Springfontein, also referred to as Savanna Game Lodge. The owner of this farm at the time was Hans Sittel whose relationship with Nature Conservation was not always cordial. So there would be no amalgamation there. The owners of the big, viable-hunting farms worried about losing game and not being able to hunt. Other large, privately-owned farms south-west of Leeuwfontein such as Klipplaatdrift, were successful and self-sustaining cattle or game farms. The owners chose to retain their independent commercial concerns. Despite the concerted efforts beginning

¹²⁸ H. Radebe, "Big Five to Prowl Reserve in Northern Gauteng" *IOL News*, 2000-07-14, <https://www.iol.co.za/news/south-africa/big-five-to-prowl-reserve-in-northern-gauteng-43233>, accessed 2023-10-05.

¹²⁹ LSPC, N. Boezaart, Email, Lama-Lama Lodge owner, Leeuwfontein Provincial Reserve/L. Shee, 2023-10-05.

in the mid-1990s by the GPG to include Amakulu, the RdeW Dam and Nature Reserve and Leeuwfontein in a Big 5 game reserve (DGR today), it has not yet been achieved.

4.5 Concluding comments on the early attempts to expand DGR

This chapter has examined three important start-up areas which, if not all included in the DGR today, remain potential, even if unlikely, future areas for DGR expansion. Amakulu is the name most recalled by interviewees providing their recollections of the early days of DGR's development in the mid-1990s. Amakulu ground to a halt, possibly because of mutual suspicion of motives between the GPG and landowners. Another strong possibility, revealed in landowner correspondence, was the GPG's poor communication and dilatory action which led to landowner frustration. Perhaps, too, there were unrealistic expectations amongst landowners about the extent to which the GPG would contribute financially to Amakulu's development. Nevertheless, core portions of Amakulu are included in the current configuration of DGR's boundaries and its historical importance as part of DGR's development, remains.

The potential role of Rust de Winter is lesser known by interviewees other than those of Nature Conservation officials directly involved in the exploratory fieldwork. Rust de Winter's developmental potential remains largely moribund and paralysed by unresolved land issues. The Rust de Winter project did catch the media's attention in the mid-1990s as an exciting project with massive potential for the upliftment of largely impoverished black communities. Well-known film producer, Julie Hyde-Mew, produced a documentary at the time, which remains an excellent historical reference today. As conservationist, Peter Mills, recalled, community stakeholders failed to sign off on agreements that could by now, quarter of a century later, have transformed their lives. They had argued rightly or wrongly at the eleventh hour that the details of the proposed agreement had not been properly communicated to them.

Leeuwfontein, a public-private partnership, remains separated from the current DGR. It is not particularly well known as public access is limited. It has impressive buildings originally destined for use as a conservation centre. The conservancy is jointly owned by the GPG and several private landowners, and its management responsibility falls under the Gauteng Department of Agriculture and Rural Development. It is of particular importance for its herd of foot-and-mouth-free buffalo.

All three of the start-up areas discussed in this chapter had value in that they encouraged thinking, through trial and error, of best practice for using conservation to lift the economy of Northeastern Gauteng through tourism-related employment. The next stage of development, which followed the release of the Master Plan in 2001, is discussed in Chapter Five. The process, while by no

means plain sailing, became better structured and better organised as the GPG-commissioned Master Plan began to guide the management, development, and expansion of the DGR, as it continues to do today.

CHAPTER FIVE

THE INCLUSIVE AND CONSULTATIVE EVOLUTION OF A GAME RESERVE WITH COMPLEX BOUNDARIES

5.1 Introduction

In this chapter, obstacles faced by Dinokeng Game Reserve (DGR) role-players when establishing reserve boundaries within a spatially limited, economically depressed area, are discussed. They are then compared with reserve boundaries of geographically proximate forerunners with similar upliftment goals based on tourism and conservation. Particular emphasis is placed on the Madikwe and Pilanesberg Game Reserves (MGR and PGR, respectively). As the title of this chapter indicates, its purpose is also to examine the extent to which role-players in DGR's development were included and consulted in the process. Attention is paid to literature that focuses on the boundaries of other models to assess their value to the study of DGR's contribution to economic upliftment.

Whereas it is difficult to establish definitively whether previous initiatives in other localities with similar goals of economic upliftment had a direct impact on negotiations over the proposed establishment of DGR, it is plausible that those professionally involved with DGR's development were well versed in other notable models such as Vhembe, Madikwe and Pilanesberg. Other models, such as Zimbabwe's CAMPFIRE¹ model in Gonarezhou National Park (GNP), are referred to where applicable. What came to light towards the end of the research process for this thesis, was the influence of Vhembe Biosphere Reserve on the original thinking behind DGR's eventual development. Vhembe's influence, recently confirmed by a former Gauteng Nature Conservation landscape architect, Daan Swart, is discussed separately in Chapter Six.

Volume B of the Gauteng Provincial Government's "Development of Strategies and Systems to Support the Implementation of Dinokeng Tourism Framework", insisted upon the need for consultation. The vision statement on community participation included the necessity of having "... the understanding, support, enthusiasm, and appreciation of its neighbouring communities".² Of particular importance for a Big 5 reserve that borders on and contains communities of people is the successful management of human-wildlife conflict (HWC). Local communities referred to in this thesis are those of predominantly African populations, living in villages and towns, either

¹ CAMPFIRE: Communal Areas Management Programme for Indigenous Resources. See also Chapter Four.

² Republic of South Africa (RSA), Gauteng Provincial Government (GPG), Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL), R. Collinson, W. Boonzaaier, M. Brett & M. Magakgala, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 5.

neighbouring or close to DGR, but separated by heavy duty electrified fences. These semi-urban habitations are largely devoid of wildlife. The permanent population of landowners inside DGR is predominantly white with relatively few black landowners, and it is they, and their live-in staff, who are directly in contact with dangerous animals. The most recent case illustrating the importance of human and wildlife safety occurred on the 14th of August 2023, when an employee within DGR tragically lost his life after being “... attacked and killed by lions while attempting to navigate the reserve after dark”. Walking within the DGR at any time is forbidden in line with DGR regulations. Spokesman for the DGR Management Association (DGRMA), Hartogh Streicher, extended sincere condolences to the victim’s family and took the opportunity to emphasise “... the delicate balance between human coexistence and the wild inhabitants of our natural world”.³ Subsequently, on the 19th of October 2023, the three Nkawu male lions, as they were known, were euthanised after careful deliberations and out of concern for public and landowner safety. Their remains were donated to Onderstepoort Veterinary Science for research purposes.⁴ What is ironic about this tragic incident is that it took place by way of an anthropogenic intrusion into an artificial space created for wild animals. The need for DGR management to continually educate the public sensitively about these dangers cannot be emphasised enough.

The DGR model differs from other models, for example, Zimbabwe’s CAMPFIRE model where communities have little fencing protection which means HWC is more likely to occur than within the DGR model. However, whether it is a closed boundary game reserve like DGR, or an open boundary game reserve like Zimbabwe’s GNP, where HWC can have a serious impact on livelihoods and lives, communication and education about how to limit HWC is essential. The GNP is largely unfenced, yet communities live alongside the park at many points. In their work on CAMPFIRE and HWC in local communities bordering Northern Gonarezhou, Gandiwa *et al.* recommended that “... decisions and actions regarding the control of problem animals need to be devolved to the community level”.⁵ Further, to reduce HWC in community-based natural resource management, and improve attitudes towards HWC, conservation awareness and education had to be stepped up. Another finding was that “... having influence in, and ownership of, wildlife management programmes may be more important in influencing perceived conflicts with wildlife

³ Dinokeng Game Reserve Management Association (DGRMA) Press Release: “Tragic incident in Dinokeng Game Reserve highlights the importance of Wildlife Safety”, 2023-08-16, <https://mailchi.mp/d182988f06b5/for-immediate-release-tragic-incident-in-dinokeng-game-reserve-highlights-the-importance-of-wildlife-safety?e=456a8f9a54>, accessed 2023-08-22.

⁴ DGRMA, Dinokeng Game Enterprises (DGE), Notification to landowners of the Dinokeng Game Reserve (DGR), visitors of the DGR and to the public at large, pp. 1-5.

⁵ E. Gandiwa, I.M.A. Heitkönig, A.M. Lokhorst, H.T. Prins & C. Leeuwis, “CAMPFIRE and Human-Wildlife Conflicts in Local Communities Bordering Northern Gonarezhou National Park, Zimbabwe”, *Ecology and Society*, 18(4): 7, 2013, <http://www.ecologyandsociety.org/vol18/iss4/art7/>, accessed 2023-09-13.

than is direct economic benefit”.⁶ It becomes immediately apparent that discussions over game reserve boundaries must include input from local communities and landowners.

A positive relationship between reserves and their neighbours is essential for conservation. The Gonarezhou Conservation Trust (GCT), for example, employs a full-time community liaison officer to interact with communities and stakeholders and to promote understanding, dialogue, and a common vision. However, simultaneously, national governments need also to introduce strategies and enforce legal measures outlined in advance. Historically, Gonarezhou, established as a game reserve in 1934, and proclaimed a National Park in 1975, is much older than DGR. The Gonarezhou Conservation Project was established in 2007 as a support programme between the Frankfurt Zoological Society (FZS) and the Zimbabwe Parks and Wildlife Management Authority (ZPWMA). Subsequently, the GCT was established in 2017 as a partnership between ZPWMA and FZS to manage and develop Gonarezhou.⁷ Like the older GNP in Zimbabwe, South Africa’s PGR, MGR, and DGR have all developed essential lines of communication between management and communities.

That the Gauteng Department of Agriculture, Conservation, Environment and Land Affairs’ (GDACEL) insisted on participative inclusivity in a Dinokeng Integrated Tourism Development Framework (DITDF) is evident in Volumes B and E released in December 2001. Extensive consultation was undertaken by the Gauteng Provincial Government (GPG) regarding the viability of the broader Dinokeng Project. Volume E presented “... an overview of the public participation process, that was designed to involve stakeholders in the Dinokeng Master Planning process in a meaningful and positive way”.⁸ To this end, it detailed the public participation strategy and included suggestions for public participation for when the Master Plan would be implemented.

In addition to focusing on the broad-based consultation process prior to DGR’s formation, this chapter emphasises the importance of the communication and consultation that took place during the development of the PGR (originally named Pilanesberg National Park [PNP]) and MGR and shows similarities with, and differences between, their communication processes and those of DGR. A critique of these models suggests that whereas each game reserve’s development was unique, lessons were learned on best practices for conservation and economic upliftment that could be applied elsewhere.

⁶ E. Gandiwa, *et al.*, “CAMPFIRE and Human-Wildlife Conflicts ...”, *Ecology and Society*, 18(4): 7, 2013.

⁷ Gonarezhou National Park, “Timeline”, <https://gonarezhou.org/>, accessed 2023-06-22.

⁸ RSA, GPG, Gauteng Department of Agriculture, Conservation, Environment and Land Affairs, (GDACEL), L. Newton & F. Shongwe, “Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume E – Public Participation”, 2001/12, p. 1.

Although DGR is in Gauteng and PGR and MGR are in North West Province, all three are to a greater or lesser degree accessible by road and air from Pretoria and Johannesburg. Madikwe is also only about 40 km from Gaborone, Botswana's capital. Tourists seeking a luxurious bush experience at Madikwe pay a premium for superior rustic comfort. The website refers to the reserve's "ultra-luxury" lodges and lays claim to having some of the most luxurious lodges in the world.⁹ The Pilanesberg website on the other hand advertises self-catering accommodation "... for independent travellers and budget-conscious travellers alike".¹⁰ The DGR website says that the reserve offers "... a diverse range of accommodation options, from luxury lodges, to comfortable self-catering chalets and campsites that allow visitors to explore the reserve at their own pace".¹¹

All three reserves are malaria-free, which is considered by those marketing bush escapes to be an advantage over malaria-prone reserves in the east of South Africa, such as the Kruger National Park (KNP), and those in low-lying KwaZulu-Natal. *Safari Bookings*, for example, lists several African safari destinations, including Pilanesberg and Madikwe where you can see the Big 5 in malaria-free areas: "This is fantastic if you're traveling with small children or want to avoid taking anti-malarials".¹² *Extraordinary Journeys*, among other travel sites, provides malaria-free locations, particularly for those tourists with small children, and for those who are reluctant to take prophylactics.¹³ *Africa Geographic*, focusing on Madikwe, promotes it as a malaria-free option while also being easily accessible from Johannesburg by road and air.¹⁴

To understand how these reserves came about, one has to examine the consultative processes that took place as part of their development. As DGR is the focus of this thesis, an in-depth examination of the consultative process is undertaken up until the official opening of DGR in 2011. To do the same for both Madikwe and Pilanesberg would be too expansive for the constraints and focus of this thesis; therefore, only aspects of their design models, feasibility studies, and consultation processes that clarify the DGR design are considered in this chapter.

⁹ Madikwe Game Reserve, <https://www.madikwereserve.org/lodges/ultra-luxury>, accessed 2024-03-10.

¹⁰ Pilanesberg National Park, <https://www.pilanesbergnationalpark.org/accommodation/self-catering/>, accessed 2024-03-10.

¹¹ Dinokeng Game Reserve, <https://www.dinokengreserve.co.za/>, accessed 2024-03-10.

¹² *Safari Bookings*, "The Best Malaria Free Game Reserves in South Africa", <https://www.safaribookings.com/blog/best-malaria-free-game-reserves-south-africa>, viewed 2023-06-23.

¹³ *Extraordinary Journeys*, "The Ten Best Malaria-free Safari Destinations in South Africa", <https://extraordinaryjourneys.com/the-10-best-malaria-free-safari-destinations-in-south-africa/>, accessed 2023-06-23.

¹⁴ *Africa Geographic*, Is Madikwe the Best Malaria-Free Big 5 Safari Experience?, 3 August 2017, <https://africageographic.com/stories/madikwe-malaria-free-big-5-safari-experience/>, accessed 2023-06-23.

5.2 Inclusive consultation and participation as directed by the Dinokeng Integrated Tourism Development Framework

5.2.1 Phases of the DGR's Master Plan

Between 2000 and 2001, the Master Plan researchers conducted numerous interviews, including with 22 large-scale landowners or managers. The properties represented by all 22 interviewees fell within the boundaries of phases of the DGR D626 Rust de Winter Road in the north, the R537 Moloto Road in the south, the N1 freeway in the west, and the RD567 in the east. A list of landowners or managers interviewed, together with a summary of their responses, is recorded as “Annexure 1: List of Landowners interviewed” in Volume B of the DITDF.¹⁵ To date, 2024, it has not been possible to open corridors eastwards from the current DGR boundary due to the reluctance of several large landowners, including the Ga-Mashung Matlala community and well-known industrialist, Bill Venter, to include their large tracts of land. Excluded land also includes conservancies and independently successful game and hunting farms.¹⁶

The master planners were to develop strategies and systems to assist with the implementation of the broader Dinokeng development initiative, including the game reserve.¹⁷ Further negotiations with stakeholders began on completion of the final DITDF. The team saw public participation as a “... continuum of interactions from the Feasibility phase to Master Planning through to Implementation”.¹⁸ The consultation process was professional and well-structured, with four phases: Vision and Options, Detailed Planning, Consolidation and Re-focus, and Final Planning. The process focused on community consultations and the “All of Africa in a Day” concept. The final phase produced detailed business, implementation, and financial plans, including the draft Land-use and Environmental Management Framework, after public comment.¹⁹

Much is mentioned of stakeholders in Volumes B and E of the DITDF, which necessitates the definition of stakeholders as used by the development framework researchers. Stakeholders were resident or non-resident persons, groups, or institutions with interests in the Dinokeng Project. Resident stakeholders (landowners, leaseholders, occupants, and people in settlements) lived in the area. Non-resident stakeholders were intermediaries with influence in the area, such as the private sector (developers and the tourism sector) and the public sector (national, provincial, and local government and parastatals).²⁰ That the development framework researchers were aware

¹⁵ RSA, GPG, GDACEL, R. Collinson, *et al.*, “Development of Strategies and Systems ... Volume B – Dinokeng Game Reserve Development Framework”, 2001/12, p. 111.

¹⁶ See the map in Figure 1-1.

¹⁷ Originally known as the North-Eastern Gauteng Initiative (NEGI).

¹⁸ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, p. 1.

¹⁹ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 4-5.

²⁰ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 7-8.

of the need for inclusive, broad-based consultation, as well as careful selection of stakeholders, suggested that they were conscious of the need to use currently prevalent international negotiation and mediation techniques.

5.2.2 Mediation techniques and the consideration of different viewpoints

Four years after the release of the DITDF, the Livelihood Support Programme's Engel and Korf, researchers with experience of negotiation and mediation techniques for natural resource management, produced a comprehensive guide for managing multi-stakeholder groups. This was a guide for practitioners involved in collaborative natural resource management and rural community livelihood projects. Drawing from field-tested research in Ghana, they identified that "... collaborative management involved joint decision-making by government, communities, NGOs and the private sector about natural resource access and use".²¹ The approach they recommended in 2005 for collaborative management strongly resembled that followed by the authors of Dinokeng's integrated framework in 2001. This suggests that the best practice policies recommended by Engel and Korf, based on decentralisation, devolution, and collaborative management, were already in use by DGR's developers as a means to strengthen local community involvement in decisions.

Engel and Korf emphasised the importance of community involvement in natural resource policies and interventions to avoid centralised government strategies controlled by administrative units. They highlighted the need for stakeholder identification, consultation, and coordination of planning, information sharing, and adequate institutional capacity. Monitoring and evaluation of natural resource management activities were also crucial to prevent conflicts and ensure the proper implementation of these policies.²² All viewpoints had to be heard, including those of spatially and economically marginalised communities.²³

Prior to the compilation of the DITDF, information had been gathered from various studies, GDACEL's interactions with stakeholders, and the Dinokeng team's fieldwork. That determined early efforts were made to gather information is supported by Burton *et al.* who in 2020 stated that "... the unfolding planning for the Dinokeng project began to crystallize out of many planning ideas that emerged from feasibility studies that were conducted during 1998 and 1999".²⁴ Given

²¹ A. Engel & B. Korf, *Negotiation and Mediation Techniques for Natural Resource Management*, Livelihood Support Programme, (Food and Agriculture Organisation of the United Nations), Rome, 2005, p. 26.

²² A. Engel & B. Korf, *Negotiation and mediation techniques for natural resource management*, p. 25.

²³ RSA, GPG, GDACEL, L. Newton & F. Shongwe, "Dinokeng ...", 2001/12, pp. 5-6.

²⁴ C. Burton, C.M., Rogerson & J.M. Rogerson, "The Making of a 'Big 5' Game Reserve as an Urban Tourism Destination: Dinokeng, South Africa", *African Journal of Hospitality, Tourism and Leisure*, 2020, 9(6), p. 896, [doi:10.46222/ajhtl.19770720-58](https://doi.org/10.46222/ajhtl.19770720-58).

that no other significant sources have yet been found to contest the consultation approach of the DITDF researchers, the DITDF document remains an important primary source. History has shown, however, that governments' views, including those of conservationists and staff working for governments, may reflect very different interpretations of things. One is reminded of the case in the KNP, for example, where historian, Jacob Dlamini, showed how KNP officials' interpretations differed from those of communities concerning community forums.

Dlamini noted that KNP park officials recognised the end of apartheid in the early 1990s and understood the need for more accommodating relations with neighbouring farmers under the democratic order, as local farmers had become accustomed to their complaints being ignored. The KNP's warden at the time, Salmon Joubert, said he was invited to join the Community and Parks Liaison Committee made up of African farmers, officials from the black homelands in the park's proximity, conservationists, and representatives of the private sector. Joubert saw this as an opportunity to improve relationships between the KNP and neighbouring communities. Dlamini cited the case of a local farmer, Elmon Mthombothi, who along with others was fed up with KNP not taking responsibility for marauding lions outside the park. As Dlamini put it: "In Mthombothi's recollection, park officials went to the first meeting keen to discuss the future; African farmers went there to talk about the past".²⁵ A further difference in interpretation between KNP park officials and communities related to the role of community forums. Joubert believed the idea came from the park as a rebranding and reorientating opportunity. Mthombothi, however, recalled it as a community initiative to alert the park to its frustration with the damage and costs incurred by farmers because of animals breaking out of the park.²⁶ This KNP example serves to illustrate the need to consider other sources, if available, that might provide a different perspective on the extent to which DGR's developers communicated extensively and transparently with all stakeholders.

5.3 Comparing the communication approaches of three game reserves: Dinokeng, Pilanesberg, and Madikwe

5.3.1 Introduction to Pilanesberg and Madikwe game reserves in the context of DGR development

As DGR has already been introduced, short introductions to both the PGR and MGR follow. This allows for a comparative approach.

²⁵ J. Dlamini, *Safari Nation: A Social History of Kruger National Park* (Jacana Media, Auckland Park, 2020), p. 223.

²⁶ J. Dlamini, *Safari Nation: A Social History of Kruger National Park*, pp. 222-223.

Pilanesberg Game Reserve is located about 45 km north of Rustenburg in North West Province and about 150 km north west of Pretoria. Pilanesberg is an extinct volcanic structure known as a ring dyke complex that rises from flat surrounding plains. Acock's system of veld type classification defined the Pilanesberg's Sour Bushveld as "... an open savanna of tall straight Beechwood trees in a tall, tufted, wiry, sour grassveld in the less rocky parts" and having "... a dense, mixed bushveld in the rugged parts".²⁷ For a detailed description of Pilanesberg's major plant life, it is worth consulting Brett's work on the Pilanesberg in which he apportions 16 pages to plant descriptions.²⁸

As the Pilanesberg National Park was being developed on agriculturally degraded land, it was necessary to reintroduce species that were historically endemic in the region. This was done through Operation Genesis, the largest translocation of animals in the world at that time. Beginning in 1979, more than 6000 animals of various species were quarantined in acclimatisation enclosures prior to release including apex predators such as lion, which were successfully introduced in the early 1990s.²⁹

Pilanesberg was developed as a conservation area in 1979 and declared a national park by the Bophuthatswana Government in 1994. With the new democratic system and concomitant dismantling of independent homelands, Pilanesberg National Park lost its national status and simply became Pilanesberg Game Reserve. Under the new dispensation, only reserves managed by South African National Parks (SANParks) are classified as National Parks, and those managed by provincial governments, such as the North West Parks and Tourism Board in the case of PGR, are categorized as game reserves.³⁰ According to Ingrid van den Berg, author of *Pilanesberg Self-Drive*, whereas the declaration of the park was controversial, the landscape was ideal for the transformation of a large area into a game reserve to boost the local economy and develop the region. However, it was critical that through careful planning, the local communities understood how its benefits would accrue to them. Enormous ecological restoration, together with the restocking of game, had to be carried out within a complex land-ownership dilemma.³¹

²⁷ M.R. Brett, *Pilanesberg Jewel of Bophuthatswana* (Frandsen Publishers, Sandton, 1989), p. 118.

²⁸ M.R. Brett, *Pilanesberg Jewel of Bophuthatswana*, pp. 74-91.

²⁹ Pilanesberg National Park, "Operation Genesis", <https://www.nature-reserve.co.za/operation-genesis.html>, accessed 2024-02-23.

³⁰ I. van den Berg, *Pilanesberg Self-Drive: Routes, Roads and Ratings* (HPH Publishing, Johannesburg, 2019), p. 74.

³¹ I. van den Berg, *Pilanesberg Self-Drive: Routes, Roads and Ratings*, p. 12.

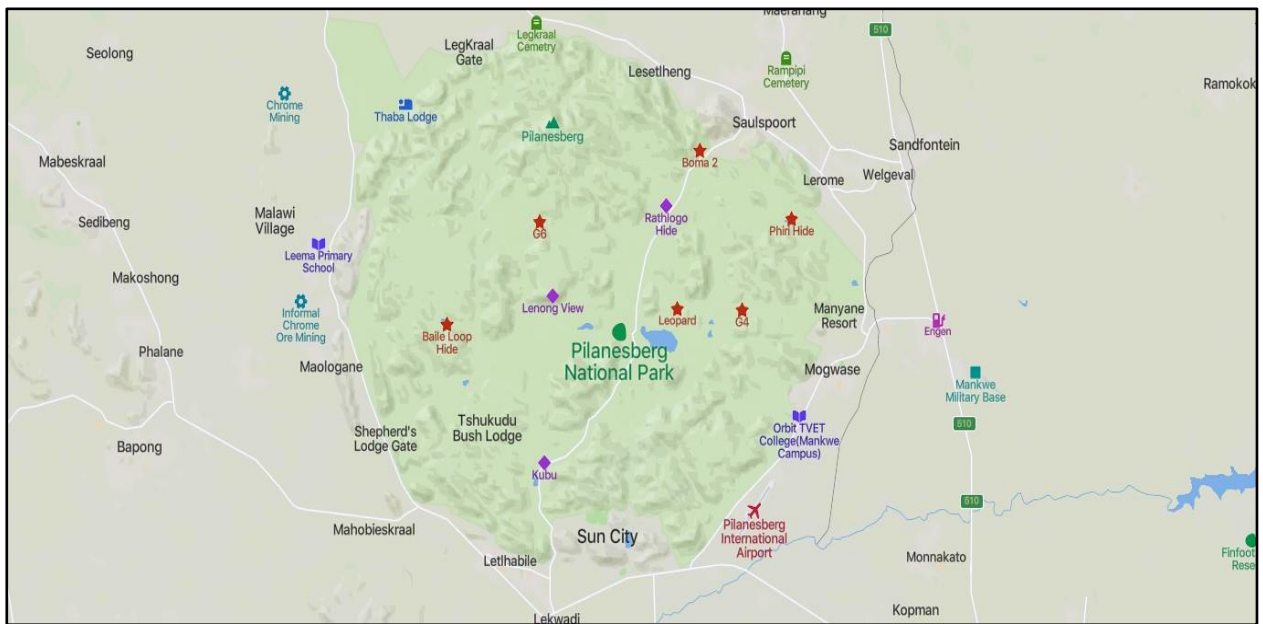


Figure 5-1: Pilanesberg Game Reserve. Permission to use this map, sourced in 2023, was conditional upon acknowledging Mapcarta, OpenStreetMap, as the source under the Open Database License.

The development of the then PNP in the late 1970s illustrated the need to acknowledge that revenue from its natural resources should also benefit local communities. However, at the time, this objective was, unlike DGR's objectives, secondary, and conservation was the primary one. As Brett, summarising Pilanesberg's founding documents, stated in 1989:

... the park's main objective is to conserve a diversity of animal and plant species. However, when conservation is undoubtedly the *raison d'être* for the existence of any national park, no part can survive the economic and political pressures of modern Africa indefinitely, if it is not also a generator of revenue. And revenue means that visitors must be provided for in parks.³²

Van den Berg placed the second objective of the PNP initiative as the need to use the area and its resources to benefit the people of Bophuthatswana into the future. In the case of DGR, these two objectives were the reverse: community benefit first and conservation second.

The then PNP came into being in 1979, 12 years before the inception of MGR in 1991, and 32 years prior to the official opening of DGR in 2011. According to Brett, after Bophuthatswana's independence, management of the park was the responsibility of the Agricultural Development Corporation (Agricor), Bophuthatswana's rural development agency. In 1984, its management was passed on to Bophuthatswana National Parks, a parastatal agency. Carruthers suggested

³² M.R. Brett, *Pilanesberg Jewel of Bophuthatswana*, p. 118.

that by studying PNP's early history and examining its progression from marginal farmland to a successful protected area game reserve, valuable insight may become available for uses in the development of similar projects elsewhere in South Africa and beyond".³³ The idea of developing PNP in a way that would benefit local communities socially and economically, received attention in 1973 when Lucas Mangope enacted a feasibility study while Chief Minister of Bophuthatswana. Mangope was appointed President of Bophuthatswana in 1977, when the South African government declared Bophuthatswana to be independent.

Bordering Botswana, North West Province's MGR is in a transition zone between Lowveld bushveld and Kalahari thornveld providing for an extraordinary variety of species. Like PGR, Madikwe exhibits volcanic features, particularly large inselbergs.³⁴ It offers expansive plains and a riverine environment along the Marico River in the east of the reserve. Evidence of Madikwe's exclusivity is that being a private game reserve, the public can only gain entry through a lodge booking. As no day visitors are allowed, Madikwe, unlike DGR and PGR, has no facilities for camping, self-catering, barbeques (braais), or picnics.³⁵

³³ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: Uniting Economic Development with Ecological Design – A History, 1960s to 1984", *Koedoe* 53(1), 2011, p. 1. [doi:10.4102/koedoe.v53i1.1028](https://doi.org/10.4102/koedoe.v53i1.1028).

³⁴ Inselbergs are isolated hills that stand out at a height above the surrounding plains.

³⁵ Madikwe Game Reserve Website, About Madikwe Game Reserve, <https://www.madikwe-game-reserve.co.za/>, accessed 2022-06-08.

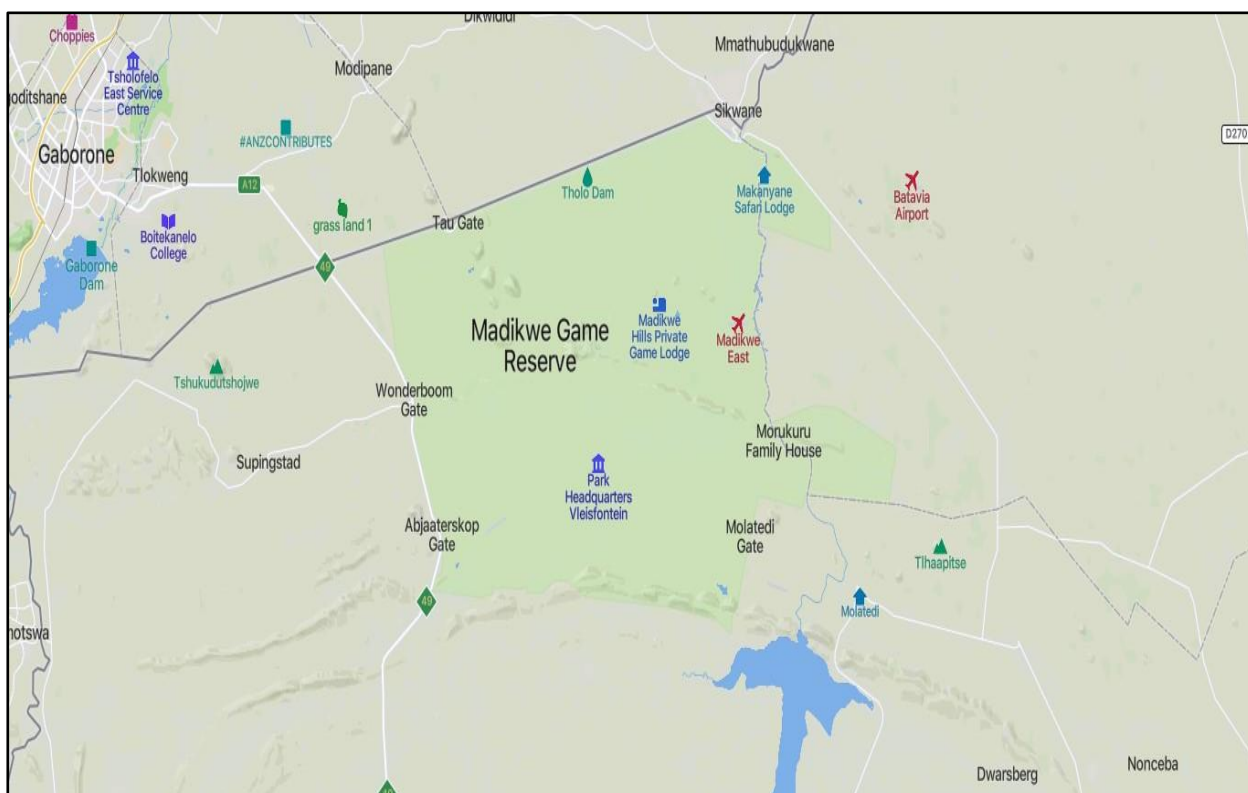


Figure 5-2: Madikwe Game Reserve. Permission to use this map, sourced in 2023, was conditional upon acknowledging Mapcarta, OpenStreetMap, as the source under the Open Database License.

According to Richard Davies, the motivation to develop Madikwe was unique because "... it was proclaimed primarily for socio-economic reasons rather than biodiversity which is the primary objective with most other conservation areas".³⁶ Within five years of the first phase of Madikwe being proclaimed in 1994, the GPG emphasised the same objective for Dinokeng. Madikwe's developers had anticipated that their land use model could offer new economic opportunities through wildlife conservation in both developed and developing countries.³⁷ In the case of Madikwe, the North West Provincial Government was to establish and manage conservation activities, the private sector was to help finance and manage tourism and community development programmes, whereas communities were expected to identify their own development priorities and participate in formulating policies for the reserve.³⁸ The Madikwe model was similar to a typical public-private partnership with all partners joining up to establish appropriate institutions and a regulatory framework, while realising a conservation goal.

³⁶ R. Davies, "Madikwe Game Reserve: A Partnership in Conservation", p. 440 in H. Prins, J. Grootenhuys & T. Dolan, (eds.), *Wildlife Conservation by Sustainable Use. Conservation Biology Series*, (12) (Kluwer Academic Publishers, 2000).

³⁷ R. Davies, "Madikwe Game Reserve: ...", in Prins *et al.* (eds.), *Wildlife Conservation by Sustainable Use*, p. 440.

³⁸ R. Davies, "Madikwe Game Reserve: ...", in Prins *et al.* (eds.), *Wildlife Conservation by Sustainable Use*, pp. 439-440.

Carruthers pointed out that Mangope and the Southern Sun Hotel Group's managing director, Sol Kerzner, had close ties, and it was thought that if Kerzner were to build Sun City as an attraction for tourists, predominantly from Johannesburg and Pretoria, a neighbouring game reserve, the then PNP, would add to the attraction. The proximity of the DGR to the country's largest urban hub was always similarly considered a major marketing attribute, in fact, the DGR is much closer to Pretoria and Johannesburg than are the PGR and MGR. During the austere apartheid era, the seductive appeal of Sun City was predicted to bring in considerable revenue to the region. Managed by David Beuster, "... Agricor³⁹ raised the funds for the game reserve and, despite the fact that many Bakgatla people and livestock lived in and used the crater, and that it contained numerous farmhouses, roads, dams and fences, the Pilanesberg was formally proclaimed a nature reserve in 1977".⁴⁰

Whereas no removals were required for the development of DGR, removals, although voluntary, were essential for the then PNP to take shape. However, economic benefits were expected in return. Farrell and Van Riet of Landscape Architects and Ecological Planners, a Pretoria-based company, were selected to create a management plan for PNP. Willem van Riet was a significant figure in landscape architecture in South Africa who combined landscape architecture with ecological planning. Ken Tinley, an ecologist, and Van Riet were commissioned to design PNP and produced their report in 1978. What was unusual about their approach was that they affirmed that wildlife continuation depended on rural African populations and "... that any conservation measure would ultimately be futile unless wildlife and nature could deliver tangible, visible benefits to humans within a particular socio-economic and geographical milieu". Van Riet and Tinley concentrated on planning PNP's ecological management, assuming, according to Carruthers "... that politicians and sociologists would take care of the human and community dimensions of the enterprise".⁴¹ The extent to which information was shared, and the extent to which local communities were consulted, is difficult to establish.

5.3.2 The Dinokeng project's communication strategies as part of the master planning process

The "Dinokeng Integrated Tourism Development Framework (DITDF) Volume E – Public Participation" should be seen as a document that both recorded public consultation prior to its publication in December 2001, and one that offered suggestions for future negotiation processes

³⁹ The Agricultural Development Corporation (Agricor), managed by David Beuster, was a Bophuthatswana parastatal development body whose purpose was to encourage rural self-sufficiency and community development under the Bophuthatswana Department of Agriculture.

⁴⁰ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, p. 3.

⁴¹ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, p. 4.

as part of the ongoing master planning process. It would become a component of the “Environmental Management Framework and Environmental Management Framework for the Dinokeng Project” report of 2010. This document, in turn, would be revised and updated as the “Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve (DGR)” in 2018. The latter, currently remains the most recent version of what is more usually referred to as the final Master Plan.

As recorded in the DITDF of 2001, information on the Dinokeng Project was distributed through topical information sheets distributed to about 1 000 local people. *Nokeng News*, a regional newspaper, provided monthly updates, and information packs were distributed at meetings and made available for collection at accessible distribution points. Two public meetings were held, supported by an inclusive strategy with GDACEL. Information was gathered into a database of stakeholders, and awareness-raising workshops clarified the purpose and structure of the tourism plan. The survey ensured that occupiers, lessees of state land, and claimants' issues were heard. Although translating complicated documents into vernacular was a challenge, summary documents were prepared to alleviate this issue.⁴²

The South African National Civic Organisation was consulted by DGR's master planners to identify potential entrepreneurial tourism skills in communities near the future game reserve. Kekana Gardens, Mandela Village, and Refiloe communities were consulted, along with various community-based organisations (CBOs) from the arts, schools, entertainment, and construction sectors. However, the planners faced challenges regarding the landowners, as many were not involved in these groups. Despite consulting established conservancy CBOs (Buffelsdrift, Leeuwkloof Valley, Bobbejaansberg, and Kameeldrift) and landowners associations, the tenure survey revealed that farmworkers had limited knowledge of the project and needed to be more fully involved in the master planning process. *Nokeng News* reported on master planning developments. The Dinokeng Forum, an umbrella body for CBOs, coordinated with GDACEL on DITDF implementation. The Nokeng tsa Taemane Wealth Creation Forum also expressed interest in DITDF opportunities.⁴³

Evidence presented in this chapter thus far shows that the DGR consultation was broad, transparent, and inclusive.⁴⁴ A variety of methods were used, moving in a spectrum from information sharing to consultation. Copies of *Nokeng News*, information sheets, and information

⁴² RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 6-7.

⁴³ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 9-11.

⁴⁴ Lists of the various people contacted and met to procure information, and the detailed list of information venues and sessions will not be displayed in this study as they are recorded in a substantial appendix to Volume E.

packs were distributed at all meetings. Interviews, opinion surveys, public meetings, and workshops were held, the detailed records of which are listed in the DITDF, Volume E, titled “Public Participation”. Various information-gathering and information-disseminating teams were sent out into neighbouring communities, details of who’s activities can also be found in Volume E.⁴⁵ Feedback received in response to the Dinokeng Project is discussed in Section 5.3.3 on the findings of the report.

5.3.3 Overview of the Dinokeng Integrated Tourism Development Framework

The purpose of the DITDF was to present an overview of the public participation process, that was designed to involve a broad range of stakeholders in the ongoing Dinokeng master planning process in a meaningful and positive way. It contains details on the public participation strategy as well as suggestions for public participation during the implementation process.

There is little doubt that the master planners produced a balanced report. However, newspaper coverage of the vision and mission statement was limited, with only a few articles in the local *Nokeng Nuus/News*. While the mission statement was generally approved, stakeholder meeting attendances were erratic, with feedback suggesting inconvenient meeting times and requests for translations were obstacles. Stakeholders with interests in tourism, game farming, or conservation were more informed. The report concluded that opportunities arising from the Dinokeng Project included job creation, increased circulation of money, better conservation and management, and improved services. Constraints included conflicting land uses, lack of physical security, and lack of tenure security.⁴⁶ The Master Plan researchers made efforts to reach all stakeholders, especially farmworkers and occupants with low awareness of the Dinokeng Project.

Copies of the report were distributed by the GDACEL to various locations, including the Nokeng tsa Taemane offices in Rayton, the Roodeplaat Community Hall, the Roodeplaat Nature Reserve, and the Leeuwfontein Collaborative Reserve. However, the success of these efforts is uncertain. Establishing meeting times and venues proved difficult, with Saturdays being the preferred day. The main meeting venues were the Roodeplaat Nature Reserve and Community Hall in the south. However, these venues were too distant for many stakeholders in the north of the Dinokeng Project area to reach.⁴⁷ Seeking consensus in any game reserve development is exceedingly difficult, so it should not be cause for scepticism that the DGR took approximately 15 years from the first idea to inception (see also Chapter Four as reference to these challenges). To illustrate the complexities of such an endeavour, further consideration is given to the consultation

⁴⁵ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 11-13.

⁴⁶ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 13-14.

⁴⁷ RSA, GPG, GDACEL, L. Newton & F. Shongwe, “Dinokeng ...”, 2001/12, pp. 14-16.

processes of the two game reserves already mentioned in this chapter that are within a few hours' drive of Johannesburg and Pretoria, namely Madikwe and Pilanesberg.

5.4 Consultation leading to the establishment of the Madikwe and Pilanesberg game reserves

This researcher believes that in most game reserve developments, it is doubtful that all stakeholders involved would acknowledge that the consultation process was totally inclusive. Having established this belief based on available evidence, and considering that the master planners' resources were finite, it can be said that considerable efforts were made to consult a broad range of DGR stakeholders. For comparative purposes, the extent to which consultation took place in the development of Pilanesberg and Madikwe, respectively, is now examined.

5.4.1 The Pilanesberg partnerships

In 1979, Van Riet's negotiations with the Bakgatla chiefs led to the community agreeing to surrender their grazing lands within the reserve's crater. Mbenga⁴⁸ maintained in 2011 that Mangope and his officials may have, together with Sun City supporters, strongly influenced this acceptance.⁴⁹ The Bakgatla agreed to receive a portion of ticket entry fees, compensation from two nearby farms, full payment of removal costs, and the right to continue visiting graves and collecting wood, thatch, and medicinal plants in the reserve. *Kgosi* (Chief) of the Bakgatla, Tidimane Pilane, was promised a position on the national park's governing board of trustees, a promise not met as Pilane was "sidelined" in breach of the agreement reached in negotiations with Van Riet.⁵⁰ Carruthers has reported, based on her research, that Tidimane Pilane, and Lucas Mangope, head of the Bahurutshe clan, were political opponents. Pilane supported the African National Congress (ANC) whereas, Mangope sided with the apartheid government.

This chapter does not delve into the complexities of the Pilanesberg negotiations. Carruthers gives a more detailed account of them in her history of the Pilanesberg National Park. She makes it clear that the structures for negotiations were far less sophisticated in the 1970s than they are now, a shortcoming that meant much of what was negotiated was unrecorded or hazy:

Today, there is considerable sophistication in all quarters when consulting communities affected by national parks and other protected areas, but at the time of the PNP's

⁴⁸ B.K. Mbenga is a historian who has extensively researched the Bakgatla of Pilanesberg and Rustenburg.

⁴⁹ See about Mbenga in J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", p. 4.

⁵⁰ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, pp. 5 & 8.

establishment there were no protocols to follow and no mechanisms for predicting or resolving disputes or difficulties that might arise between the various parties involved.⁵¹

Criticism of the PNP management has come from S.G. Motlhanke that the focus had been too much on infrastructure development at the expense of the community who felt mistreated and angered by a shortfall in reimbursement for relocation damages and homes. They criticised the less fertile land, smaller plots, and inadequate water sources of the area to which they were relocated. Motlhanke cautioned against nostalgia, which could portray the past as good and all new circumstances as bad.⁵² Motlhanke stated that the Bakgatla appeared increasingly to regret giving up their land and began to agitate to have their land returned to them. This about turn appeared to have taken both the park management and the Bophuthatswana Government by surprise.

This led to the PNP management becoming more aware of the Bakgatla community's concerns. In response, a non-profit community development organisation (CDO) was established in 1992 to serve as a communication line between the community and PNP management. The CDO improved relations between the Bakgatla and the park management, which led to the implementation of several community-based projects and a transfer of benefits from the park to the Bakgatla community, including the annual 10% of gate takings.⁵³ With the advent of South African democracy in 1994, the CDO was terminated to avoid duplication with the South African government's introduction of the Reconstruction and Development Programme.

The Bakgatla and Bakubung contributed 8 500 and 4 500 ha, respectively, to the PNP, with an additional 1 000 ha obtained from private owners, and the remainder was state land expropriated from whites.⁵⁴ Environmental scientist, Bridget Ringdahl, observed in her political ecological analysis of the Pilanesberg that "... there is no 'blueprint' for designing and implementing tourism initiatives and there are several highly variable contextual factors largely determined by the motives and interests of the actors involved".⁵⁵ These factors, she continued, may not be under

⁵¹ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, p. 5.

⁵² S.G. Motlhanke, *The Socio-Economic Impacts of Nature-based Tourism: The Case Study of Bakgatla ba-ga Kgafela in the Pilanesberg National Park*, MA (Coursework and research report), University of the Witwatersrand, 2005.

⁵³ S.G. Motlhanke, *The Socio-Economic Impacts of Nature-based Tourism: The case study of Bakgatla ba-ga Kgafela in the Pilanesberg National Park*, 2005, pp. 90-91.

⁵⁴ J. Carruthers, "Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984", *Koedoe*, 53(1), 2011, p. 5.

⁵⁵ B. Schol, "A Political Ecological Analysis of the Pilanesberg National Park and the Lebatlane Tribal Reserve, South Africa", International Master's in Environmental Sciences degree, Lund University, Sweden, n.d., Abstract page.

the control of the local communities most affected by the initiatives. Rather than applying sets of rules and models to these complex studies, she maintained that the best approach is that of an adaptive management strategy to secure long-term sustainability.⁵⁶

Ringdahl's analysis of the intricate web of relationships in the now PGR demonstrates the complexity of interactions between various role-players in developing a game reserve. The Pilanesberg area, including Sun City, is home to various community groups, including the Bakubung-ba Ratheo, Batlhako-ba Baleema, and Bakgatla-ba Kgafela tribes. Place-based actors include tribal authorities, the CDO, PGR management, local municipalities, concessionaires, Sun City, and various NGOs. Non-place-based actors include international, national, regional, and donor organisations, such as the World Tourism Organisation (WTO), the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme (UNEP), and the World Wildlife Fund (now WWF). South African Government actors include the now Department of Forestry, Fisheries and Environment (DFFE) and the North West Parks and Tourism Board (NWPTB), which oversee national parks and game reserves within the North West Province, including the PGR and MGR.⁵⁷

5.4.2 The Madikwe partnerships

As with the now PGR and DGR, a feasibility study preceded the development of Madikwe. The study area was made up of farms in the Marico Corridor purchased from white commercial farmers by the South African Development Trust for inclusion in the then apartheid-era homeland state of the Republic of Bophuthatswana. In the early 1990s, the Settlement Planning Services (Pty) Ltd (Setplan) was commissioned by Agricor on behalf of the Bophuthatswana government to establish the most effective land use for 28 farms in the Dwarsberg area of the Marico Corridor. The study compared cattle ranching benefits to wildlife tourism and explored utilising water surplus from Molatedi Dam, built for irrigation and for Botswana's capital city, Gaborone, to maximise the area's land use potential.⁵⁸ In short, the two main options for the already degraded land were "... the establishment of extensive cattle ranching together with irrigated agriculture" or "... the development of a wildlife-based tourism initiative", which would include the Big 5. The Setplan revealed that "... wildlife-based tourism development, with a predicted net return of 15% on the capital investment once fully established, far exceeded cattle ranching (predicted net return: 0.43%)". The Setplan report was published in February 1991 after which the

⁵⁶ B. Ringdahl, "A Political Ecological Analysis of the Pilanesberg National Park and the Lebatlane Tribal Reserve, South Africa", n.d., Abstract page.

⁵⁷ B. Ringdahl, "A Political Ecological Analysis of the Pilanesberg National Park ...", n.d., pp. 11-14.

⁵⁸ R. Davies, "Madikwe Game Reserve: ...", in Prins *et al.* (eds.) *Wildlife Conservation by Sustainable Use*, pp. 439-458.

Bophuthatswana government instructed the Parks Board to develop Madikwe.⁵⁹ The Setplan favoured a Big 5 ecotourism destination for four major reasons: It could potentially provide over 1 200 jobs and generate an associated payroll over US\$1.6 million per annum, offer higher spin-off benefits to the local economy, diversify the heavily dependent agriculture sector, and offer better return on investment than cattle ranching. The post-establishment success of the reserve in attracting tourists and boosting the local economy bears testimony to the appropriateness of the decision to use the land for ecotourism.⁶⁰ The Setplan is referred to in some documents, such as the North West Parks Board, *Madikwe Development Series*, as the “Feasibility Study for the Reserve”.⁶¹

The area fenced for the Madikwe reserve was 58 000 ha (recently expanded to 75 000 ha) Madikwe, a wildlife tourism project, was approved by the Bophuthatswana Government in February 1991, without forced removals of local communities. The Madikwe Game Reserve, established in August 1991, became part of the Bophuthatswana National Parks Board's estate on 31 October. The project was initiated without delay, with Mr. Roger Collinson, a former Director and Chairman of the Bophuthatswana National Parks Board, credited by Davies for his visionary role in creating the reserve.⁶² Madikwe's Operation Phoenix in 1991, larger than Pilanesberg's Operation Genesis in 1979, accelerated the restocking of wildlife species in the Madikwe Game Reserve. Dr Markus Hofmeyer, field ecologist for Madikwe and veterinarian for the North West Parks Board, praised the success of Operation Phoenix stating that most species increased in numbers and adapted well to their new environment, adding that the conservation success was a spin-off from Madikwe's primary socio-economic objective.⁶³ Madikwe's rapid infrastructure development and restocking had a deleterious effect on community development, as communities were left out of the planning process despite best intentions.

So great was the government's haste in getting Madikwe's development off the ground, that little attention was paid to the perceptions of the local community. On realising their omission, regarding not having adequately consulted local communities, the Parks Board and the

⁵⁹ H. Magome, D. Grossman, S. Fakir & Y. Stowell, “Partnerships in Conservation: The State, Private Sector and the Community at Madikwe Game Reserve, North West Province, South Africa”, *Evaluating Eden Series*, Discussion Paper No.7, April 2000, pp. 2-3, <https://www.iied.org/sites/default/files/pdfs/migrate/7802IIED.pdf>, accessed 2024-02-23.

⁶⁰ R. Davies, “A Description and History of Madikwe Game Reserve”, in P.A. Johnson (ed.), *Madikwe Development Series*, No.1, (North West Parks Board, Rustenburg, 1997), p. 12.

⁶¹ R. Davies, “A Description and History of Madikwe ...”, in P.A. Johnson (ed.), *Madikwe Development Series*, No.1, 1997, p. 11.

⁶² R. Davies, “A Description and History of Madikwe ...”, in P.A. Johnson (ed.), *Madikwe Development Series*, No.1, 1997, p. 13.

⁶³ M. Hofmeyer, “Operation Phoenix: Restocking the Madikwe Game Reserve”, in P.A. Johnson (ed.), *Madikwe Development Series*, No.3, (North West Parks Board, Rustenburg, 1997), p. 18.

Development Bank of Southern Africa (DBSA), in order to correct this flaw, began a baseline socio-economic survey in 1993 of the villages neighbouring Madikwe, including Lekgopung, Supingstad, and Molatedi (See Figure 5-2).⁶⁴

The study revealed that these communities were underdeveloped and had limited economic opportunities. Just over a third of the population (37%) were under the age of 20, 10% were over 65, and 33% were illiterate. The median household income was lower than the Minimum Living Level, and most residents relied on remittances from 36% of the population outside the area. Livestock ownership was skewed towards affluent community members. Madikwe garnered significant community involvement, with over 90% of members aware of its potential benefits. The survey highlighted the importance of realistic expectations and avoiding infrastructural developments that would leave communities behind. Today, the reserve's focus on wildlife conservation and ecotourism offers sustainable land use and business opportunities. Most community members accepted Madikwe, assuming benefits would accrue to them.⁶⁵

As Madikwe began to settle into a functioning game reserve, the *Madikwe Development Series* was published in 1997 recording the history of the game reserve and outlining, among other aspects, its economic objectives and its management plan. The Madikwe Game Reserve Management Plan emphasised the need for formal communication structures to draw communities in as equal partners. It aimed to establish a link with park management, ensure fair benefit sharing, create linkages between conservation areas and sustainable benefits, conduct economic surveys, present capacity building, and establish apolitical community structures. A Madikwe community development association and a Madikwe trust had to be established to address needs and put forward proposals, while ensuring fair distribution of benefits and addressing concerns.⁶⁶

In a follow-up survey in 1998, Magome and Sentle found that community responses to the 1993 baseline survey were not as homogenous as originally thought.⁶⁷ They believed that the Parks Board's interpretation of the survey results had incorrectly deduced that all villages had the same social and economic needs, when in fact, each village prioritised these needs differently. They

⁶⁴ H. Magome, *et al.*, "Partnerships in Conservation ... at Madikwe Game Reserve ...", *Evaluating Eden Series*, Discussion Paper No.7, April 2000, p. 4.

⁶⁵ R. Davies, "A Description and History of Madikwe Game Reserve", in P.A. Johnson (ed.), *Madikwe Development Series*, No.1, 1997, pp. 15 & 17.

⁶⁶ R. Davies, D. Grossman, N. Mathebula, P. Nobela, G. Stuart-Hill & C. Trieloff, "The Madikwe Game Reserve Management Plan", in P.A. Johnson (ed.), *Madikwe Development Series*, No.2, (North West Parks Board, Rustenburg, 1997), pp. 19-21.

⁶⁷ H. Magome & F. Sentle, "Madikwe Game Reserve: A Socio-Economic Survey of Neighbouring Communities", a Report Commissioned by the Micro Agricultural Finance Institute of South Africa (Mafisa), (Mafisa Management Consultancy, Johannesburg, 1998).

found that communities had high expectations of Madikwe facilitating rural development, but livelihoods had deteriorated in some areas since the establishment of the reserve. Although power struggles between communities arose because of leadership issues, the wildlife-based tourism on marginal agricultural land, previously degraded by cattle ranching, did increase the land's value and provide jobs, including within the Parks Board. In general, the jobs were of a higher quality than those of cattle ranching. The private sector provided all tourism facilities by way of lease agreements with the Parks Board. For example, Tau Lodge in Madikwe paid US\$20 000 per annum to the Board on an escalating rate of 10% per annum (%/a) and after two years, 8%/a of turnover. Regarding employment opportunities, the Tau Lodge, for example, employed 70 people of whom 80% were local.⁶⁸

Three assumptions applicable to Madikwe are worth noting: Firstly, wildlife tourism was the best economic use of the land available; secondly, the conservation value of the land would escalate as wildlife-based tourism developed as ecotourism; and thirdly, local communities around the game reserve would benefit from their proximity to it. These assumptions are equally applicable to DGR. However, stakeholders of both DGR and MGR had initial beneficial expectations that were unrealistically high. It is difficult for those expecting dramatic improvements in livelihoods to accept that tourism destinations can take decades to become well established. Critical to this, is that for all concerned, national tourism needs to be in a healthy state for local tourism to flourish. As stated by Magome *et al.*: “How well Madikwe performs is strongly influenced by the performance of the entire South Africa, a country in transition”.⁶⁹

Twenty four years after Magome's statement, Gauteng's tourism industry appears well, particularly after the Covid-19 pandemic. In February 2024, MEC for Economic Development, Tasneem Motara, confirmed that Gauteng recorded R30 billion in foreign direct tourism spend, surpassing its financial year target of R13 billion. The country also recorded 2.6 million international tourist arrivals, ahead of its target of 1.605 million. Domestic trips also showed strong signs of recovery, with over 5.6 million recorded.⁷⁰

⁶⁸ H. Magome & F. Sente, “Partnerships in Conservation: ...”, *Evaluating Eden Series*, Discussion Paper No.7, April 2000, pp. 7-9.

⁶⁹ H. Magome & F. Sente, “Partnerships in Conservation: ...”, *Evaluating Eden Series*, Discussion Paper No.7, April 2000, p. 1.

⁷⁰ Tourism Gauteng, “Gauteng Tourism revenue soars to over R30 billion this year”, <https://www.gauteng.net/gauteng-tourism-revenue-soars-to-over-r30billion-this-year/>, accessed 2024-03-11.

5.4.3 Lessons learned from the consultative evolution of Pilanesberg National Park and Madikwe Game Reserve in relation to DGR

In 1984, J. Keenan produced a report on behalf of the then PNP on the socio-economic effects of the surrounding population and their attitudes to the reserve.⁷¹ Concerning the PNP, the Bakgatla ba Kgafela were disappointed by promises made, which were never put in writing as confirmed by the Keenan Report. Clearly, stakeholders involved in the PNP consultation process should have avoided agreements made on a handshake. However, as Carruthers pointed out in 2011: “In the post-1994 ‘new’ South Africa, the management philosophy, objectives and style have altered considerably in both the PNP and in other game reserves in what is now North West Province”.⁷²

The Keenan Report confirmed that the land offered as compensation for relocation from the PNP area was unsatisfactory as it was far from Ledig Village⁷³ and unsuitable for grazing. As with the Bakgatla, the Bakubung-ba Ratheo were unhappy with the way in which their land was incorporated into PNP. The Bakubung appeared more closely interested in how the Sun City complex could assist their community. The Batlhako-ba Baleema suffered from a lack of formal documents spelling out agreements for incorporating their land into the PNP. While they claimed landownership, the Baleema group was hindered by the confusion over the amount of land involved. Smaller landowners received less attention than larger landowners.⁷⁴ A general difficulty experienced by communities was to establish the extent to which they did or did not benefit from revenue accruing from the game reserve. Ringdahl also cautioned that when considering role-players, one should be aware that there are usually more than one might originally think.

The diversity of landowning role-players has an impact on reserve management. The bulk of the 46 000 ha of land available for the establishment of the then PNP was in state hands. Much of this land had been expropriated from whites.⁷⁵ The Bakgatla and Bakubung contributed 8 500 and 4 500 ha, respectively, to the PNP, with an additional 1 000 ha obtained from private owners. Madikwe was similarly established on mainly state-owned land. In comparison with these two reserves, DGR reflects a different landownership scenario where private individuals are the

⁷¹ J. Keenan, “Report on the Socio-Economic Effects of the Pilanesberg Game Reserve on the Surrounding Population and the Attitudes of the Surrounding Population to the Game Reserve”, University of the Witwatersrand.

⁷² J. Carruthers, “Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984”, 1984, p. 9.

⁷³ Although Ledig is not shown in Figure 5-1, it is a large village immediately south of both Sun City and Bakubung Bush Lodge, both of which are shown on the map.

⁷⁴ B. Ringdahl, n.d., *A Political Ecological Analysis of the Pilanesberg National Park...*, pp. 18-19.

⁷⁵ J. Carruthers, “Pilanesberg National Park, North West Province, South Africa: ... – A History, 1960s to 1984”, *Koedoe* 53(1), 2011, p. 5.

majority landowners, and the state has a significant, yet minority share in ownership. The DGR landownership scenario has resulted in different management challenges from those in PGR and MGR because it is easier for government to take decisions and manage a game reserve where it has the major share, as in PGR and MGR. The DGR's multi-ownership model has complicated consultation and negotiations at every stage because so many individuals had, and continue to have, personal land interests.

The haste with which Madikwe was developed was possible because it was largely made up of state land, thus enabling decisions to be taken unilaterally with minimum initial consultation. The processes could, therefore, move ahead quickly. However, this haste led to Madikwe's communities being left behind in the planning process and, as already mentioned, they then had to be brought back into the process belatedly when they objected to the game reserve developments.

In contrast to the rapid establishment of MGR, the DGR model required up to 15 years before all participants reached enough consensus to open the game reserve officially. The primary explanation was that the model with multi-landowners in partnership with the state, required considerable one-on-one consultations and numerous information meetings. Each of over 170 landowners retained ownership of their land. Not all landowners joined the reserve, which left a landscape with a patchwork of island properties, and this complicated the finalisation of boundaries.

All three game reserves under discussion had the social and economic welfare of local communities as priorities in their ecotourism models. Whether this is always reflected in reality is difficult to determine. Each model encouraged stakeholders to take responsibility to ensure the success of the respective projects, a goal that can only be achieved if accompanied by training and capacity building. Communities without documented landownership will always be at a disadvantage against secure landowners who inevitably hold a stronger negotiating position. Strong, well organised, apolitical community structures are essential as different groups require both communication channels and representatives and mediators.

During her research on the PNP and the Lebatlane Tribal Reserve, Ringdahl came to several conclusions that would be equally valid if applied to other developing partnership game reserves. Firstly, community tourism-based initiatives are dynamic and should be expected "... to go through cycles of achievement and under achievement". Secondly, because of this "... dynamic nature of conservation tourism initiatives, there is no blueprint for success and caution should be applied when implementing other models". Thirdly, conservation-tourism initiatives should not be

a sole remedy for rural upliftment, nor carry the full responsibility of alleviating poverty. There should be other supporting components of rural development plans.⁷⁶

These conclusions derived by Ringdahl are applicable also to DGR's dynamic development history where the eventual boundaries of Dinokeng were very different from those originally envisaged. As the years go by, DGR's boundaries are likely to ebb and flow as landowners join or withdraw from the reserve. New ideas need constantly to be formulated to expand DGR and to make its presence more meaningful and essential for those living in and around it.

5.5 Consultations in the post-Master Plan implementation phase of DGR

The previous section exposed the importance of communicating with local representatives to ensure that they are accepting of the presence of game reserves in or next to their communities. While it is essential that local communities buy into the presence of a game reserve on their doorstep, it is equally important that landowners taking an economic risk in voluntarily contributing land to a larger game reserve need some sort of surety. In the case of DGR, most land claims were settled prior to the development of the reserve; however, to date (2024), no community landowners have agreed to contribute their land. The result is that besides state land, the remainder of the land has been contributed predominantly by white landowners. Prior to deciding whether to join the reserve or not, a lengthy negotiation process took place between role-players in order to finalise the reserve boundaries.

5.5.1 White & Case's Dinokeng discussion document launches consultative process

The DGR master planning process involved determining the boundary of the planning area, which required stakeholder participation in a strategy that had to be sensitive to the social and economic dynamics in an area characterised by the strong effects of apartheid planning. In the impoverished black communities living on the periphery of the designated area, education levels were low and access to basic services and housing was difficult. Most of the land area ear-marked for the game reserve, however, was privately owned. Income and education levels were higher and access to services and other infrastructure was easier for the private landowners than for the marginalised groups. Nevertheless, those living in settlements and those on farms had similar needs in terms of service delivery and both stood to benefit from the increased economic development and co-ordinated planning in the area.

In 2002, a year after publication of the DGR Master Plan, a Dinokeng discussion document was produced by global law firm, White & Case Limited Liability Partnership, representing an invitation by the GDACEL to landowners to take part in consensus discussions on establishing "Dinokeng

⁷⁶ B. Ringdahl, n.d., *A Political Ecological Analysis of the Pilanesberg National Park ...*, p. 43.

Game Reserve". The document made it clear that joining the reserve would not be obligatory, and that whether one joined or not, one retained one's land ownership rights. Secondly, GDACEL was to be a facilitator, not a "ruling body". Government could neither force landowners to change from their present land use, nor could it remove their property rights. Through the Conservation Ordinance for Gauteng and the Environment Conservation Act, GDACEL was able to regulate game movement, control registration of nature reserves and conservancies, and control developments negatively affecting the environment.⁷⁷ Landowners, however, were expected to develop tourism activities by raising their own capital and operating income-generating ecotourism accommodation facilities similar to or greater than the income they currently generated from their land use.⁷⁸

Cooperation between landowners, Gauteng, Limpopo, and Mpumalanga Provinces and local governments was facilitated by GDACEL whose contribution lay in the provision of market research, incentives, and branding services while attempting to increase the reserve size to accommodate a wider range of game species and improve biodiversity.⁷⁹ They also offered game and veld management expertise, ecological advice, and assistance with mapping for the envisaged tourism destination. The GPG was also able to source game, free or at reduced cost, from other provinces.⁸⁰ This cooperative approach between government and landowners was expected to increase land prices for landowners. As this was a two-way project, it was equally important that government leaders of the project communicate to landowners and communities what their role and responsibilities would be.

White & Case urged landowners to establish a landowners' association based upon the existing Leeuwnfontein Landowners Association agreement rules. The Government's financial commitment included the construction of 95 km of boundary fencing, 54 km of new roads, two entrance gates, a game release boma, and a R21 million budget for game introduction. The landowners' association's responsibilities would include management, ecological services, wildlife operations, infrastructure, finance, and administration. A levy was recommended to cover operating costs, which could be financed through initiatives like game viewing, game farming, and hunting.⁸¹ The

⁷⁷ Nature Conservation Ordinance 12 of 1983 as amended by the Gauteng General Law Amendment Act 4 of 2005.

⁷⁸ RSA, GPG, GDACEL, LSPC, JBA, White & Case LLP, Phase A, Development Discussion Document, 23 December 2002, pp. 2-3.

⁷⁹ RSA, GPG, GDACEL, LSPC, JBA, White & Case LLP, Phase A, Development Discussion Document, 23 December 2002, pp. 3-6.

⁸⁰ RSA, GPG, GDACEL, LSPC, JBA, White & Case LLP, Phase A Development Discussion Document, 23 December 2002, pp. 6-7.

⁸¹ RSA, GPG, GDACEL, LSPC, JBA, White & Case LLP, Phase A Development Discussion Document, 23 December 2002, pp. 11-13.

White & Case document initiated a lengthy, yet inclusive, consultative process from 2003, ultimately establishing the boundaries of the current DGR.

The White & Case invitation to discussions, dated December 2002, established parameters for future discussions, thereby indicating that the game reserve consultation process was becoming increasingly structured and formalised. This was the basis for discussions throughout 2003, during which time the future game reserve came to be formally known as the Dinokeng Game Reserve. The discussion document identified a core area to establish the DGR. The area identified was marked as “Phase A” and shown on a map appended to the White & Case discussion document. The targeted area for initial development included much of the area just east of the N1 freeway and Hammanskraal. It included military land, Mongena, several cattle farms, a section of the Pienaar’s River, Wolfaardt property, and Pride of Africa. Just over a year later, in February 2004, White & Case put forward another discussion document proposing a landowners association constitution which was accompanied by a constitution titled: “The Dinokeng – Boekenhoutkloof Landowners Association Constitution”.⁸²

5.5.2 White & Case’s proposed constitution for DGR landowners

The wording of the 2004 discussion document makes it clear that in the intervening year between the two White & Case documents, both GDACEL and landowners were desirous of establishing a game reserve, had entered into a framework agreement together, and had agreed to incorporate their land into the reserve and to form a landowners association.⁸³

Much work had been done to reach this structured way forward. However, it would take another seven years before the DGR would officially open. Many stumbling blocks lay ahead. Both the new discussion document and the recommended constitution marked the point at which landowners agreeing to an implementation framework wished to “... provide for the sustainable optimisation of economic potential and the resource protection and conservation through sustainable management of the Dinokeng Game Reserve”.⁸⁴ Both documents contained full information on how this would be done and what such an agreement would entail. The documents, therefore, provided the basic structure for the future management of DGR as they covered the details on such matters as membership, powers and functions of an executive committee, contracts, levies, game ownership, conduct, traversing rights, management, and the details of the

⁸² RSA, GPG, GDACEL, LSPC, JBA, White & Case LLP, Phase A Development Discussion Document, 23 December 2002, Map: Dinokeng Concept Plan, Schedule “A”, n.p.

⁸³ RSA, GPG, LSPC, JBA, White & Case LLP, “Government of the Province of Gauteng: Department of Agriculture Conservation Environment and Land Affairs and Landowners and The Dinokeng Game Reserve Landowners Association, Landowners Association Constitution”, February 2004.

⁸⁴ RSA, GPG, LSPC, JBA, White & Case LLP, “The Dinokeng – Boekenhoutkloof Landowners Association Constitution”, 31 July 2004, p. 3.

constitution. The next step was to persuade as many landowners as possible to sign up to incorporate their land and agree to the conditions of the constitution.

5.5.3 The sign-up phase begins

On the 11th of June 2005 during a meeting in Dinokeng, the audience burst into applause when Dr P. Hanekom⁸⁵ raised a letter signed by the Gauteng MEC for Finance and Economic Affairs, Paul Mashatile, indicating Government's acceptance of DGR's boundaries. With the letter held close to his heart, Francois Olivier, Chairman of the Landowners Association (LOA), said: "This is a special moment. It is the first time we get approval in black and white from Government. This is a crucial message".⁸⁶ The then Blue IQ's start-up process required information from landowners to identify boundaries, draw maps, and allocate funds for the reserve. However, some landowners were unable to join due to hold-out island neighbours blocking expansion corridors. The Executive Committee (Exco) of the LOA allowed landowners a few days to negotiate and explore possibilities with reluctant landowners.⁸⁷

Erich Fuls of the Gauteng Department of Agriculture, Conservation and the Environment (GDACE) informed landowners that the DGR sign-up phase was to commence from the 18th of February 2006 until the 31st of March 2006. He attempted to reassure landowners that government was more committed than ever to implement and fund the project, and encouraged those in the area to attend an information meeting at Kwalata Game Lodge on the 18th of February 2006 to assist landowners to make informed decisions based on what was presented, documented, and agreed upon. He believed that the DGR was "a done deal" only to be implemented on condition of "sufficient owner sign-up".⁸⁸

5.5.4 Communicating managerial structures to landowners and centralising the Dinokeng Landowners Association

Prior to the Kwalata meeting, Olivier, Chairman of the LOA, had issued a statement to landowners concerning share options and company structures. Two LOA management companies were proposed, namely Manco and Gameco, to form the basis of DGR's management structure.⁸⁹

⁸⁵ At the time in 2005, Dr P. Hanekom was CEO of the Cradle of Humankind and Dinokeng Blue IQ Projects.

⁸⁶ LSPC, JBA, "Yes! For Dinokeng Game Reserve", *Nokeng News/Nuus*, June 2005, p. 1.

⁸⁷ LSPC, JBA, "Yes! For Dinokeng Game Reserve", *Nokeng News/Nuus*, June 2005, p. 1-2.

⁸⁸ LSPC, JBA, Email, E. Fuls, GDACE/G. Graf, DGR Land Owner, 2006/01/21.

⁸⁹ LSPC, JBA, Email, F. Olivier, Chairperson of the Landowners Association/Landowners, *Share & Company Structures Dinokeng Big 5 Game Reserve*, distributed by G. Graf, Secretary to the Combined Landowners Association, 2006-02-15.

Manco was a Section 21 management company which would be the major management structure coordinating all DGR activities, whereas Gameco would manage all game-related activities.⁹⁰

The Dinokeng Land Incorporation Offer (DLIO)⁹¹ addressed to the Dinokeng LOA represented the landowner's offer to incorporate his/her land in DGR. It was accompanied by Appendix 1, titled, "Common Terms and Conditions in Respect of the Dinokeng Land Incorporation Agreement". Another document, the Game Purchase Agreement (GPA) constituted the terms of a binding agreement between Dinokeng Blue IQ Projects and the game owner regarding the sale and purchase of game. The GPA would record the sale by the "Game Owner" of his or her privately-owned game in the reserve area prior to the DLIO.

An attached Schedule 1 listed the game species which Blue IQ was prepared to purchase at market-related prices. These documents, together with the Intellectual Property License Agreement (IPLA), the LOA Constitution and the Integrated DGR Business Plan were presented to landowners at Kwalata by Dr Hanekom. The IPLA contained conditions and costing concerning all GPG intellectual property relating to the Dinokeng Blue IQ Project, including branding and logo, as well as "... a mechanism for generating an income stream to sustain the operations of the Dinokeng entity into the future". The IPLA had not, at the time, been concluded between the GPG and Manco.⁹²

Hanekom explained that these documents were negotiated between the GPG and the LOA Exco. Steve Raney of White & Case Attorneys, and Mike Muller, a former Director General in the Department of Water Affairs and Forestry (DWAF) with extensive experience in the negotiation of land agreements, facilitated these negotiations. Discussions were at times contentious, yet compromises were reached and the MEC, Mashatile, eventually approved the documents.⁹³ Other attachments to the Dinokeng Big 5 Game Reserve legal and financial documents included detailed financial projections modelled on revenue, capital expenditure, expenses (other than staff), and staffing expenses. The final attachment was the National Department of Environmental Affairs and Tourism Black Equity Empowerment Charter of 8 May 2005.⁹⁴ The concluding line of

⁹⁰ LSPC, JBA, Email, F. Olivier, Chairperson of the Landowners Association/Landowners, *Share & Company Structures Dinokeng Big 5 Game Reserve*, ..., 2006-02-15.

⁹¹ The abbreviation, DLIO, is often pronounced as DELEO or DELEOs in the plural, with the E pronounced as a long vowel.

⁹² LSPC, JBA, Email, P. Hanekom & F. Olivier/Landowners, "Gauteng Provincial Government, Blue IQ, Dinokeng Big 5 Game Reserve, Legal and Financial Documents", 2006-02-18.

⁹³ LSPC, JBA, Email, P. Hanekom & F. Olivier/Landowners, "Gauteng Provincial Government, Blue IQ, Dinokeng Big 5 Game Reserve ...", 2006-02-18.

⁹⁴ LSPC, JBA, Email, P. Hanekom & F. Olivier/Landowners, "Gauteng Provincial Government, Blue IQ, Dinokeng Big 5 Game Reserve ...", 2006-02-18.

Hanekom and Olivier's joint letter reinforced the understanding that the developmental stage was gaining traction: "We look forward to the commencement of implementation of the Dinokeng Game Reserve".⁹⁵

In an address by Gauteng Premier Mbhazima Shilowa at the opening of the Gauteng Legislature, also in 2006, he indicated that the reserve would open officially in December of that year. He optimistically expected employment levels to soar from 300 to 2 800 during the construction phase with 1 500 direct jobs in the game reserve itself.⁹⁶ Many landowners remained cautious and still had concerns about the proposed reserve, so Dinokeng management (A. Roxton-Wiggle and J. Stevens) and GPG (E. Fuls) attempted to address these by compiling a list of frequently asked questions and responding as evidenced in an email from J. Stevens to landowners.⁹⁷

To put the minds of landowners at rest, government made clear several principles, including the following: The government's success in the game reserve project relied on voluntary participation and government investment. The project was not a ploy to expropriate land, and landowners' property was not at risk or in debt if the project failed. Landowners would have already been paid out for their game, which they could keep on their land. No mortgage would be raised, ensuring no legal claim on landowners. The document signed by landowners was an offer to the LOA, which became an agreement if accepted by the LOA. The DLIO allowed landowners to retain their title deeds. However, their animals were free to roam and graze over other landowners' land.⁹⁸

Another concern of landowners was that of levies. Initially, there were to be none. However, there was a proviso that "... there may come a time in future that Landowners collectively decide to club together to provide a service (household refuse removal, firebreaks, lay sewage pipelines, etcetera) for the benefit of all the landowners". Clause 11 of the Landowners Constitution allowed for such an eventuality. A decision to impose levies, however, could only be taken at an AGM with a two thirds majority of landowners in favour of the proposal.⁹⁹ In other words, only landowners themselves, not the government, could decide whether levies should be paid.

⁹⁵ LSPC, JBA, Email, P. Hanekom & F. Olivier/Landowners, "Gauteng Provincial Government, Blue IQ, Dinokeng Big 5 Game Reserve ...", 2006-02-18.

⁹⁶ RSA, GPG, LSPC, JBA, Address by Premier Mbhazima Shilowa at the Opening of the Gauteng Legislature, February 2006, p. 3.

⁹⁷ LSPC, JBA, Email, J. Stevens, DGR/Landowners, "Dinokeng Game Reserve, Frequently Asked Questions", 2006-03-15.

⁹⁸ LSPC, JBA, Email, J. Stevens, DGR/Landowners, "Dinokeng Game Reserve, FAQs", 2006-03-15, p. 1.

⁹⁹ LSPC, JBA, Email, J. Stevens, DGR/Landowners, "Dinokeng Game Reserve, FAQs", 2006-03-15, p. 1.

Regarding the decision about levies, small landowners wondered whether big landowners could outvote them, and whether small landowners would be disadvantaged by bigger landowners who could afford to pay higher levies. The response was that for every 5 ha of land or part thereof in the game reserve, the landowner would receive a vote, free shares in Gameco, dividend payouts from profits in Gameco, and a grazing fee distribution in Manco. Concern was expressed about the length of time that had already passed since the game reserve idea was first mooted and what would happen if a landowner signed the DLIO and subsequently nothing progressed over the next three years. The response was that the offer would expire at the end of November 2006, or later, if agreed to by both parties.¹⁰⁰

In the reserve tourist traffic was to be strictly controlled, and everyone would have access to public roads, but with speed restrictions. Tourists would not have the right to enter a private farm without permission and main gate security could be contacted should trespassers persist. Some advantages of joining were re-stated, namely: land value and security would increase, road access would be controlled, and there was the privilege of living in a Big 5 game reserve. The “work team” from the LOA Exco, together with various landowners, collected many outstanding DLIOs. Details of the signatories were inserted into a database and mapping software to establish the proposed reserve’s boundaries. The required 20 000 ha was reached and exceeded.¹⁰¹ Eventually, however, as of 2024, only 19 000 ha had been mustered for the reserve.

A meeting with Dr Hanekom and her government team took place on the 3rd of May 2006, and the following agreements were reached: the final date for establishing external boundaries was fixed for the 15th of May 2006, the fencing tender was to be promptly finalised, the roads agreement would be expedited, and the GPG Dinokeng team would be available for administrative tasks and further negotiations.¹⁰² Also in May, both participating and non-participating landowners in DGR were encouraged to attend a meeting at Kwalata Game Lodge on Saturday the 3rd of June 2006 to elect new Exco members.¹⁰³ By 2006, one landowner association became dominant and overarching for DGR. Prior to the formation of the DGRMA, there were other landowner associations usually between small groups of like-minded landowners with mutual interests in managing their combined land as conservancies. The situation remains the same today. As the current chairman of the DGR LOA, Jonathan Kleynhans explained:¹⁰⁴

¹⁰⁰ LSPC, JBA, Email, J. Stevens, DGR/Landowners, “Dinokeng Game Reserve, FAQs”, 2006-03-15, pp. 1-2.

¹⁰¹ LSPC, JBA, Email, J. Stevens, DGR/Landowners, “Dinokeng Game Reserve, FAQs”, 2006-03-15, pp. 2-3.

¹⁰² LSPC, JBA, Email, J. Stevens, DGR/Landowners, “Landowner update”, 2006-05-07.

¹⁰³ LSPC, JBA, Email, J. Stevens, DGR/Landowners, “Dinokeng update”, 2006-04-30.

¹⁰⁴ LSPC, J. Kleynhans, Email, Chairman of the Dinokeng Game Reserve Landowners Association, and owner of Leadwood Safari Co, DGR/ L. Shee, 2024-02-23.

The DGR LOA is the overarching authority for all land incorporated into the game reserve by way of a signed DLIO. DLIOs are signed between the owner of a title deed and the game reserve. There are instances where several pieces of land, enter into their own independent associations but this is purely for their own purposes, and it does not have a bearing on the management structures of the game reserve.

A sense of urgency could be detected in Dinokeng management prior to this meeting when Stevens asked landowners: “Will you be in, or will you be out”? The final DGR start-up fencing option had to be presented to the Government by the 15th of May 2006, and Stevens had received more promises than actual DLIOs. She reminded landowners that once the start-up boundary fences were presented to and approved by the GPG, they would not be altered unless a landowner paid for the additional fencing required to fence them in, and additional restrictions could be imposed on latecomers. Unless they signed up, owners of “white spaces”¹⁰⁵ would be fenced out individually or in blocks, to reduce fence costs and allow for connectivity.

Her impatience was palpable: “At the end of the day – money and practicalities talk. No room for sentiment, maybe’s or nice to haves. The time for sitting on the fence is over. There will be an option to buy in later, but the ‘free DGR ride ticket office’ closes on Monday 15 May 2006”.¹⁰⁶ Stevens requested temporary, voluntary staff to manage the game reserve during the implementation phase, including administration, finance, ecology, security, and legal matters. Eight hours of time per week was requested of volunteers until permanent staff could be appointed. The LOA and DGR project management also expressed the need for temporary offices.¹⁰⁷

5.5.5 Obstacles to eastern expansion, and how to change one’s mind – a case history

Several bigger properties were considered strategically important in 2006 for eastward expansion, including those of Dr Bill Venter,¹⁰⁸ Stephen Saad, and Stanley Rens. Several enthusiastic participant landowners, along with the government’s representative, Eric Fuls, worked tirelessly to persuade them, and other hesitant landowners, to join. As Rens said: “Eric Fuls must have made four or five appointments with me trying to convince me to sign my property up, telling me that I was in the middle, and I was splitting the game reserve”.¹⁰⁹

¹⁰⁵ In Figure 1-1, the properties shaded in light green within DGR are properties where landowners have not committed their land to the reserve. They are generally referred to as “island properties.”

¹⁰⁶ LSPC, JBA, Email, J. Stevens, DGR/Landowners, “Will you be in, or will you be out?”, 2006-05-10.

¹⁰⁷ LSPC, JBA, Email, J. Stevens, DGR/Landowners, “Landowners Association Circular, Your game reserve needs you!”, 2006-05-12.

¹⁰⁸ Dr Bill Venter is a well-known South African entrepreneur and industrialist who founded the Allied Electronics Corporation (Altron) in 1965.

¹⁰⁹ LSPC, S. Rens, WhatsApp Voice Note 3/L. Shee, 2022-05-20.

To date, neither the Stephen Saad nor Venter properties have been included in DGR. Saad's property borders DGR in places but it remains outside the reserve, and Venter's has no boundaries contiguous with those of DGR. Venter's property is particularly attractive as it has frontage on the Elands' River, a tributary of the Olifants' River that flows through the KNP. Its inclusion would add further aquatic features, and open further corridor possibilities to include Rust de Winter Dam and Nature Reserve. Another sought after strategic property was that of Stanley Rens whose family had played a significant role in Hammanskraal's urban and business development. The eponymously named Renbro Group consisting of a butchery, abattoir, and livestock depot in central Hammanskraal supplies meat to the Hammanskraal community. The family also owns other businesses and properties in the town, and a residential suburb they developed, Rens Town, bears their name.

Rens' narrative is important. In May 2022, he related in a series of voice notes to this researcher, his initial concerns about joining the reserve and then, the reasons for changing his mind. His record represents the anxiety that landowners faced over their decision whether to join the reserve. Rens' life-long working association with the research area as a landowner, farmer, and entrepreneur adds considerable credence to his story. Originally involved with canvassing for Amakulu, Rens eventually felt it had "Orania-like" features regarding security which were unacceptable to him. The history of Amakulu, which was an attempt in the late 1990s to form a game reserve, is discussed in Chapter Three. Rens acknowledged, however, that other landowners had other reasons for not joining the Amakulu project, one in which several people had invested money and game before its eventual deregistration.¹¹⁰ He cited, among others, Charl Pretorius, as a landowner to the west who had worked tirelessly to keep the game reserve idea alive. The remaining momentum now shifted from the Amakulu concept to concentrate on an area of land parcels to the west including Kwalata owned by previously mentioned Charl Pretorius. This area was Phase A as alluded to in Section 5.5.1.

One reason for this shift in focus to the Hammanskraal area, described as Phase A, was that many landowners there had relatively small plots (20 to 25 ha), which, as stand-alone plots, had little potential for supporting agriculture, tourism, or income-generating businesses. The landowners with larger land portions of say 300 to 400 ha had a greater chance of sustaining income-generating activities such as cattle farming. They were, therefore, not necessarily as enthusiastic as some smaller landowners were about removing their fences to join DGR. Initially, Rens believed that by joining DGR he could not match the income from his privately operated farm from which he also ran cattle for Hammanskraal's abattoir and butcheries. He believed that

¹¹⁰ LSPC, S. Rens, WhatsApp Voice Note 1/L. Shee, 2022-05-20.

joining DGR and spending on tourism infrastructure, including a lodge, was high risk, and he believed many large landowners shared the same sentiment, and feared sacrificing their cattle farming income for a “pie-in-the-sky” government project.¹¹¹ Rens’ sentiment was shared by other cattle farmers, such as Meyer Glasser and Aaron Glasser, whose comments are recorded in Chapter Three.

He recalled being approached by Fuls and Pretorius after a lively meeting including both participant and island landowners, to address the non-participants’ concerns. The idea was that people incorporated in DGR and those outside its boundaries could work together.¹¹² This event, and government’s openness to consultation with all parties, marked the start of Rens’ consideration of the advantages of signing up to DGR as a participant.

Some landowners who were concerned about opportunistic land claims began to consider government support of the DGR concept and its erection of Big 5 fences as a positive factor in reducing the possibility of any illegal land invasions and increasing the possibility of the DGR obtaining protected area status. Many older farmers, he maintained, did not trust the government, believing they were seeking information to expropriate their land. Rens predicted that as older farmers aged and moved back to city life, younger buyers seeking a game reserve lifestyle would gradually buy their land, leading to fewer island properties.¹¹³

Frustrated by the constant callouts for fence repairs due to vandalism, poaching, and car accidents, Rens decided to drop fences along De Wagendrift Road and join DGR. He had grown tired of the expense and trouble of having to re-capture large animals like giraffe, which had broken through his fences. Veterinary bills too had become prohibitive. In one case he recalled, the money spent on treating one injured eland equalled the cost of purchasing three eland. Farm attacks and murders would potentially be mitigated through perimeter boom gates, electric fences, and roaming anti-poaching units. This enhanced security promised a sense of protection for vulnerable landowners.¹¹⁴ Eventually, he signed a DLIO, thus transferring fence maintenance and other responsibilities to DGR management in return for the inclusion of his land in DGR.¹¹⁵ From then on, Rens said he worked hard, along with other landowners, to communicate these advantages to landowners who were holding out as island properties. His eventual joining benefited the reserve in that his land provided an essential corridor for the reserve to expand both

¹¹¹ LSPC, S. Rens, WhatsApp Voice Note 2/L. Shee, 2022-05-20.

¹¹² LSPC, S. Rens, WhatsApp Voice Note 3/L. Shee, 2022-05-20.

¹¹³ LSPC, S. Rens, WhatsApp Voice Note 4/L. Shee, 2022-05-20.

¹¹⁴ LSPC, S. Rens, WhatsApp Voice Note 8/L. Shee, 2022-05-20.

¹¹⁵ LSPC, S. Rens, WhatsApp Voice Note 6/L. Shee, 2022-05-20.

north and south to link with other participant landowners and to create a healthy space for roaming wildlife. Rens' mention of fences offering a sense of security is an important consideration in any discussion on game reserve boundaries.

5.5.6 Fencing and boundaries for DGR

Fences provide both security in DGR and mark the game reserve's boundaries. Establishing these boundaries became a focus of numerous discussions and meetings in 2006, either directly or indirectly. Dr Hanekom and G. du Plessis, newly appointed Chairpersons of the Dinokeng Blue IQ Project and LOA, respectively, attended the second DGR Steering Committee meeting where a member of the LOA proposed that two fencing tenders should be considered, one for the perimeter, whose boundary was known, and one for the internal boundaries which would be mapped when landowner negotiations had been completed. In the meantime, the South African National Defence Force and the Gauteng regional branch of the Department of Public Works discussed including state-owned land in the Dinokeng Blue IQ Project with its programme manager, Mr Harding, indicating Boekenhoutskloof, Klipdrift, and Ditholo as possible inclusions, but not Wallmannsthal due to its ongoing military activities.¹¹⁶ Parts of Wallmannsthal were also subject to land claims.

Two large-scale cattle farmers who relinquished swathes of profitable cattle land to expropriation were Chris Pieterse and Aaron Glasser. Pieterse and Glasser attempted to advise land claimants on how they could benefit from including their land in DGR. Pieterse, however, reported that unknown "consultants" were thought to be advising the land claimants. Dr Hanekom requested that she receive information on who these consultants were to ensure that claimants were not being ill-advised by these so-called consultants. Other land claimants around Rust de Winter Dam, as well as those claiming land on Pride of Africa (PoA), a collective of lodges inside DGR, had been advised on the ecotourism potential of the area at meetings on the 7th and 11th of June 2006.¹¹⁷ Serious doubts arose at the time concerning the realisation of the DGR.

Rumours began to circulate that the project was "dead", which led landowners to enquire of GDACE's E. Fuls whether this was so. Replying to one individual, Fuls began: "Nee [name redacted], daar is GEEN sprake van onttrek nie!" (No [name redacted] there is NO question of withdrawal). However, there were definite concerns from both the government and the landowners. Fuls, writing to some members of the LOA on the 19th of June 2006, indicated deep concern about the integrity of selling the DGR dream, particularly as the project appeared stalled

¹¹⁶ LSPC, JBA, Dinokeng Game Reserve Project Steering Committee No.2, "Minutes of the second meeting held in the Roodeplaat Dam Nature Reserve", 2006-06-05, pp. 1-4.

¹¹⁷ LSPC, JBA, Dinokeng Game Reserve Project Steering Committee No.2, "Minutes of the second meeting held in the Roodeplaat Dam Nature Reserve", 2006-06-05, pp. 4-5.

and many stakeholders had "... banked time, money and effort on the DGR dream based on the strength of our selling". He emphasised the urgent need to sell "reality". Fuls included for their information "factual reasons" why the DGR project was not yet up and running and stressed the urgent need to resolve the problems.¹¹⁸ Fuls communicated some of their grievances and concerns to GDACE's Tony Harding.

Firstly, the Regional Land Claims Commission, (RLCC), despite assurances to the contrary, was going ahead with claims lodged against most of PoA's land. In the interim, Pride of Africa's (POA's) landowners had signed DLIOs. The RLCC had also made an offer on behalf of a local African community for Didimala Game Lodge, which was accepted. A sophisticated eco-friendly lodge, Didimala, built by the late Colin Marincowitz, gained fame through its use of straw bale technology for building in place of bricks and mortar. The wheat straw bales were fire resistant, of high insulation value and renewability, and cost effective. At the time, it was the largest straw bale construction in the world, winning its owner various awards for building and tourism innovation. Didimala is situated just outside DGR's northeastern Yingwe Gate on the tarred Rust de Winter Road.¹¹⁹ Land claimants at the time indicated that they were not interested in joining the DGR. Practically translated, this meant that the 1 300 ha claim on PoA, together with land belonging to non-participating landowners south-east of PoA, cut off approximately 2 500 ha from the start-up area already plotted on the map. This left just under 20 000 ha,¹²⁰ including the government land.¹²¹ In 2006, other factors also contributed to the concern over the game reserve's viability.

Several bigger landowners had already prohibited tourist traffic from traversing their land, which had been contributed to the DGR. If one added to this the large number of smaller landowners' properties with portions of their land already transformed to a point of unsuitability for tourism, Fuls calculated that less than 5 000 ha would have to generate an income for the total 20 000 ha reserve. Assuming the need for at least a three-hour self-drive route (the two official self-drive routes available today were not yet established) it was unlikely that a satisfactory game drive route could be developed. Fuls added that while Kwalata Game Lodge offered some hope to extend a game drive route, Ditholo military land was only available for game traversing, and not for tourism. Fuls calculated that of the potential 110 000 ha DGR, 40 000 ha would go to land

¹¹⁸ LSPC, JBA, Email, E. Fuls/Landowners (C. Pretorius, G. du Plessis & A. Roxton-Wiggill), "DGR: delayed, derailed or dead", 2006-06-08.

¹¹⁹ CNBC Africa, "Didimala Lodge gaining attraction for its rich history", *Latitude*, 2013-06-20. <https://www.youtube.com/watch?v=2xamrt4cb0e>, accessed 2023-10-01.

¹²⁰ This figure coincides more-or-less with the size of DGR in 2024 (19 500 ha) – 16 years later, which illustrates the continual struggle the LOA has in expanding the DGR.

¹²¹ LSPC, JBA, Email, E. Fuls/Landowners (C. Pretorius, G. du Plessis & A. Roxton-Wiggill), "DGR: delayed, derailed or dead", 2006-06-08.

restitution in Mpumalanga, cancelling all of Phase B. The 12 000 ha land claim in Limpopo would affect Phase A1 and A2, and the absence of Pieter Wolfaardt's 10 000 ha property would negatively impact Phase A1. The exclusion of Bill Venter's 10 000 ha would end Phase C. Owners of properties to the east, near Leeuwfontein, such as Loodswaai and Savannha, declined to join the DGR, which left only approximately 25 000 ha for a start-up reserve. Land inside the game reserve not available for tourism would likely escalate management costs. For example, Fuls observed that even if Bill Venter's 10 000 ha property was included, no tourism income could be expected and the payment for Venter's game and fencing would not be cost effective.

Adding to the increasingly complex configuration was the fact that some landowners, for example, Rens and Saad, who had originally indicated on a tick sheet, or verbally, that they would be in, were against joining, although Rens, as explained in Section 5.5.5. did eventually join. The "poor economies of scale and cost", was a term Fuls applied to the cost of fencing irregular boundaries, which included fencing off internal island properties. In addition, this term applied to the excessive costs of providing 47 servitude game grids, 7 public road game grids, and 12 river crossings over the Boekenhoutspruit. Finally, illegal Kekana Gardens settlements at the entrance to DGR had encroached upon land envisaged for use as the DGR entrance area. Meetings continued over the months and years, as did negotiations around community buy-in, inclusion of government land, and the state and maintenance of roads.¹²² Uncertainty over ongoing land claims continued to hinder the game reserve's progress and impede the momentum that followed the White & Case endorsement discussed in Section 5.5.

The Dinokeng Blue IQ Project leaders requested officials of the Metsweding District Municipality, the Nokeng tsa Taemane Local Municipality, and the Kungwini Local Municipality to identify community leaders in the proposed DGR area. Trouble had been brewing in the Kekana Gardens area where illegal settlements were encroaching upon the DGR. An official with Dinokeng Blue IQ Projects, F. Jiyane, met with the Municipal Manager of the Nokeng tsa Taemane Municipality on the 21st of July 2006 to curb illegal settlements and find alternative areas to accommodate land invaders.¹²³

¹²² LSPC, JBA, Email, E. Fuls/Landowners (C. Pretorius, G. du Plessis & A. Roxton Wiggill), "DGR: delayed, derailed or dead", 2006-06-08.

¹²³ LSPC, JBA, Dinokeng Game Reserve Project Steering Committee No.3, "Minutes of the third meeting held at the Roodeplaats Dam Nature Reserve", 2006-07-31, p. 8.

In 2006, GPG's DGR management contracted Siyaya Fence and Gate JV to commence with fencing the reserve's start-up area of 17 000 ha. The optimistic forecast, as mentioned earlier in Section 5.5.4, was for the reserve to open in December of 2006.¹²⁴

The LOA Chairman in October 2006, G. du Plessis, pointed out to the press that the aim of the reserve was primarily to ensure that all communities in the area would benefit from job creation and poverty alleviation.¹²⁵ In a letter to landowners, Vice Chairman of the LOA, Charl Pretorius, began: "The day has arrived! The Dinokeng Big Five Game Reserve is no longer a dream but a REALITY!". Pretorius took the opportunity to call for the assistance of landowners by way of time and expertise in helping to speed up the fencing programme. Siyaya staff were provided with accommodation, and a base camp was set up near Safari Mall. The perimeter fence line had to be cleared starting at Kwalata Game Lodge where 4 X 10 D10 bulldozers had been offloaded. At that point, Pretorius made a last-ditch attempt to encourage island landowners to join in the reserve.¹²⁶

Despite the setbacks mentioned, in November 2006, DGR landowners were informed that their DLIOs had been accepted. They were asked to sign an agreement for the development of the DGR in two phases on approval of the GPG. Phase 1 in the south and west, to begin immediately, consisted of 15 000 ha, and Phase 2, in the north and east, to start within a reasonable time, consisted of 10 000 ha. A signed letter confirming acceptance was to reach the LOA by the 31st of January 2007.¹²⁷

The marketing of DGR took on a new zeal towards the end of 2006. The first edition of the *Dinokeng Big 5 News*, dated 15 December 2006, reported on the erection of the first fence pole for the Dinokeng Big 5 Game Reserve by Paul Mashatile, Gauteng MEC for Finance and Economic Affairs, marking a significant stage in DGR's development. From the first pole, 100 km of fencing would enclose 15 000 ha of bushveld to form the first part of the DGR.¹²⁸

The first phase of the fencing project was expected to cost the GPG R10,2 million, excluding access gates, game stocking, and technical resources by way of veterinary assistance, game ranging services, and communication technology. Total expected expenditure for the DGR start-

¹²⁴ LSPC, JBA, "Gauteng's only Big Five Game Reserve gets closer to reality", *Nokeng Nuus/News*, 2006-10-17, p. 6.

¹²⁵ LSPC, JBA, "Yes! For Dinokeng Game Reserve", *Nokeng News/Nuus*, June 2005, p. 1.

¹²⁶ LSPC, JBA, Email, C. Pretorius, Mr, Chairman DGR LOA/Landowners, 2006-10-15.

¹²⁷ LSPC, JBA, Email, DGR LOA Executive Committee/Landowners, "Your Dinokeng Land Incorporation Offer Phase 2", 2006-11-29.

¹²⁸ R. Lakha-Singh & A. Roxton-Wiggill, "First fence pole seals Dinokeng Big Five Game Reserve", *Dinokeng Big 5 Nokeng News*, Edition 1, 2006-12-15, p. 1.

up was R55 million. Some optimism remained concerning further expansion of the game reserve with the marketing team projecting plans to grow the reserve to a total of 125 000 ha that would extend into Limpopo and Mpumalanga. Du Plessis predicted a considerable reduction in poverty through job creation resulting in an improved quality of life for all local communities.

As a Blue IQ initiative, the project's focus remained on developing the northeastern quadrant of Gauteng as a geospatial tourist destination.¹²⁹ The LOA's marketing team began using the term "DB5" (meaning Dinokeng Big 5) and called on landowners to co-operate in vigorously marketing their products. Simultaneously the marketing team sought dialogue with cautious landowners and urged them to sign up immediately and to ask any questions that were bothering them. The marketing team attempted to reply to landowners' questions, some of which are worth reviewing as they suggest that consultation was inclusive, robust, and transparent.

Some landowners feared that the Government, as the main financial supporter, might take control of the game reserve management to which the response was that the game reserve would only be controlled and managed by the LOA whose members would be voted onto the Exco at the LOA's AGM. Further, while licence fees might in future be expected for the use of the Dinokeng brand, the DB5 would always be a landowners' project whose success would depend on the landowners' determination to make it work. Concerning a landowner's question on the unaffordability of joining the DB5 owing to fencing off a house, the reply was that internal fences were a personal choice ranging from no fence at all to high spec Big 5 fences. If landowners had genuine financial constraints, they were to approach the LOA for advice and assistance, for example, with accessing surplus fencing the LOA had at its disposal. Again, the LOA stressed that joining DB5 was optional; no debt would be levied to landowners; the agreement would be between each landowner and the LOA, not the Government; and title deeds and land ownership would be retained.¹³⁰

The eventual fencing arrangement in DGR was that participant landowners who removed their fences for the greater good of the reserve were then obliged to fence the perimeters of their immediate lodges or homestead living spaces as protection against dangerous game. Figure 5-3 below shows a popular form of double protection at a lodge gate, the point at which elephants are more likely to attempt to force their way onto a property. A close look will show that in addition to the electrified gate, there are two steel poles carrying two electrified spring coils with insulated

¹²⁹ R. Lakha-Singh & A. Roxton-Wiggill, "First fence pole seals Dinokeng Big Five Game Reserve", *Dinokeng Big 5 Nokeng News*, Edition 1, 2006-12-15, p. 1.

¹³⁰ *Dinokeng Big 5 Nokeng News*, Edition 1, 2006-12-15, p. 4.

handles. This double coil arrangement is meant as a first stage deterrent to discourage elephant from forcing the gate.



Figure 5-3: Double electrified spring coil arrangement – an elephantine deterrent!
Photographer, Laurence Shee, Kierieklapper Lodge, Rondefontein, DGR, n.d.

By August 2007, the government had spent R12 million on perimeter fencing and R5 million on game for south of the Rust de Winter Road. The area was gradually becoming better known after a visit to the area by Gauteng Premier, Sam Shilowa in May 2007, and promotion of the area by Minister of Environmental Affairs and Tourism, Marthinus van Schalkwyk. The formal management structure of DGR was beginning to take shape and an advertisement went out for an implementation manager.¹³¹ The Implementation Manager needed five years of experience and a relevant BSc degree, and was required to coordinate activities in the reserve start-up area, oversee habitat restoration, implement game and ecological management policy, run wildlife and reserve programmes, and manage fencing and anti-poaching activities, while liaising with the LOA Exco.¹³²

¹³¹ LSPC, JBA, Dinokeng Big Five Game Reserve, Landowners Association Annual General Meeting, "Minutes of the AGM held at Xombana Bushveld Theatre", 2007-08-04, pp. 1-2.

¹³² LSPC, JBA, Dinokeng Big Five Game Reserve Landowners Association advertisement for Implementation Manager, closing date of which was 27 August 2007.

At the 2007 AGM, Ken Jacobs, Chairman of the DGR Finance Committee, announced the registration of two companies: the DGR Management Association, a Section 21 company, and the DGR Game Enterprises Ltd, a public company. These companies were referred to in Section 5.5.4 as Manco and Gameco, respectively. The LOA was to be the controlling body, and members had to sign the Land Incorporation Offer and adhere to the LOA Constitution. An Exco of 11 members was to be elected annually at the LOA AGM, to consist of at least seven landowners from the A1 operational area and the balance from expansion areas. The LOA, represented by the chairman, three executive committee members, a special member representing Gameco, and two more nominated members, formed the Board of Directors responsible for the DGR's management.¹³³

Regarding the shares scheme, Jacobs recorded that all landowners within the operational area would receive shares in the DGR Gameco in proportion to the size of their land within the reserve. Local communities were also to benefit from the shares scheme. Others to receive shares included local communities who, although they did not own game themselves, were to benefit from any game donated by the Government, landowners who preferred shares to cash pay-outs for their game, landowners wanting to invest in the company, and interested outside investors who could buy shares because it was a public company. The GPG would protect its investment in the game reserve by signing an agreement between itself and the Manco.¹³⁴ The finer details on how the share system would be structured had yet to be worked out. In the meantime, forecasts for the opening of DGR by December 2006 had faded, nevertheless, progress inched forward as deals were forged between government and the LOA.

5.6 Continuing delays towards an official opening

By 2007, Dr P. Hanekom had officially announced the implementation of the start-up phase of DGR but believed it would only be functioning with controlled gateways and entrance fees by mid-2008. Even this date would prove to be overly optimistic. In the meantime, tenders would be put out for the design of gateways, which would be followed by tenders for construction.¹³⁵ Positive expansion progress was reported by Hanekom with respect to state land. Not only had the Minister of Defence approved the inclusion of Ditholo Military Nature Reserve in the DGR, but 2500 ha of available state land at Boekenhoutskloof 129 JR was earmarked for inclusion. Both Ditholo and Boekenhoutskloof 129 JR are included in the current DGR, with the latter forming an

¹³³ LSPC, JBA, Dinokeng Big Five Game Reserve, "Minutes of the LOA AGM at Xombana Bushveld Theatre", 2007-08-04, pp. 2-3.

¹³⁴ LSPC, JBA, Dinokeng Big Five Game Reserve, "Minutes of the LOA AGM at Xombana Bushveld Theatre", 2007-08-04, p. 3.

¹³⁵ LSPC, JBA, Dinokeng Big Five Game Reserve, "Minutes of the LOA AGM at Xombana Bushveld Theatre", 2007-08-04, p. 12.

essential linking corridor with the southern extremity of the game reserve.¹³⁶ Progress towards the inclusion of another section of Boekenhoutskloof immediately west of 129 JR was expected to be included in 2007, yet by 2024, this had still not happened. The inclusion of this land portion would further widen the corridor to the south allowing for game to roam more freely in the southern region.

At the DGR LOA AGM in 2007, voting took place for the new LOA Exco. The position of Chairperson went to Charl Pretorius and Vice Chairperson to Jenny Stevens, while Ken Jacobs was voted Treasurer and Alan Roxton-Wiggill, Secretary.¹³⁷ In an implementation update on the 12th of September, developments appeared to be picking up speed with the section north of the Rust de Winter Road soon to be joined with the southern section as the Big 5 perimeter game fence was 99% completed. Landowners were also informed that the newly constituted DGR Management Association (DGRMA) had been elected to manage the reserve.¹³⁸ The DGRMA appointed an implementation manager, Lynn van Rooyen¹³⁹ who had worked in the Kruger National Park for 30 years and at National Parks Head Office for 10 years. He was to report to Stevens as Chairperson of the DGRMA.¹⁴⁰ One of the factors hindering progress at the time was the dilatory return of crucial paperwork by landowners, particularly the DLIOs.

By November 2007 approximately 75% of the documents had been signed, but still not enough for the Government to release further funding. The DGRMA had set up a website, admin@dinokengbig5.com, for landowners to keep abreast of developments. In the implementation updates of both November and December 2007, landowners were warned to alert their staff to the dangers of free roaming game as internal fences were gradually being removed. Landowners were reminded of their contractual obligations for the safety of their employees and that Clause 13.3 of the Constitution obliged landowners at their own cost to fence off the housing areas for their employees. Clause 13.4 placed the responsibility for staff safety on the landowner

¹³⁶ LSPC, JBA, Dinokeng Big Five Game Reserve, "Minutes of the LOA AGM at Xombana Bushveld Theatre", 2007-08-04, p. 11.

¹³⁷ LSPC, JBA, Dinokeng Big Five Game Reserve, "Minutes of the LOA AGM at Xombana Bushveld Theatre", 2007-08-04, pp. 12-13.

¹³⁸ The first appointees from the LOA to the DGRMA included Jenny Stevens, Chairperson; James Harding, Vice Chair; Ken Jacobs, Finance, Alan Roxton-Wiggill, Secretary; and three Directors: Charl Pretorius, Stanley Rens, and Ferdi Lamprecht.

¹³⁹ Van Rooyen's memories of, and experiences in Kruger Park were captured in his book, *Mbazo Footprints through the Kruger National Park*, first published in 2010. A bull elephant was named Mbazo after Lynn "Mbazo" Van Rooyen. Van Rooyen's moniker, Mbazo, means axe and refers to his early years as a ranger during which he patrolled armed only with an axe.

¹⁴⁰ LSPC, JBA, Email, Dinokeng Big 5 Game Reserve Administration/Landowners, "Implementation update", 2007-09-12, pp. 1-2.

and absolved the LOA, Manco and Gameco from any liability and damages resulting from the actions of wild animals.¹⁴¹

The implementation update of December 2007 called again for DLIOs and other documents to be submitted as the Dinokeng Blue IQ Project was unable to progress until this red tape had been resolved. Other factors seen as delaying the game reserve's progress included the need to establish the Manco, the issuing of landowner participation shares, South African Revenue Services registration, and finalisation of the agreement between the Manco and the Gameco.¹⁴² Stevens as LOA Exco chairperson for 2008/2009 became increasingly impatient with those landowners whose outstanding documents were delaying progress.

In the implementation update entitled "United we stand" Stevens listed the names of owners whose documents were outstanding, stressing again that their delays in submission were hampering forward planning and progress. Struggling with operating Manco without capital, she posed a number of rhetorical questions: "Is it Blue IQ's responsibility to come forward with more money? Is this their reserve?", to which she replied "... what an outcry there would be if Blue IQ tried to come in and take the project away from us!". Stevens then revealed the dire financial situation in which DGR's Manco found itself.¹⁴³

Only the dedicated efforts of the Implementation Manager and a few diligent LOA members to raise funds enabled work to continue until the end of the financial year in February. Stevens asked: "How did this situation arise?". Stevens' explanation was that Blue IQ had helped compile a start-up plan based on an initial reserve of 20 000 ha, which would have been adequate for running costs. However, both landowner non-participation and land claim issues had reduced this to a far lower than anticipated 12 500 ha. Further, Blue IQ financials had been based on day-visitor entrance gate fees that would have enabled DGR's Manco to repay operating capital from the bank. With a significantly reduced area available for tourism, expected income would inevitably be reduced. In addition, the delays in the erection of entry gates (cash points) because of landowners not submitting documents on time limited the expected amounts. Another point made by Stevens was related to risk-taking by Blue IQ. As soon as the fences began to go up, Blue IQ had been assured that increasing numbers of landowners would line up to join the reserve. The risk did not pay off. Stevens' final point was that of the landowners who did sign

¹⁴¹ LSPC, JBA, Email, Dinokeng Big 5 Game Reserve Administration/Landowners, "Implementation update", 2007-09-12, p. 1.

¹⁴² LSPC, JBA, Email, Dinokeng Big 5 Game Reserve Administration/Landowners, "Implementation update", 2007-09-12, p. 2.

¹⁴³ LSPC, JBA, Email, J. Stevens, Dinokeng Big 5 Game Reserve Administration/Landowners, "Implementation update", "United we stand ...", 2008-01-02, p. 2.

DLIOs agreeing to participate, very few offered their services in various capacities such as being on sub-committees or working on the LOA or DGRMA. Stevens concluded with thanks to those landowners who had offered their time, experience, and gratitude. The DGRMA did warn landowners that Blue IQ would gradually place more responsibility for day-to-day management on landowners, while retaining its advisory role.¹⁴⁴

By March 2008, Blue IQ and the DGR Exco were ready to publish a tender document for gateway structures. Most of the outstanding DLIOs had been submitted by then. The application for issue of shares in DGR Gameco was with the auditors in anticipation of issuance in April 2008 to all legally signed-up landowners. The IPLA agreement between the Dinokeng Trading Entity and the DGRMA was signed at Kwalata on the 29th of March. This document detailed the arrangements for payment of a licence fee for the intellectual property investment of the Dinokeng Trading Entity valued at R35 million.¹⁴⁵ Stevens' plea the month before and her warnings of a financial collapse paid off. These positive developments were stated in a media release on the 30th of March 2008.¹⁴⁶

On the 29th of March 2008, 88 private landowners signed a legal Dinokeng Land Incorporation Agreement with the GPG at Kwalata Game Lodge in Dinokeng after a two-year negotiation period. At last, this agreement opened the way for the Dinokeng Blue IQ Project to proceed with road access control for the game reserve. Dr P. Hanekom expected another 8000 ha addition as the reserve expanded incrementally. As already mentioned, the reserve would be independently managed by landowners through the not-for-profit Manco. The game being procured by the Government was to be managed by DGR's Gameco, which would be responsible for distributing dividends to shareholders.¹⁴⁷

The stance of landowners unhappy with the GPG's handling of the DGR development process is illustrated by the case of Larry Blundell, a landowner who three years earlier had invested in two elephants to start an elephant-ride tourist attraction. There are differing views on the appropriateness of this sort of activity in a game reserve. Nevertheless, Blundell, disillusioned by what he identified as GPG's delay in developing the reserve, and the subsequent lack of tourists to ensure a proper income, decided to cut his losses and sold the two elephants. He also

¹⁴⁴ LSPC, JBA, Email, J. Stevens, Dinokeng Big 5 Game Reserve Administration/Landowners, "Implementation update", "United we stand ...", 2008-01-02, pp. 2-3.

¹⁴⁵ LSPC, JBA, Email, J. Stevens, Dinokeng Big 5 Game Reserve Administration/Landowners, "Implementation update", "United we stand ...", 2008-01-02, p. 1.

¹⁴⁶ RSA, GPG, LSPC, JBA, Dinokeng Blue IQ Project Press Office, Media release: "Landowner agreement accelerates Dinokeng Game Reserve", 2008-03-30.

¹⁴⁷ RSA, GPG, LSPC, JBA, Dinokeng Blue IQ Project Press Office, Media release: "Landowner agreement accelerates Dinokeng Game Reserve", 2008-03-30.

maintained that when approached by government five years earlier, landowners were promised the development would cost them nothing. Blundell lay the blame for delays on the GPG which, he claimed had interrupted productive farming. All it had done, he said, was fence off the reserve and buy game from landowners who still had to look after this game at their own expense.¹⁴⁸ The debate over whether landowners overcapitalised in anticipation of floods of tourists, and whether they were sold a false dream by the GPG will no doubt continue for years to come.

In defence of the GPG, Hanekom reminded landowners of the Provincial Government's contribution to the DGR initiative up to 2008. The GPG had invested R80 million in roads and infrastructure in the Dinokeng area, including Cullinan and Roodeplaat; R25 million had been spent on planning and establishing the game reserve; and R7,2 million worth of game had been purchased. In addition, the GPG had obtained permission for access control on public roads running through the reserve and the state had contributed 5 000 ha of land to the game reserve. However, she did acknowledge that consultation on complex legal and political issues had taken longer than anticipated.¹⁴⁹ In the meantime, the official management structure of DGR was becoming complicated and needed to be explained continually to keep landowners informed of the latest developments.

The Game Management Agreement between DGR's Manco and Gameco was presented at Gameco's AGM in May 2008. All landowners who contributed land to the reserve automatically became members of the LOA, and as already mentioned, an Exco, elected at each AGM, was tasked with ensuring the reserve was managed according to the general business plan. Gameco was authorised to distribute profits via dividends to shareholders, and every landowner with land in the reserve would receive 1 000 shares per hectare. The Board of Directors of DGR's Gameco, as owners of the game, had to ratify any decisions to do with game. The Government's role was to purchase game from landowners. Further, the Government undertook to donate additional game including lion, elephant, rhino, and buffalo to the reserve.¹⁵⁰ Directly after the Gameco meeting, a general meeting of landowners was held at the same venue.

Hanekom stated in a Blue IQ feedback session in 2008 that the best sustainable activity for the Dinokeng area, as detailed in the 2001 Master Plan, was ecotourism with voluntary landowner participation. However, she noted, public sector expenditure had to align with government

¹⁴⁸ LSPC, JBA, A. Slabbert, "Beleggers draai krane toe vir Gauteng-wildtuin", *Sake-nuus*, 31 Maart 2008, p. 4.

¹⁴⁹ LSPC, JBA, A. Slabbert, "Beleggers draai krane toe vir Gauteng-wildtuin", *Sake-nuus*, 31 Maart 2008, p. 4.

¹⁵⁰ LSPC, JBA, DGR Game Enterprises Annual General Meeting, "Minutes of the meeting held at Adventure Addicts Guest Lodge", 2008-05-17, p. 1.

objectives. Consequently, owing to public accountability responsibilities and investor interests, further GPG expenditure had been halted until all completed DLIOs were received and the IPLA between the DGRMA and the Dinokeng Trading Entity was signed on the 29th of March 2008.¹⁵¹ The GPG's involvement had begun to show substantial tangible progress and the Blue IQ feedback included reference to several milestones.

At the time of Hanekom's feedback session, Blue IQ had completed fencing for the Phase A1 start-up and had installed electric grids and signs on the Boekenhoutskloof and Kaallaagte Roads. To facilitate these developments, a Memorandum of Understanding had been signed in December 2007 by the Gauteng Department of Public Transport Roads and Works MEC, Mr. I. Jacobs, allowing road access control to be implemented on the Rust de Winter and Boekenhoutskloof roads. The Dinokeng Trading Entity had partnered with the South African National Roads Agency to build gateways and implement an entrance fee for road users entering the DGR. This agreement enabled experts in road engineering and road regulation to work quickly to get fees into the DGRMA coffers.¹⁵² Hanekom's Blue IQ feedback to landowners highlighted the Department of Defence's successful 2 500 ha Ditholo Military Nature Reserve incorporation and the expectation that the LOA would apply for DGR's declaration as a protected area.

Hanekom went on to highlight the importance of DGR's development for government, communities, and landowners, emphasising the need for stakeholder integrity and public confidence in the DGR as an institution and tourism product. Government prioritised protecting taxpayers and the wider public's socio-economic interests in DGR agreements to secure political support. The unique and innovative structuring of DGR agreements required all parties to extract benefits like tax benefits and social investment. While one could expect contestation, Hanekom saw managing a multi-million-rand operation as a healthy sign of a growing relationship, requiring partners to manage risks and challenges.¹⁵³

As documented in this chapter, management issues and safety concerns were continually communicated to landowners and communities. For example, with the arrival the first of the Big 5 species in DGR, which were rhino from the KNP, prior notice warned landowners and affected parties of the imminent release of the rhino. The LOA, Manco, and Gameco announced they would not be liable for injuries resulting from incidents with game within the reserve's boundaries. Communities and landowners were warned to take precautions against the dangers of free-

¹⁵¹ LSPC, JBA, DGR Game Enterprises Annual General Meeting, "Minutes of the meeting held at Adventure Addicts Guest Lodge", 2008-05-17, p. 1.

¹⁵² LSPC, JBA, Dinokeng Big Five (DB5), Landowners General Meeting, Minutes, 2008-05-17, p. 2.

¹⁵³ LSPC, JBA, Dinokeng Big Five (DB5) Landowners General Meeting, Minutes, 2008-05-17, p. 5.

roaming game. The LOA added that legal action would be taken if animals were killed or injured due to negligent drivers or illegal activities.¹⁵⁴

In 2010, Stevens requested landowners to put in writing with the administration offices that they had completed any fencing requirements to ensure the safety of staff, and if they did not have staff, to put that in writing, too.¹⁵⁵ The DMA had a detailed fencing policy based on the Big 5 standards on wiring and voltage as approved by GDACE. The DGRMA had to maintain the good condition of perimeter and island fences, whereas landowners and tourism developers were responsible for maintaining their own fences around homesteads, staff accommodation, and tourism facilities.¹⁵⁶ The communication of significant developments, such as the invitation to all interested parties to participate in the establishment of an environmental management framework and environmental management plan for the Dinokeng Project area was comprehensive and inclusive, with an invitation letter sent to stakeholders on the 21st of October 2008.¹⁵⁷

5.7 Communication of the Dinokeng Project Environmental Management Plan

To facilitate decision-making and to ensure the sustainable management (and conservation) of the natural resource base, the Gauteng Department of Economic Development (GDED), GDACE, and the City of Tshwane Metropolitan Municipality initiated the Dinokeng Project Environmental Management Framework (EMF) and Environmental Management Plan (EMP). Bohlweki SSI Environmental was appointed to undertake these for the Dinokeng Project area in 2008.

The EMF objectives aimed to support informed decision-making by providing crucial information about an area before activity proposals were generated. The EMF was to contribute to environmentally sustainable development by anticipating potential impacts and providing early warnings. It was also a support for environmental impact assessment processes by indicating potential impacts and providing necessary information. Further, an EMF was to help identify geographical areas for additional activities under the National Environmental Management Act (NEMA, 1998) and to exclude identified areas not sensitive to potential impacts.¹⁵⁸

¹⁵⁴ LSPC, JBA, Email, DB5 Landowners Association/All landowners (signed in or not, relevant and affected parties) "Urgent: Big 5 being introduced in the reserve", 2008-10-09.

¹⁵⁵ LSPC, JBA, Email, J. Stevens, Ms, DB5 Administration/Landowners, "Staff fencing in DGR", 2009-10-09.

¹⁵⁶ LSPC, JBA, DGR Management Association (DGRMA), "Fencing Policy", n.d.

¹⁵⁷ RSA, GPG, LSPC, JBA, Email, Dinokeng Africa in One Day, the Gauteng Provincial Government/All Stakeholders, "Invitation to register as an interested and affected party", 2008-10-21, n.p.

¹⁵⁸ RSA, GPG, LSPC, JBA, Email, Dinokeng Africa in One Day, GPG/All Stakeholders, "Invitation to register ...", 2008-10-21, n.p.

The EMF document outlined the proposed Dinokeng Project and its development process, aiming to inform the public, raise concerns, and provide suggestions. Stakeholders could register as interested and affected parties (I&APs) and provide feedback. A flow diagram for public participation was provided, suggesting in sequence: advertising the status quo report, public meetings, invitation letters, and focus group meetings. The document aimed to raise awareness and provide valuable feedback for the Dinokeng Project.¹⁵⁹

The EMF and public meetings would be advertised, followed by an invitation letter and focus group meetings. The I&APs would contact Bohlweki SSI Environmental within 30 days of receiving the invitation to register, after which, they would be invited to submit comments on the Draft Status Quo Report and Draft EMF Report, available for public review in October 2008 and March 2009. The registration form included a comments section on sensitive natural environments, biodiversity, cultural-historic heritage, agricultural areas, development needs, and infrastructure.¹⁶⁰

The EMF Open Day sessions on 19 November 2008 at Xombana Bushveld Theatre, Lodge, and Roodeplaat Nature Reserve were inclusive, featuring delegate-specific sessions for various sectors and role-players including tourism, developers, estate agents, landowners, NGOs, mines, quarries, conservancies, and commerce and business. Project team officials were available to discuss the draft Status Quo Report and the Dinokeng Project.¹⁶¹

In March 2009, the local community *Nokeng Nuus/News* reported that the EMF was forging ahead. Bohlweki Environmental had held further information meetings, and reports for the EMF were progressing. Much detailed technical work had also been done by the Dinokeng team with national and provincial governments towards the application by the DGRMA, under the National Environment Protected Areas Act (NEMPA), for protected area status for DGR. The newspaper also reported that the Dinokeng Project was working positively with the National Department of Agriculture to change the agricultural land use of DGR to game management and tourism.¹⁶² Emphasising community safety, it warned visitors to DGR about the imminent arrival of lions.¹⁶³

¹⁵⁹ RSA, GPG, LSPC, JBA, Email, Dinokeng Africa in One Day, GPA/All Stakeholders, "Invitation to register ...", 2008-10-21, n.p.

¹⁶⁰ RSA, GPG, LSPC, JBA, Email, Dinokeng Africa in One Day, GPA/All Stakeholders, "Invitation to register ...", 2008-10-21, n.p.

¹⁶¹ RSA, GPG, JBA, Email, N. van Brakel, Bohlweki – SSI Environmental/All interested and/or affected parties (I&APs), "Invitation to EMF Open Day, Proposed development of an Environmental Management Framework and Environmental Management Plan for the Dinokeng Project area", distributed by Tony Harding, GDACE, 2008-11-04.

¹⁶² LSPC, JBA, "Environmental Management Framework forges ahead", *Nokeng Nuus/News*, Uitgawe 158, 2009-03-26, p. 4.

¹⁶³ LSPC, JBA, "We are roaring ahead", *Nokeng Nuus/News*, Uitgawe 158, 2009-03-26, p. 4.

In the meantime, delays to the official opening of DGR continued, although Stevens announced finalisation of the design of the gateway and hoped it's construction would be completed by the end of 2009.

A DGR LOA AGM was held at Xombana on Saturday the 29th of August 2009 at which voting took place for the 2009/2010 LOA Exco.¹⁶⁴ Eleven Exco representatives were elected.¹⁶⁵ In early September 2009, Stevens communicated the landowner contractual obligations to landowners to provide basic guidelines in terms of the LOA Constitution and the DLIA. The dilatory process of gaining DGR consensus was again illustrated when she reminded landowners that sign-up efforts had mainly taken place in 2004, five years earlier, and that many landowners had not reviewed their documentation since then. As the gateways were becoming a reality and internal fences were down, the house rules needed to be completed, adhered to, and abided by. The same applied to other contractual obligations.

Throughout 2009, progress was inordinately slow, which must have been extremely frustrating for those trying to make things happen. On the 26th of March 2009, however, *Nokeng Nuus/News*, remained buoyant: "The Dinokeng Game Reserve has faced significant obstacles, but it now appears certain that the dream of a few visionaries will become a reality to be treasured and appreciated by all, creating improved prospects and opportunities for all who live and work in the Dinokeng project area".¹⁶⁶ Despite the optimism, there were still delays to come.

In January 2010, Jenny Stevens resigned as Operations Manager of DGR, and was replaced by Lynn van Rooyen assisted by Ferdi Lamprecht. The gate construction was underway and expected to be completed by February 2010. The GPG was funding the expensive joint process to have DGR recognised as a "Protected Area – Nature Reserve". If approved, the area would fall under the Protected Areas Act, and the DGRMA would be appointed as the Management Authority. If any landowners chose not to join the DGRMA's joint application for protected area status, but decided to do so at a later stage, they would have to apply separately and pay their own application costs.¹⁶⁷ Currently, in 2024, protected area status has still not been achieved for DGR.

¹⁶⁴ JBA, Email, DB5 Admin/Undisclosed recipient, "Results of AGM", 2009-09-01.

¹⁶⁵ Those elected were Tracy Anderson, Paul Hayward, Gerald Howell, Ceciel le Roux, Joe Marinkowitz, Chris Nel, Alison Odendaal, Charl Pretorius, Johan Smit, Etienne Toerien, and Charl van Deventer.

¹⁶⁶ LSPC, JBA, "Gateways to the future", *Nokeng Nuus/News*, Uitgawe 158, 2009-03-26.

¹⁶⁷ DGRMA Team, "Implementation Update", *Big 5 Dinokeng Game Reserve News*, 11th Edition, January/February 2010, p. 2.

There was some excitement in DGR concerning tourism prospects for the 2010 FIFA Soccer World Cup to be held in South Africa. The innovative Didimala Game Lodge was booked out for the first two weeks of the group rounds.¹⁶⁸ One other noteworthy development in early 2010 was the DGR's Paradise Link self-drive route that was taking shape with input from private landowners, including Larry Blundell and Chris Pieterse, who used their own tractors and a donated slasher to cut grass along the whole route.¹⁶⁹

Communication processes with peripheral communities in the DGR have been limited due to the dominant role-players being the GPG and predominantly white landowners. In 2010, the DGR Community Development Trust was launched as a communication conduit between the community and the DGRMA. Promised by the Gauteng MEC for Economic Development, Firoz Cachalia, it was tasked with training and development, and involving the community through information meetings.¹⁷⁰ The DGRMA team went to great lengths to emphasise that the reserve was a community project with a common goal of making the reserve successful.

By July 2010, the opening had stalled again leaving landowners frustrated. The *Dinokeng Game Reserve News* put on a brave face in a comment calling for guests to come anyway as many product owners were again left in the lurch: "Although there has been a delay in the official opening of the Dinokeng Game Reserve, the Lodges [sic] that form part of the Reserve are fully functioning and have been for a number of years. Many of the larger Lodges [sic] offer game drives and even smaller lodges can book a game drive for any clients who wish to view our game".¹⁷¹ The DGRMA Team also continued to put on a brave face and called for extra effort as the September 2010 AGM approached: "We need commitment, energy, inspiration, optimism and courage. September is but a whisper away. Although the game reserve is virtually open, we still need an LOA to keep the momentum going and make this the best and most unique Game Reserve in South Africa".¹⁷² One of the main causes of delay in the opening had stemmed from community fears of the introduction of the Big 5.

¹⁶⁸ DGRMA, "Didimala all set for soccer arrivals", *Big 5 Dinokeng Game Reserve News*, 11th Edition, January/February 2010, p. 4.

¹⁶⁹ DGRMA, "Paradise Link game drive route", *Big 5 Dinokeng Game Reserve News*, 11th Edition, January/February 2010, p. 4.

¹⁷⁰ LSPC, JBA, "It is here ... The DGR Community Development Trust", *Nokeng Nuus/News*, End of July 2010, p. 9.

¹⁷¹ LSPC, DGRMA, "Sunrises and sunsets", *Dinokeng Big Five Game Reserve News*, Edition 13, July 2010, p. 1.

¹⁷² LSPC, DGRMA, "Sunrises and sunsets", *Dinokeng Big Five Game Reserve News*, Edition 13, July 2010, p. 2.

The introduction of lion and elephant to the DGR was halted due to delays in the issuing of permits and the inability to pay conservation and security fees which resulted in further revenue losses for the reserve. The DGRMA team thanked Etienne Toerien, chairman, for attending meetings with MEC F. Cachalia to find solutions. Other management team members also spent personal time preparing for the reserve's opening, but the project was temporarily suspended.¹⁷³ The Dinokeng and Cradle of Humankind World Heritage Site's official opening was delayed due to outstanding land claims. Burton *et al.* indicate 2009 as the year in which an application was made by the DGRMA to the GPG for protected area status. However, this application was delayed for a number of reasons, including the dilatory procedure in finalising land claims, which nearly ended the entire project.¹⁷⁴ Indeed, in October 2010, several claims on land within the DGR arose, leading to a meeting with the Limpopo Department of Economic Development, Environment and Tourism to discuss merging Limpopo areas, including Rust de Winter Dam, with the DGR.¹⁷⁵

In response to the neighbouring community's concerns about wild animals, construction on the DGR/Steve Bikoville Wall separating DGR from the local Kekana Gardens community was to proceed. The introduction of lion and elephant, however, would not be delayed while the wall was under construction. A preferred bidder for the building of the wall was identified, and construction went ahead.¹⁷⁶ Community concerns were understandable. Lynn van Rooyen, representing the DGRMA, announced in April 2011 that DGR was, although not officially open, beginning to bear fruit as a conservation area with increased sightings by landowners of brown hyena, genet, serval, hippo, and crocodile. Sightings of these animals had been rare, and with the conservation process at work, they represented evidence of success. However, the success required extra vigilance. For example, a crocodile had recently attacked a farm employee working on a dam, and one of a farmer's cattle herd had been attacked by a crocodile. Van Rooyen urged caution as all open water systems in the DGR were now to be treated as dangerous and potentially life-threatening.¹⁷⁷

Jiyane reported that some land claims, previously dismissed on the grounds that the claimants had no title deeds, were being reviewed as other physical evidence such as graves would be considered for review after a political mandate was issued in 2007. However, Jiyane also reported that several issues had been resolved. The Dinokeng Project could proceed and was not obliged

¹⁷³ LSPC, DGRMA, "Game Reserve update", *Dinokeng Big Five Game Reserve News*, Edition 13, July 2010, p. 2.

¹⁷⁴ C. Burton, *et al.*, "The Making of a 'Big 5' Game Reserve...", *African Journal of Hospitality, Tourism and Leisure*, 9(6), 2020, p. 902.

¹⁷⁵ LSPC, JBA, F. Jiyane, CEO Dinokeng Projects, "Communique to landowners and project owners", *Dinokeng Game Reserve News*, Edition 15, January/February 2011, p. 3.

¹⁷⁶ LSPC, JBA, F. Jiyane, CEO Dinokeng Projects, "Communique to landowners and project owners", *Dinokeng Game Reserve News*, Edition 15, January/February 2011, p. 3.

¹⁷⁷ LSPC, JBA, L. van Rooyen, DMA, communique, "Crocodile sightings", 2011-04-21.

to engage with land claimants while the RLCC Office dealt with claims. The RLCC told Jiyane they would try to prioritise the outstanding claims that were holding DGR back; however, budgetary restraints and detailed research on these claims could take time.¹⁷⁸ In the meantime, the official opening of DGR continued to experience seemingly interminable delays, notably due to the unplanned and unbudgeted Steve Bikoville Wall. By November 2010, the Kekana Tribal Authority was threatening an interdict to stop further developments of the game reserve.

At the LOA members' meeting of 13th of November 2010, it was reported that the Kekana Tribal Authority was hindering the building of the wall and were illegally occupying Africa Inland Mission land bordering the game reserve. The LOA determined to work closely with the owners of the affected land and stated that no illegal occupations within DGR would be tolerated. To resolve this situation, Johan Smit, Chairman of the LOA Exco and Etienne Toerien, Chairman of the DGRMA, met with senior government representatives. The results of the meeting were that the wall would be built with a minor alteration to exclude a piece of *vleiland* (wetland) that would slow the process. The inner vandalised fence would be repaired and monitored daily to prevent further damage. A court interdict would be sought to have the illegal occupiers removed. A second interdict was to be obtained against the Kekana Tribal Authority to prevent selling of any land within DGR. If necessary, the Kekana Tribal Authority's legal status would be challenged. A meeting with the Land Commissioner was arranged by Blue IQ to establish the validity of the land claim on the major portion of DGR once and for all. The Government was to communicate urgently and regularly with the Dinokeng Community Trust.¹⁷⁹ After years of uncertainty and interruptions, an upbeat communique was issued by the DGRMA on the 11th of March 2011.¹⁸⁰

In the communique, landowners were told that the Gauteng Premier would be available for the official opening on the 5th of May 2011. There was a further delay in appointing a fence contractor owing to government's tender procedure requirements. The wall contractor, however, had been appointed and terms agreed upon. The release of lion and elephant prior to the opening was on track.¹⁸¹ The wall contractor who successfully won the tender for building the wall failed to provide bank guarantees and subsequently withdrew from the project delaying the process further as a new contractor had to be appointed. Urgent work still needed to be done on entrance gates and on fence maintenance. A community meeting held on the 13th of February 2011 revealed that the

¹⁷⁸ LSPC, JBA, F. Jiyane, CEO Dinokeng Projects, "Communique to landowners and project owners", *Dinokeng Game Reserve News*, Edition 15, January/February 2011, p. 4.

¹⁷⁹ LSPC, JBA, Email, J. Smit & E. Toerien, DMA communique to landowners, 2010-12-01.

¹⁸⁰ LSPC, JBA, Email, E. Toerien, DMA, Communique to landowners, "Official opening DGR", 2011-03-11.

¹⁸¹ LSPC, JBA, Email, E. Toerien, DMA, Communique to landowners, "Official opening DGR", 2011-03-11.

community accepted the introduction of the Big 5; however, this was conditional on the vandalised sections of fence being repaired. The local community wanted a wall as well as the fence to be in juxtaposition, seemingly receiving greater peace of mind from the material solidity of brick and mortar as protection from potentially dangerous wildlife.

5.8 The realisation of a dream at last

In 2010, the DGRMA was optimistic that the official opening was likely in September 2011 but cautioned: “We must realise that this will only be the birth of a child, that we need to well look after to grow into the dream we all have. It will take at least a couple of years to develop this reserve into a viable asset to the landowners, community and everyone in Gauteng”.¹⁸²

A few “critical for opening” projects included new grids that had to be installed on the Rust de Winter Road, while Ts’ukulu and Nyathi gates required water and electricity installations. Fence repairs were prioritised as lion and elephant licences would not be approved by GDACE until fencing met the required safety standards. Release of lion and elephant into the reserve was scheduled for July/August 2011 after disappointing delays. Landowners were urged by the DMA Chairman, Etienne Toerien, to remove their internal fences in anticipation of the lions’ release from a safety boma within the next month.¹⁸³

The Xombana Bushveld Theatre was the venue for a DGR LOA AGM on 18 September 2011. It was opened by LOA Chairman, Johan Smit. Representing the MEC for Economic Development, Firoz Cachalia, was his Head of Department, Kudu Radebe. Others in attendance were Mr Kananelo Tlebere, the Deputy Director General of Economic Development; Fanya Jiyani, CEO of the Department of Trade and Industry; and Terance Monama, Chairperson of the Community Trust. Smit had come to the realisation that patient landowners “... had to be content with the cold hard facts that the positive cooperation of the local community is a sine qua non for what the DGR must and should be”.¹⁸⁴ Smit acknowledged dedicated groups and individuals without whose support, including financial, for the DGR cause, it would have failed. He also acknowledged the role played by the GPG through the offices of the MEC for Local Development who would be funding the running of DGR, and Blue IQ’s CEO, Fana Jiyani and his team for their part in making the dream come true. Smit cited Toerien for his “... exemplary leadership under circumstances which would have seen a lesser person simply giving up and walking away”. Smit went on to compliment the directors of the DGRMA for commitment of “heroic proportions”; Operations

¹⁸² LSPC, JBA, Email, E. Toerien and J. Smit communique to landowners, “Dinokeng Project Update”, 2011-05-30.

¹⁸³ LSPC, DGRMA, General update, “Game Reserve update April 2011”, *Dinokeng Game Reserve News*, Edition 16, April/May 2011.

¹⁸⁴ LSPC, JBA, DGR, LOA, “Minutes of AGM held at Xombana Bushveld Theatre”, 2011-09-18, p. 1.

Manager, Lynn van Rooyen; administrator Emelia Strydom; and Ferdi Lambrecht for his tireless efforts in persuading landowners to join DGR. Finally, he thanked "... the long-suffering landowners of the DGR who have shown their commitment to this project by staying the course through all the ups and downs of promises made and broken and deadlines set and not met who have made great sacrifices in material terms to make this dream come true".¹⁸⁵

Radebe stressed that the project had to succeed as a key government project and "... pillar of growth to enable poverty relief and job creation". Disappointed by poor local municipal co-operation, he called for the Nokeng Municipality to "... jack up its act and come to the party". Monama, disappointed with the DGR project, nevertheless assured landowners of the Community Trust's support for the project, and in turn, Smit had said the DGRMA and LOA had had positive interactions with the Community Trust.¹⁸⁶

At last, an official opening of DGR was announced for the 22nd of September 2011 for high level politicians, the LOA Exco, DGRMA, and Dinokeng Game Enterprises (DGE) directors, and invited dignitaries. Landowners were invited to celebrate the opening at a braai function at Larry Blundell's Dam inside DGR two days later.¹⁸⁷ Various memorabilia, including sandblasted wine bottles and glasses with the DGR logo were commissioned for sale.¹⁸⁸ The Premier of Gauteng, Nomvula Mokonyane, cut the ribbon and unveiled a plaque at the Ndlovu Gate. A celebration followed at a tented venue at Mongena Dam with entertainment provided by the local Fan Jan School choir and dancing by the Dinokeng Cultural Group from Hammanskraal. Coinciding with the opening, lion and a herd of elephant were brought into the reserve.

Referring to the animal species in DGR, Mokonyane noted that they had existed historically in the area, but had been absent for more than 100 years after being hunted nearly to extinction by overzealous settlers who prioritised farming above conservation. She added that "... farming in the region became increasingly challenging and unsustainable while at the same time studies showed that ecotourism would not only reduce the level of environmental degradation but would at the same time create a far higher number of jobs per unit of the area".¹⁸⁹ The tasks ahead were to ensure that over time the reserve would both expand and become self-sustainable.

¹⁸⁵ LSPC, JBA, DGR, LOA, "Minutes of AGM held at Xombana Bushveld Theatre", 2011-09-18, p. 2.

¹⁸⁶ LSPC, JBA, DGR, LOA, "Minutes of AGM held at Xombana Bushveld Theatre", 2011-09-18, p. 2.

¹⁸⁷ LSPC, JBA, Email, E. Strydom, DMA/Landowners, "Invitation to DGR opening function especially for landowners on 24 September 2011", 2011-09-09.

¹⁸⁸ LSPC, JBA, Email, E. Strydom, DMA, notice, "Commemorative Memorabilia", 2011-09-14.

¹⁸⁹ LSPC, JBA, "Dinokeng Game Reserve now open", *Nokeng Nuus/News*, Issue 181, mid November 2011, p. 5.

5.9 Final observations

This chapter has tracked a long period of broad-based, inclusive discussions starting with the release of the DGR Master Plan in 2001, which set a structured framework for consultation, negotiation, and implementation of a game reserve in a previously degraded agricultural area in northeastern Gauteng. The record has shown that while communication of developments was imperfect, the process in general followed sophisticated frameworks for inclusivity during the protracted undertaking. There were suspicions, accusations, and counteraccusations over delays. The GPG at times accused landowners of taking too long to submit DLIOs, whereas the landowners believed the GPG took too long to set boundaries for the reserve. Communities living on the DGR periphery at Tau Gate caused delays by insisting on a perimeter wall, which was not budgeted for, in addition to fencing, and once the building of the wall was approved, there were delays and problems with the tender process to build it. Prior to the building of the wall, fencing the reserve's perimeter boundaries had already taken four years to complete, between 2006 and 2010.

In many respects, DGR was ready for launch in January 2006. However, as documented in this chapter, the official opening was continually delayed until the 22nd of September 2011. The numerous causal factors for these delays have been discussed. As frequently emphasised throughout this study of DGR, from as early as the mid-1990s, the project, in its various forms, was overambitious. Despite research efforts to obtain inter-provincial records of discussions between the Limpopo and Gauteng provincial governments concerning DGR as a game reserve that straddles both provinces, none have come to light.

Bringing together a diverse range of role-players and stakeholders required drawing up agreements and partnerships. Burton *et al.* expertly summed up the situation as follows: "The project had long been in an incubation phase and could move forward toward actualisation only after extensive negotiations were completed with at least 200 representative landowners with the finalisation of a raft of legal agreements".¹⁹⁰ Further, they drew attention to the legal agreements that had provisions and requirements such as the DGRMA having "... to comply with B-BBEE requirements and targets, implement socio-economic plans to promote the interests of current occupants and workers as well as to invest a certain percentage of profits into community development programmes in order to support local/surrounding communities".¹⁹¹

¹⁹⁰ C. Burton, *et al.*, "The Making of a 'Big 5' Game Reserve ...", *African Journal of Hospitality, Tourism and Leisure*, 9(6), 2020, pp. 901-902.

¹⁹¹ C. Burton, *et al.*, "The Making of a 'Big 5' Game Reserve ...", *African Journal of Hospitality, Tourism and Leisure*, 9(6), 2020, pp. 901-902.

A seemingly perennial problem remains, and that is the uncertainty of land claims that hovers like the sword of Damocles over the whole nation. The DGR was no exception. Outstanding land claims on Wallmannsthal military land, for example, are preventing the inclusion in DGR of an area that represents one of the most otherwise suitable parcels of state land. A dilatory government that finds it difficult to take and implement decisions must take at least partial responsibility for these frustrating delays.

This chapter has shown that during the development of three game reserves, PGR, MGR, and DGR, great care was taken to include a wide range of stakeholders in inclusive discussions with varying success. It has also shown that there is no one-size-fits-all formula to satisfy all parties in the context of game reserve development, which requires community structures to be on board with the process, otherwise success is unlikely. Like its fluid boundaries, DGR's development process will continue to morph and have challenges as does any life process. However, without visionary role-players, there would be no DGR, and the area would likely have remained in the socio-economic doldrums, as happened with failed attempts to uplift the Rust de Winter communities through ecotourism projects.

The chapter concluded with an account of the eventual official opening of the DGR on the 22nd of September 2011, a momentous event considering the many years of discussions and repeated disappointments leading up to the Gauteng Government's premier cutting the ribbon at Ndlovu Gate. Negotiations, discussions, and bargaining are ongoing as the reserve's boundaries remain fluid. While some disgruntled landowners with real or imaginary objections to DGR's direction, at times threaten to withdraw from DGR, management and dedicated landowners continue with their expansion endeavours ever hopeful that the game reserve will eventually expand to include island properties and other nature reserves such as Rust de Winter in Limpopo and the Mdala and Mkhombo reserves in Mpumalanga. While this thesis has a 2018 end point, there is some optimism for DGR's future. The National Government's recommendations in the Draft White Paper on Conservation and Sustainable Use of South Africa's Biodiversity,¹⁹² released for discussion on the 8th of July 2022, called for, among other actions, the breaking through of corridors to link separated conservation areas in the interests of conservation and biodiversity. Should Government take its own policies seriously and follow up proactively on the White Paper's recommendations, DGR's prospects for expansion would be strengthened.

¹⁹² RSA, Department of Forestry, Fisheries, and the Environment, Consultation on the Draft White Paper on Conservation and Sustainable Use of South Africa's Biodiversity. *Government Gazette*, No. 2252, 8 July 2022.

As DGR should ideally be twice its current size of 19 500 ha, the DGRMA will continue evaluating all options for including potential land parcels whether they come from state, private or community owned land. The question to be asked now is whether the land consolidated for the game reserve so far was used in the most appropriate way with respect to design and boundaries? The following chapter, Chapter Six, addresses this question, while also examining the extent to which other models were considered in the design process, and whether inputs sought were inclusive.

CHAPTER SIX

A UNIQUE GAME RESERVE DESIGN

6.1 Introduction

Dinokeng Project's Deputy Director, Nico Grobler, now retired, suggested that all it took was a basic map-review of Gauteng to find a region in the province readily available to develop a game reserve capable of boosting the local economy. This was a fortunate find, as much of the available land in Gauteng faced urban expansion and industrial and agricultural pressure. Happily, Northeastern Gauteng still had a relatively unspoiled natural landscape that could provide a habitat viable enough to accommodate biodiversity and wildlife, including the Big 5 animals that are so appealing to wildlife tourists. From Grobler's perspective, ecosystem disruptions were not major considerations in decision-making as to where boundary-lines should go for protected areas. Despite the transformed landscape, the Gauteng Provincial Government's (GPG) wildlife management fraternity focused resources on seeking to incorporate available land into protected areas. This, Grobler maintained, is what led to the establishment of the DGR.¹

In this chapter, the DGR architectural model for ecotourism is examined to establish whether it was the most appropriate one with respect to design and boundaries, whether the inputs sought were inclusive, and whether best practice was identified from conservation philosophies popular at the time. The extent to which any contestation took place, and the extent to which this ecotourism model represented the combined input of role-players such as local communities, game reserve architects, ecologists, conservationists, landowners and the GPG, is also considered to provide an understanding of how consensus regarding boundaries was ultimately reached.

What came to light in the latter part of the research process for this thesis was the assertion by Daan Swart, a Gauteng Nature Conservation landscape architect in the 1990s, that DGR's development, and discussions around it by government conservationists, were guided by the principles associated with the Vhembe Biosphere Reserve (VBR). Attention is, therefore, directed in this chapter to the Vhembe's guiding philosophy. That is not to say that Vhembe was the sole guiding model. As in Chapter Five, other game reserves such as Pilanesberg and Madikwe were already well-established models designed to assist local populations socially and economically through ecotourism based on partnerships.

¹ Laurence Shee Personal Collection (LSPC), Email, N. Grobler, Ecologist, Deputy Director, Dinokeng Projects, Department of Economic Development, Gauteng Provincial Government (GDED)/L. Shee, 2020/01/13.

6.2 The linking of corridors: Some thoughts on allowing for land use flexibility in conservation areas

It was always the intention of DGR's developers to expand the envisaged reserve by linking conservancies through corridors as they opened or became available. The irregular shape of DGR with its narrow corridors in places, particularly in the south, raised managerial difficulties and resulted in high fencing costs. DGR was developed in an era where forced removals for the sake of a game reserve would not have been considered or tolerated as had been the case in an earlier era.

Historian Jacob Dlamini, for example, brought attention to James Stevenson-Hamilton's actions in 1902 in the Sabi Game Reserve, the founding area of the Kruger National Park (KNP), when Stevenson-Hamilton expelled "... three thousand Africans from the reserve following its reclamation after the end of the South African War".² The founders of KNP, Dlamini continued, insisted on a park form that was large enough to allow freedom of movement for animals. What they imagined was "... a fiction of form (that clearly demarcated place with identifiable borders) and content (flora and fauna that existed independently of the world beyond the parks boundaries)".³ The developers of DGR may momentarily have imagined a similarly continuous uninterrupted whole in the 1990s when optimism ran high about forming a large reserve of over 200 000 ha. However, they already knew that there would have to be flexibility in allowing different land uses and product development including even some farming if they were to secure a larger land area for conservation.

6.3 The architectural model (was it the most appropriate?)

It was this researcher's good fortune in September 2023, to meet, and interview, retired Gauteng Nature Conservation landscape architect, Daan Swart, author of the *Proposed North-Eastern Conservation Area for Gauteng* released in June 1996. This report was discussed in detail in Chapter Three where, for convenience, it was frequently referred to simply as the 1996 Swart Report. Swart, and other members of Gauteng Nature Conservation, were working on the project as early as 1994. Other conservation officials involved at the time included Daan Conroy, also a landscape architect, whose PhD had focused on designing game reserve camps. Others were Brian Riley and Gert Willemse, who were involved more directly with scientific services.⁴ In July 1995, Swart had already issued user-friendly information flyers printed on recycled paper for

² J. Dlamini, *Safari Nation: A Social History of Kruger National Park* (Jacana Media (Pty) Ltd, Auckland Park, 2020), p. 13.

³ J. Dlamini, *Safari Nation: A Social History of Kruger National Park*, p. 26.

⁴ LSPC, SOA32, D.R. Swart, Retired Gauteng Nature Conservation landscape architect, Menlyn, Pretoria, 2023-09-07.

distribution to landowners and local communities. The two-page flyer opened with the question, "How will the project benefit local communities?". Swart answered the question by referring to the benefits of the proposed conservation project, all of which complied with the principles of the Reconstruction and Development Programme (RDP).⁵

Firstly, basic needs had to be met, so some access to traditional medicinal plants, grass for thatching, meat products from game, and firewood and products for curios harvested during bush clearing exercises would be offered. Highly skilled, trained personnel were a prerequisite for wildlife management. Luxury lodges, family camps, and day-visitor facilities required staffing. Administrative tasks could not be carried out without receptionists, typists, booking officers, and information and educational officers. Similarly, the hospitality industry could not function without cleaners, terrain maintenance staff, barmen, chefs, and waiters. Secondly, Swart emphasised the need for community empowerment through democratisation, which meant introducing forums for discussing concerns, holding constitutional meetings, and appointing community representatives as required by the RDP. Thirdly, he proposed environmental education centres for tourism personnel, chefs, guides, rangers, and administrative staff, with local community members filling posts. Finally, he highlighted the role of ecotourism, the fastest-growing sector of the South African economy at the time, and introduced the term "Afrotourism" to play a crucial role in social, economic, and environmental upliftment.⁶ Whether DGR's model was the most appropriate will always elicit different opinions. However, based on the extensive research that was undertaken for this thesis, this question is answered in the affirmative.

As with the realisation of all game reserves, they start with an idea linked to availability of land as well as the cooperation of all stakeholders. Considering that DGR is made up of land belonging to over 170 individual landowners in a partnership with government and local communities, and that it is increasingly becoming a popular game reserve for visitors, the model is certainly successful. Could it be better? Probably, but it is on the right trajectory. In the following section, the places and ideas from which the successful DGR model germinated become apparent.

⁵ Republic of South Africa (RSA), LSPC, National Department of Agriculture, D.R. Swart, "Proposed Natural Resource Area for Northeastern Gauteng", Gauteng Conservation information sheet, July 1995.

⁶ RSA, LSPC, National Department of Agriculture, D.R. Swart, "Proposed Natural Resource Area for Northeastern Gauteng", Gauteng Conservation information sheet, July 1995.

6.4 Best practice identified from conservation philosophies available at the time

6.4.1 Vhembe's influence on game reserve development in Gauteng in the 1990s

While one cannot categorically state that DGR's planners adhered to any specific conservation philosophy at the time, they certainly considered other models and scoured them for ideas on establishing a Joint Management Board (JMB). In the case of DGR, it was eventually to become a public-private partnership between government, private landowners, and proximate communities. This researcher's interview with Swart brought to light an interesting model that undoubtedly, according to Swart, did influence the future direction of DGR's planning. This, he said, was the Vhembe Reserve, later designated as the Vhembe Biosphere Reserve in 2009. The model to which Swart referred depended on, as did DGR, collaboration between private landowners and government. As stated continually throughout this thesis, DGR's primary emphasis, from its inception, was on socio-economic community benefits including employment opportunities. This emphasis is also apparent in the Integrated Management Plan for Mapungubwe National Park and World Heritage Site, the core of the VBR. While its vision acknowledges that the park's land use is varied, it still "... encompasses the characteristic biodiversity components, including ecosystem services, processes and associated cultural, historical and scenic features while facilitating the sharing of benefits with the neighbouring communities by creating a range of consumptive and non-consumptive benefits such as job opportunities, other forms of income generation, access to resources and other opportunities, while remaining informed and constrained by its biodiversity values".⁷

The Vhembe to which Swart referred as an inspiration for a future DGR, would have been a much smaller area than the vast VBR of today which includes the Mapungubwe National Park and World Heritage Site. Located in the corner of South Africa where South Africa, Botswana, and Zimbabwe meet at the confluence of the Shashe and Limpopo Rivers, Vhembe was declared a botanical reserve in 1918 because of its distinctive plant communities. In 1922, nine farms were mustered eventually becoming the Dongola Botanical Reserve in 1947, which, under pressure from local white farmers, was deproclaimed in 1948 for agricultural use. In 1967, a small section of the reserve around Mapungubwe Hill became Vhembe Provincial Nature Reserve. By 1967 there was a renewed lobby for park status, now also including the important archaeological values. After the small provincial Vhembe Nature Reserve (consisting of three farms) was declared in 1967, there was renewed interest in investigating national status of the reserve as a larger area intended for a tourism hub in the late 1980s, a move which was subsequently supported by De Beers following

⁷ South African National Parks (SANParks), Mapungubwe National Park and World Heritage Site, Integrated Management Plan, 2019-2028, p. 13, <https://static.pmg.org.za/RNW2590-2023-09-15-ANNEXURE-A.pdf>, accessed 2023-10-12.

the establishment of the Venetia diamond mine to the south, in 1990.⁸ Consequently, the archaeological site known as K2 was declared a national monument on the 9th of September 1983 and Mapungubwe Hill and its southern terrace were declared on the 17th of August 1984 in terms of the former National Monuments Act (Act No. 28 of 1969).⁹

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has described Mapungubwe's cultural landscape of 30 000 ha, with a 100 000 ha buffer zone as representing "... the rise and fall of the first indigenous kingdom in Southern Africa between 900 and 1300 AD". Three capital sites, the Zhizo sites, remain, whose large population benefited from the fertile lands around the Limpopo and the Shashe Rivers. Mapungubwe was a trading centre through which trade went north and south as well as to East African ports. As a result, it contains a wealth of archaeological information. Its end is thought to have resulted from climate change when rainfall decreased after 1 300 AD, and the once fertile land could no longer support the burgeoning population still reliant on traditional farming methods. The population was forced to disperse, and Mapungubwe's centre of power relocated first to Great Zimbabwe and then to Khami in Zimbabwe's Matabeleland Province of today.¹⁰

The Vhembe-Dongola National Park was formed in 1995 soon after South Africa's democratisation and was given a high level of protection. This was at approximately the same time that discussions began in Gauteng over a proposed large game reserve that would eventually become the DGR. During the later apartheid years, there was a significant military presence on the farm Greefswald, part of the Vhembe Nature Reserve, which left a legacy of fences and other infrastructure, much of which had been removed as it did not complement the aesthetics of the landscape. On the 9th of June 1995, an agreement was signed between the South African National Parks Board (SANParks) and what was then the Northern Province Government committing them to developing a new national park in the Shashe and Limpopo River border area of South Africa. In terms of the agreement, the Northern Province (re-named Limpopo Province in 2002) would make the farm Greefswald available to SANParks, to be declared a national park in terms of the National Parks Act (Act No 57 of 1976 as amended). The Vhembe/Dongola National Park was declared in 1998. The park name was changed to Mapungubwe National Park on the 30th of July 2004, replacing the working name

⁸ SANParks, Mapungubwe National Park and World Heritage Site, Integrated Management Plan, 2019-2028, pp. 16-17.

⁹ SANParks, Mapungubwe National Park and World Heritage Site, Integrated Management Plan, 2019-2028, pp. 16-17.

¹⁰ The United Nations Educational, Scientific and Cultural Organization (UNESCO), "Mapungubwe Cultural Landscape", n.p., <https://whc.unesco.org/en/list/1099/#:~:text=Until%20its%20demise%20at%20the,sites%20that%20records%20its%20development>, accessed 2023-10-13.

Vhembe/Dongola.¹¹ This renaming was in recognition of the fact that this area and its rich cultural heritage centred on Mapungubwe Hill was inscribed as a World Heritage Site the year before.¹² The park was officially opened to visitors on the 24th of September 2004. Today, the park forms the core of the vast VBR. Biosphere reserves need constant monitoring to ensure that predatory and environmentally harmful developments do not take place.

The position of VBR remains delicate and it depends for its survival on legal and environmental watchdogs such as Earthlife Africa, Living Limpopo, The Centre for Applied Legal Studies, and All Rise Attorneys. Their actions recently persuaded the United Nations Development Programme (UNDP) to withdraw its Memorandum of Understanding (MOU) with the Musina Makhado Special Economic Zone (MMSEZ). The latter is a Chinese-South African state-backed industrial mega-project in the Vhembe district of Limpopo Province. This conflict of interests makes VBR a contested space.¹³ The MMSEZ argues that its intention is to accelerate economic growth, development, and employment through promoting industrialisation, facilitating increased trade and investment, supporting the development of sustainable enterprises, and ensuring infrastructural development.¹⁴ Its opponents on the other hand, have a very different view.

The UNDP's Social and Environmental Compliance Unit (SECU) stated in its draft investigation report that the MOU between the MMSEZ State-Owned Company (SOC) and the UNDP Country Office (CO) did not comply with applicable UNDP policies and that the CO should withdraw from the current MOU. The complainants against the MMSEZ listed their objections, citing several environmental threats. These included possible over exploitation of coal, and threats to climate vulnerability, biodiversity, access to water and land, and harm to sacred sites and graves. The contest is not over as the project is now the subject of several unresolved judicial reviews.¹⁵ This brief diversion into VBR as a contested space illustrates the need for sustained vigilance against uncontrolled development in environmentally sensitive biospheres.¹⁶

For clarification, it must be stated that in this chapter, any reference to government conservationists operating prior to the demarcation changes to provinces in 1994, refers to the

¹¹ SANParks, Mapungubwe National Park and World Heritage Site, Integrated Management Plan, 2019-2028, p. 16.

¹² DeWetsWild, Mapungubwe National Park, <https://dewetswild.com/tag/vhembe/>, accessed 2023-10-12.

¹³ L. Liebenberg, "UNDP set to withdraw from SA-China industrial zone pact", Centre for Applied Legal Studies (CALS), University of the Witwatersrand, 2024-02-27, n.p., <https://www.wits.ac.za/news/sources/cals-news/2024/undp-set-to-withdraw-from-sa-china-industrial-zone-pact.html>, accessed 2024-03-11.

¹⁴ Musina Makhado Special Economic Zone (MMSEZ), <https://mmsez.co.za/>, accessed 2024-03-11.

¹⁵ L. Liebenberg, "UNDP set to withdraw from SA-China industrial zone pact", Centre for Applied Legal Studies (CALS), University of the Witwatersrand, 2024-02-27, n.p.

¹⁶ Further information on Vhembe and the broader Limpopo/Shashe Transfrontier Conservation Areas, may be found on the following SANParks website: https://www.sanparks.org/conservation/transfrontier/limpopo_shashe/background.php.

Chief Directorate Nature Conservation of the old Transvaal Provincial Administration (TPA). So, prior to 1994, Limpopo Province of today fell under the Directorate's Northern Province Region, North West Province today was under the Directorate's Western Region, and Mpumalanga Province today was under the Directorate's Eastern Region, each of which had a regional office.¹⁷

Swart recalls that Northern Province Nature Conservation had close contact with Venetia Diamond Mine and wanted to incorporate mine property with Vhembe.¹⁸ This indeed eventually went ahead when on the 23rd of August 2002, De Beers and SANParks signed an agreement to integrate parts of De Beers' Venetia Limpopo Nature Reserve into the proclaimed Vhembe/Dongola National Park in Limpopo. De Beers also donated about R10 million to the Peace Parks Foundation to help buy other properties to be included in the broader park.¹⁹ One begins to see a correlation with the DGR model when one considers that within the agreement, SANParks was to manage the park area while De Beers retained the title deeds to its own properties. Similarly, in the DGR, the landowners retain their title deeds while the DGR Management Association (DGRMA) manages the game reserve. On Ditholo military land, which was incorporated into DGR, the same model is followed whereby DGR manages Ditholo Nature Reserve as part of DGR, while the national government (NG) retains ownership of the military land.

At the time Swart and his colleagues were in contact with De Beers, they had just established a collaborative reserve in the western parts of Limpopo called Atherstone Collaborative Reserve. It was this model, too, that helped formulate the idea of creating a collaborative reserve in northeastern Gauteng. Swart added that they also used the collaborative model to expand D'nyala Nature Reserve, 15 km south-east of Ellisras (Lephalale).²⁰ The conference centre at D'nyala is of some historical interest as it was the venue for the negotiations between Nobel Peace Prize winner, FW de Klerk, and Cyril Ramaphosa, prior to the new democratic dispensation.²¹

Swart commented that funding to purchase land for conservation was then (late 1990s) and still is now (2024), severely limited. He recalled that provincial conservationists looked at models of how to incorporate private land with state land and the collaborative concept was born. Lampies Lambrecht, one of the deputy directors, was instrumental in establishing Atherstone, which had

¹⁷ LSPC, D.R. Swart, Retired GPG landscape architect, WhatsApp/L. Shee, 2023-10-13.

¹⁸ LSPC, D.R. Swart, Retired GPG landscape architect, WhatsApp/L. Shee, 2023-10-12.

¹⁹ Zoutpansberger, "Venetia Nature Reserve to form part of Vhembe/Dongola Park", 2022-08-30, <https://zoutpansberger.co.za/articles/news/1537/2002-08-30/venetia-nature-reserve-to-form-part-of-vhembe-dongola-park>, accessed 2023-10-13.

²⁰ LSPC, D.R. Swart, Retired GPG landscape architect, WhatsApp/L. Shee, 2023-10-12.

²¹ Limpopo Tourism, D'nyala Nature Reserve, <https://golimpopo.com/tour-item/ndzalama-wilderness-5/>, accessed 2023-10-13.

been bequeathed as a legacy for conservation to the former Transvaal Nature Conservation Department by Norman Atherstone. Lambrecht appointed consultants to draft the constitution for Atherstone, so as Swart confirmed, by the time the DGR concept was in its preliminary stages, Gauteng conservationists already had some experience with the collaborative idea. The North-Eastern Gauteng Initiative (NEGI) was then created by identifying suitable state land, with the aim of thereafter incorporating private land – initially specifically private game reserves.²²

The VBR today is considerably larger and more developed than when Swart and his colleagues from Gauteng Nature Conservation took note of it in the mid-1990s. It is situated in the north of Limpopo Province and borders Botswana and Zimbabwe in the north and Mozambique in the east. What appealed to Swart, and his colleagues, was that the concept intended to draw together various game reserves into one biosphere – the very idea that took hold in the mid-1990s concerning a proposed biosphere reserve in what is today the broader Dinokeng region. Today, the VBR is made up of Kruger and Mapungubwe National Parks, the latter a World Heritage Site, together with six provincial nature reserves. The Soutpansberg Mountains are a notable feature of the VBR, and the Southern Soutpansberg is where the idea for a biosphere reserve took root. Consisting largely of savanna, grasslands, forests, and wetlands, the Soutpansberg area is rich in biodiversity. It is populated by 1,4 million people, mostly rural, whose “... land tenure system is distributed between local rural communities, private ownership and state-owned land”.²³

The Soutpansberg is one of the most bio-diverse, yet least well known areas in Southern Africa. Historically, there was no protective legislation in place for this beautiful area, so landowners in the Western Soutpansberg gathered to establish the Soutpansberg Conservancy in the mid-1990s. However, it became apparent “... that there was a need for a much broader vision for the entire sub-region, which had to include the entire spectrum of stakeholders”.²⁴ In an area like Dinokeng, there is room for expansion; however, this process is not straightforward. The area needs development, but ultimately it can only expand within a paradigm like that of the VBR, one requiring funding, collaboration, cooperation, and imagination.

Those behind VBR define the approach to development of this reserve as one that fosters “... economic development, which is socio-culturally and ecologically sustainable”. Further,

²² LSPC, D.R. Swart, Retired GPG landscape architect, WhatsApp/L. Shee, 2023-10-13.

²³ S.W. Evans, “An Assessment of Land Cover Change as a Source of Information for Conservation Planning in the Vhembe Biosphere Reserve”, *Applied Geography*, 82, 2017, Introduction, <https://www.sciencedirect.com/science/article/abs/pii/S0143622817302217>, accessed 2023-09-14.

²⁴ Vhembe Biosphere Reserve (VBR), “Where we come from”, <https://www.vhembebiosphere.org/about-us>, accessed 2023-09-14.

they maintain that all biosphere reserves must both acknowledge and encourage development within their areas. Looking at the historical approach of environmentalists, the VBR website states that they “... were prone to draw a “hard-line” boundary between areas of environmental sensitivity and areas of development but biospheres are more flexible instruments that encourage a greater degree of flexibility incorporating within each of the Core, Buffer and Transition Zones, sub-zones that are “critically sensitive”, “sensitive” and “non-sensitive”.²⁵ The VBR, like DGR, supports research and emphasises the importance of environmental education and information exchange “... related to local, national and global issues of conservation and development”.²⁶

6.4.2 Other models that may have influenced DGR’s development

Other models were certainly discussed. “Volume G of the Dinokeng Integrated Tourism Development Framework, Institutional Arrangements”, provides evidence that the Makuleke model was at least one other model considered worthy of emulation. As mentioned in Chapters Two and Three, Makuleke is an ecotourism initiative in South Africa associated with the KNP. Whatever the model ultimately to be adopted in the case of DGR, the Tourism Development Framework recommended that it be based on seven principles. The principles were that there should be direct stakeholder involvement, tangible flow of benefits to the community, flow of returns to investors, slim and efficient institutions, private and independent entities to run operations in Dinokeng, appropriate types of institutions at all levels, and finally, the model had to be formally linked to local government and had to support local government in its implementation of its individual development framework (IDF). For the IDF to be successful, there had to be clear agreements between local government and the institutions.²⁷

In Makuleke, a restitution claim model is being used successfully to address the incorporation of the tourism asset base, which is land, into the KNP. A joint management board (JMB) was established to serve as a primary decision-maker, consisting of six members from the Makuleke Community Property Association and SANParks. The JMB rotates chairmanship annually, and issues are decided by majority vote. Resolutions are recorded in writing and signed by all members present. The JMB is empowered to ensure compliance with the negotiated settlement and the IDF.

²⁵ Vhembe Biosphere Reserve (VBR), “Why are we here?”, <https://www.vhembebiosphere.org/about-us>, accessed 2023-09-14.

²⁶ Vhembe Biosphere Reserve, (VBR) “Why are we here?”, <https://www.vhembebiosphere.org/about-us>, accessed 2023-09-14.

²⁷ RSA, Gauteng Provincial Government (GPG), Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL), B. Ngeleza, “Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume G – Institutional Arrangements”, 2001/12, pp. 1-2.

An early academic assessment of what a DGR model should embrace was presented by a public administration specialist, E.J. Van Rooyen, in 2005. Van Rooyen believed that much could be learned from other development projects, and that key to these projects were partnerships that were dependent on several conditions. Given that Van Rooyen cited the importance of partnerships in successful models, and that DGR was ultimately premised on a partnership model, it is worth considering Van Rooyen's key observations.

In 2005, Van Rooyen, while considering an appropriate model for DGR, emphasised the importance of a collaborative vision in DGR to maintain credibility and transparency, along with the need for correct organisational structures. Human factors, such as personalities, skills, and backgrounds were considerations for bringing parties together. Land control challenges in DGR necessitated appropriate spatial planning. Another consideration was partner status fluctuation, with higher status claimed by those with greater risk or benefit. Ignoring these unifying factors was likely to lead to negative consequences for any project.²⁸ Van Rooyen provided insight to the DGR business model or plan as it stood in 2005. Little did he, or all others involved, realise that it would take a further six years until DGR officially opened.

The commercial strategy for the DGR, as described by Van Rooyen in 2005, is notable since it established the project's infrastructure and development, which included stakeholder interests as viewed through a public administration perspective. The GPG had consented to contribute cash for the reserve's planning and infrastructure, including the building of the initial perimeter fence, road infrastructure, and animal acquisition. Socio-economic advantages for Historically Disadvantaged Individuals (HDIs), Historically Disadvantaged Communities, and Broad-Based Black Economic Empowerment (B-BBEE) were the subject of negotiated agreements. Stakeholders talked about the project's socio-economic implications, employment, equity ownership, suppliers, and operators, but by 2005 no choice had been made about the precise layout of the envisioned game reserve.

Van Rooyen's study left little doubt that the GPG's primary goal of the DGR Project was aimed primarily to assist HDIs. A huge responsibility was placed on both landowners and game reserve management to provide a high socio-economic return for government's investment in the game reserve. Even a glance at the expectations makes one wonder whether the game reserve role-players could ever meet such elevated standards of response. Much was expected from a variety

²⁸ E.J. Van Rooyen, "The Dinokeng Big 5 Game Reserve: Envisaging a Socio-Economic Development Partnership", *Journal of Public Administration*, 40(4.1), 2005, pp. 609-610.

of role-players especially with respect to B-BBEE equity and equity ownership. There were high standards expected from tourist and reserve operators and landowners' associations (LOAs).

For example, the Tourism Hospitality and Sport Education and Training Authority had to ensure that HDIs and locals received employment preference for game reserve operations and tourism. Employers had to adhere to the B-BBEE goals and provide fair remuneration to all employees. An aim was to have 80% of employees possess relevant qualifications, ensuring a diverse workforce.²⁹

Landowners and LOAs had to ensure fair agreements with communities, individuals, or companies for B-BBEE equity, and participants had to understand their commitments and risks. Organisations operating within the DGR were expected to report HDI equity ownership levels at predetermined intervals, monitoring trends on an individual operations and reserve-wide level. Compliance with the Broad-Based Black Economic Empowerment Act and targets set by the tourism sector was essential for achieving equity ownership in tourism enterprises.³⁰

As early as 2001, Berrisford *et al.* were already aware from their research on land use frameworks that Dinokeng, a diverse region, faced many competing interests owing to "... its location between high employment and urban opportunities in Gauteng and areas with few opportunities in Mpumalanga and Northern Province".³¹ The options for employment potential in the area were practically limited to mining, agriculture, and conservation, all being commercial interests that were not necessarily compatible and could potentially undermine nature-based tourism. The form of the eventual DGR model also had to take into consideration that these respective and divergent economic sectors were already leading to a mushrooming of informal settlements. Berrisford *et al.* understood the need for large-scale, non-conservation activities both for income, and to prevent reliance on a single or large investment project in a rapidly urbanising area with poorly functioning local authorities and a population with low levels of skills. The challenge then for the DGR model was that it had to ensure that the public-sector funded Dinokeng Project made a

²⁹ E.J. Van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40(4.1), 2005, p. 614.

³⁰ E.J. Van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40(4.1), 2005, p. 615.

³¹ RSA, GPG, Department of Agriculture, Conservation, Environment and Land Affairs (DACEL), S. Berrisford, A. Adam, C. Madel, A. Adams, N. Pather, P. Chipwanya, G. Rossouw, G. Breedlove & P. Theron, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume C – Land-Use, Environmental Management and Infrastructure Development Framework", 2001/12, p. 12.

considerable contribution to improving skills and creating local business opportunities.³² It was for these reasons, that Van Rooyen laid down government's expectations from its investment.

Another expectation was that tourism or reserve operators should try to support B-BBEE suppliers and local small, medium, and micro enterprises (SMMEs). Chapter Eight lists examples of small local businesses close to the entrance of DGR which landowners and tourism operators can and do support. These include village restaurants, a well-stocked indigenous nursery, a pottery business and an arts and crafts centre. On a private visit to Mohale's Nursery, this researcher, himself a keen gardener, was extremely impressed with the young assistant's knowledge of plants and the enthusiasm with which he shared this knowledge.

Van Rooyen outlined ideal standards for tourism operators to succeed in the future DGR, including adhering to local, provincial, and national regulatory frameworks; obtaining licenses and public liability insurances; meeting the South African Tourism Services Association's requirements; following the Responsible Tourism Handbook issued by the Department of Environmental Affairs and Tourism in 2003; and complying with fiscal requirements. Operators were expected to become members of local tourism associations and obtain Tourism Marketing South Africa membership as well as be graded by the National Tourism Grading Council. Van Rooyen also emphasised the importance of LOAs in facilitating the endeavours of regional game reserve stakeholders. He suggested starting a programme by 2007 to establish community needs, ensure effective communication, and address various issues. He proposed that LOAs should offer facilitation services to residents, SMMEs, landowners, asset owners, and facility operators, and help neighbourhood business owners meet operator standards. They should organise local access days and special events to promote a tourism culture. To support community growth, LOAs should create a social responsibility programme and require landowners, investors, and facility operators to develop their own tourism plans focusing on social and economic development. These plans would then be submitted to the LOA for assistance with operations, such as gates, marketing, booking services, and game reserve management.³³ While these suggestions appeared to place very high expectations upon LOAs, Van Rooyen acknowledged that his scenario represented an ideal situation. Whereas Van Rooyen focused specifically on DGR structural arrangements, which remain unique, it is interesting to draw some DGR parallels with a model suggested long before DGR was even considered as a project. A boundary model

³² RSA, GPG, DACEL, S. Berrisford, *et al.*, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume C – Land-Use, Environmental Management and Infrastructure Development Framework", 2001/12, p. 12.

³³ E.J. Van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40(4.1), 2005, p. 616.

proposed by Schonewald-Cox and Bayless in 1986 seems to resonate with aspects of the current DGR model.

6.5 Considering the Schonewald-Cox and Bayless boundary model in the context of DGR

A particular boundary model that has a certain compatibility with that of DGR's, is the one presented by Schonewald-Cox and Bayless.³⁴ Their boundary model suggested that reserves become vulnerable to negative external influences across their boundaries, rather than to internal processes. They distinguished between natural and generated edges, which undergo change and development in response to various stimuli. They see the boundary of a reserve as a filter, based on rules of behaviour within the reserve, and they consider that the efficacy of this filter depends on the effectiveness of management and enforcement of regulations. Ecological changes may occur based on the extent to which management can limit harmful intrusions. Consequently, ecological changes along the reserve's edges may not always align spatially with the boundary.³⁵ Two such harmful intrusions in DGR that are increasingly under control, thanks to DGR's managerial filters, are those of poachers and illegal wood gatherers. As an example, in May 2021, eleven animals were snared and killed in DGR, including six wildebeest, one kudu, two waterbuck, and two buffalo. In May 2022, no animals were killed, and in May 2023, only one wildebeest was killed, which illustrates a dramatic reduction in the illegal killing of DGR wildlife. No rhino were poached in 2022 and 2023 – the last rhino killed by poachers was shot in 2021.³⁶

At the time of an interview with Stephan Prins, the then DGR conservationist, he identified illegal wood gathering as an environmental threat, particularly in the west of DGR near Kekana Gardens' border with the SANDF-owned Ditholo Nature Reserve. Wood collection there had been very intensive up to and around 2013, to the extent that the damage is still evident today. Prins said that the Anti-Poaching Unit (APU) had considerably reduced the illegal collection of wood; however, he added that there were practical and legal challenges that constrained the management's ability to enforce laws strictly and carry out arrests for environmental infringements. He explained that because DGR had not yet been proclaimed as a protected area, management and the APU did not yet have a full mandate, as does SANParks or other provincial parks, to conduct operations against poachers, particularly rhino poachers.³⁷

³⁴ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: A Geographical Analysis of Design and Conservation of Nature Reserves", *Biological Conservation*, 38(4), 1986, p. 306.

³⁵ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, p. 306.

³⁶ DGRMA, *Dinokeng Game Reserve Magazine*, Issue 7, February/March 2024, pp. 24-25. <https://online.flippingbook.com/view/38168810/>, 2024-02-22.

³⁷ LSPC, SOA10, S. Prins, Section Ranger/Conservation Officer, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2021-06-07.

In the KNP, he said, operations could be conducted more closely with the South African National Defence Force (SANDF) and the South African Police (SAPS). He added that with SANParks, if you become a field ranger, you do an EMI (Environmental Manager Inspector) course on completion of which you receive a card granting you field ranger powers of arrest for breach of environmental law. Rangers qualified as EMIs can also write fines, which can be enforced under South African law. Prins continued that as long as DGR did not have official protected area status (PAS), these stronger enforcement powers would remain elusive. The effort to obtain PAS remains ongoing for DGR, but needs, according to Prins, "... to be driven by our landowners and our committees with our inputs, and you need specific funding, lots of funding, for that proclamation to be successful".³⁸ These examples support Schonewald-Cox and Bayless' assertion that competent, structured management reduces the vulnerability of reserves to negative external influences across their boundaries.

Schonewald-Cox and Bayless argued that both internal and external influences relating to boundary dynamics should be considered when forming policies regarding game reserve architecture and species protection. They defined a boundary as follows: "The boundary of a reserve is designated administratively, most often by legislation. Its goals are determined in part by the mandates set down with the establishment of protection. The acquisition of protected land is usually achieved through various combinations of land purchase, donation, condemnation, and reassignment by a government or other owner. As a result, the administrative boundary of the reserve is usually delineated by the edge of pre-existing land ownership and may be set down irrespective of any natural ecological distributions".³⁹

These authors distinguished between the intangible administrative boundary and any of the reserve's ecological edges. They further distinguished between the reserve's natural ecological edges and generated ecological edges, which for the most part result from protection interventions. The generated edge, they argued, results from "... greater protection occurring inside the reserve and less protection occurring outside". The generated edge will encroach upon the centre of the reserve if acted upon by external pressures enabled by inadequate reserve management and enforcement, resulting in negative consequences for species and species diversity. Conversely, if mandates are adequately enforced up to the boundary limits, the generated edge will develop at a greater distance outside the boundary. A generated edge outside the reserve boundary within undisturbed lands may extend the effective size of the reserve.⁴⁰

³⁸ LSPC, SOA10, S. Prins, 2021-06-07.

³⁹ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, p. 306.

⁴⁰ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, pp. 307 & 308.

Local people could potentially lose respect for these reserve boundaries should they feel the reserve is threatening their survival or welfare. The boundary effect is "... the formation of the generated edge and the process by which it develops is the boundary effect. The characteristics of generated edges depend on how externally derived processes interact with internal processes and pre-existing species distributions".⁴¹

The authors of the DGR Environmental Management Plan (EMP), first drafted in 2009 and updated for 2018, were cognisant of outside influences on the interior of the game reserve. If one examines their recommendations, it becomes apparent that they were aware of the need to nurture relations with communities on DGR's western edge, both for community upliftment and to prevent negative environmental processes entering the game reserve. What the EMP recommended were essentially the sorts of strategies needed to avoid encroachment of the generated edge.

The planning framework provided by the GPG's Regional Spatial Development Frameworks (RSDFs) for rural areas has consequences for DGR. The surrounding area's rural nature and the importance of DGR for biodiversity are both mentioned in the RSDFs. Owing to its potential for tourism, the DGR is regarded as one of the strategic land uses in the region under terms of the RSDF, meaning that only tourism-related development is promoted under the DGR. This is partly because DGR, which is regarded as a rural portion of the City of Tshwane, is located outside the urban perimeter. Ideally, the City of Tshwane should take responsibility for the DGR area because it is a rural component of its municipality. Thus, the City of Tshwane should be tasked with addressing rural poverty, ensuring food security, preventing irreversible loss of productive agricultural land, limiting fragmentation, creating sustainable communities, contributing to land redistribution, creating employment opportunities, preventing erosion and pollution, formalising residential settlements, providing access to community facilities, maintaining road standards, and providing public transport in densely populated rural areas. The City of Tshwane should also take responsibility for identifying multipurpose community centres for business, medical, educational, recreational, and social needs, and for ensuring ownership and tenants' rights, especially in areas with tribal land ownership. These responsibilities are unlikely to be fulfilled by a troubled, incompetent, and financially failing Tshwane municipality.⁴² These grandiose expectations under South Africa's poor economic conditions are tantamount to an idealistic government wish list, and impossible to achieve in a country where the Government can barely keep the lights on yet talks

⁴¹ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, p. 310.

⁴² RSA, GPG, GDED, Contour Project Managers, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve, updated by La Terra Earth Sciences (PtyP Ltd), March 2018, pp. 203-204.

about super cities and fast trains. So, while Schonewald-Cox and Bayless recommended resisting the encroachment of the generated edge, it remains an enormous challenge for DGR to do so, particularly with such high expectations and with limited resources.

Schonewald-Cox and Bayless made some interesting points about their boundary model. A boundary, they argued, has no width, whereas a generated edge of a boundary does. They defined a generated gradient as "... the change in abundance of species, resource abundance, and human activities that develops perpendicular to the length of the generated edge".⁴³ They continued that the "... boundary model concludes that, at one extreme, the generated edge may exist within the interior of the reserve and thereby reduce the reserve's functional size. At another, more desirable, extreme, the generated edge may be well outside the reserve boundary and may functionally increase its size".⁴⁴ The practical implications for DGR's boundaries of these esoteric musings might be that all is not lost if expansion does not occur.

If, for example, DGR's expansion into the Wallmannsthal military land east of the N1 freeway does not occur, that land will still act as a buffer for the protection of biodiversity. Many species can cross fences, for example, small mammals, birds, and seeds, and as the Wallmannsthal land is not intensively used by human activities, it offers protection for the interior and an extensive generated edge to the interior of the reserve. The Schonewald-Cox and Bayless model also suggested valuable insights into the relationship between reserve size and shape.

These authors noted that if the area-to-perimeter ratio is low for a reserve, it means that "... the average distance from any interior point to the nearest boundary point is small" and in such instances, "... external processes would have a stronger influence on internal processes". The extent of influence is known as the "exposure" of the reserve. Conversely, a high area-to-perimeter ratio means the average distance from any point to the boundary is increased, and exposure is decreased. These processes have a stronger effect on smaller reserves than larger ones. At the upper limit of the area-to-perimeter ratio and when the reserve is large, the system reaches a point of self-sustainment. However, at the lower limits, the need for protection and management interventions increases.⁴⁵ That the DGR Management understands this concept is evidenced by attempts throughout DGR's history to open or widen corridors to encourage game to migrate or move more freely.

⁴³ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, p. 312-313.

⁴⁴ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, p. 315.

⁴⁵ C.M. Schonewald-Cox and J.W. Bayless, "The Boundary Model: ...", *Biological Conservation*, 38(4), 1986, p. 315.

A current argument, but also one held for many years, concerns the potential widening of a corridor if DGR were successful in incorporating Boekenhoutskloof, a portion of land under military ownership, into the southern part of the reserve. The argument by Schonewald-Cox and Bayless concerning reserve size and shape with respect to protection success is well illustrated in a proposal by DGR's LOA Chairman to include Portions 129 JR of the Farm Boekenhoutskloof in the reserve. Recognising the value of aiming for the "upper limit of the area-to-perimeter ratio", the Chairman of the LOA, Jonathan Kleynhans, set out the following argument:

Some of the privately owned lands to the south, which have already been incorporated into the DGR, join up with the greater body of the reserve to the north, only by a narrow "bottleneck", which skirts the eastern boundary of the Boekenhoutskloof military facility. This, rather constricted corridor has proven to impede landscape connectivity in that multiple species of resident wildlife show overall reluctance to move freely among resource patches distributed between the north and the south of the DGR. The resultant polarisation of wildlife populations between the north and the south of the DGR causes undue, prolonged concentration of animals on rangeland as a threat to the viability of both wildlife populations and their habitat. The current constraints on landscape connectivity could, however, be mitigated with incorporation into the DGR of portions 129 JR and 5/129 of the farm Boekenhoutskloof in addition to portions 26/128 and 25/128 of the farm Kloppebos.⁴⁶

Schonewald-Cox and Bayless noted that small reserves have value as pockets of defence for ecological disasters in larger reserves and also for dispersal. However, they argue that smaller reserves do need closer monitoring and enforcement of regulations and cannot be replacements for larger more insulated reserves. These authors also point out that large reserves by themselves are not secure as they are few in number. Consequently, they need the presence of smaller reserves to form part of their protection.⁴⁷ There is much food for thought in Schonewald-Cox and Bayless' model regarding practical applications in small reserves such as DGR. One useful idea is that each small reserve should ideally have protective buffers in place to reduce harmful effects and to expand habitat. Without a buffer, the generated edge will probably push into the interior of the reserve with negative consequences. If the protective buffer is functioning perfectly, the generated edge will form inside the buffer, so reducing pressure on internal habitats and

⁴⁶ LSPC, Landowners Association (LOA), J. Kleynhans, Landowners' Association Chairman – Dinokeng Game Reserve, Dinokeng Game Reserve: Proposal for Expansion of the Dinokeng Game Reserve onto State Land, Portions 129 JR and 5/129 of the Farm Boekenhoutskloof in Addition to Portions 26/128 and 25/128 of the Farm Kloppebos, December 2020.

⁴⁷ C.M. Schonewald-Cox and J.W. Bayless, The Boundary Model: "...", *Biological Conservation*, 38(4), 1986, p. 316.

populations.⁴⁸ The challenge is how to put such buffers in place. Much of what these authors propose comes down to effective reserve management. In short, poor policy decisions and lack of financial resources lead to encroachment into the reserve by such activities as agriculture and hunting. Consequently, the generated edge moves inwards until it disappears and there is no longer a distinction between protected and unprotected habitats. For this reason, DGR is fortunate to have responsible management structures in place that include input of landowners, government, and the Community Trust.

6.6 DGR's ecotourism model developed from inclusive input

The extent to which broad-based input and extensive discussions took place to thrash out a final model for DGR has been comprehensively discussed in Chapters Four and Five. Although it is difficult to say that any one particular model or prevailing philosophy influenced DGR's final model, several confirmed influences have thus far been discussed in the present chapter. What can be stated categorically is that whatever the final model was to be, it always had to adhere firmly to the directives that have remained in place throughout the history behind the Master Plan of 2001, and up to, and including, those in the most recently updated Environmental Management Plan of 2018. These directives align closely with the same conditions required for protected area status which are outlined below.

As the DGR area has significant natural features and biodiversity, and is proximate to the Gauteng metropolis and many tertiary educational institutions, it was always going to play an important role in serving Gauteng's scientific and educational needs. Of necessity, these natural features and the rich biodiversity have had to be maintained to provide various environmental goods and services, including nature-based and educational tourism experiences, research opportunities for tertiary educational institutions, and sustainable natural resource harvesting of renewable resources. In addition, the model had to facilitate the creation of substantial numbers of jobs and socio-economic benefits based on a limited supply of natural resources. These jobs and benefits had to develop around substantial nature-based recreation and tourism opportunities. The long-desired declaration of the DGR as a protected area, when eventually granted, would help the DGRMA to implement the necessary management programmes and acquire the legal mandate to secure the future of DGR through proper law enforcement.⁴⁹ The establishment of a protected area would also sustain the momentum towards realising the ultimate dream of a free roaming Big 5 game reserve as described in the vision for DGR:

⁴⁸ C.M. Schonewald-Cox and J.W. Bayless, The Boundary Model: "...", *Biological Conservation*, 38(4), 1986, p. 317.

⁴⁹ RSA, GPG, GDED, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve, March 2018, p. 50.

To develop a fully integrated Dinokeng Big 5 Game Reserve of some 40 000 ha over the medium term as a recognised ecotourism destination, with full participation by all affected landowners, which is ecologically and economically sustainable, with recognised benefits locally and regionally. It is the Vision of DGR to be proclaimed as a Nature Reserve in terms of the National Environmental Management Act (NEMA): Protected Areas Act, Act 57 of 2003 (the Act) and to abide by all legal requirements. The declaration of the DGR will aid the DGRMA in implementing the necessary management programmes and to secure the future of a protected area with a dual purpose, namely socio-economic upliftment and expanded protected landscapes. The establishment of a protected area as a substantial first step will also provide the necessary momentum towards realising the ultimate dream of an expanded protected area in line with the vision.⁵⁰

That it is difficult to obtain consensus on a definition of ecotourism is perhaps illustrated by Donohoe and Needham's realisation that a definition should not be static. They saw ecotourism, not as a homogeneous phenomenon but rather "... as a complex and synergistic collection of social, ecological and economic dimensions that reflect a common core idea".⁵¹ The common core idea to which they referred was an ethics-based approach to tourism by which it is essential to satisfy both conservation and tourism development.⁵² Tracing ecotourism back to the 1960s, Burton and Rogerson associated it with six main elements, by which they identified ecotourism as: nature-based, preserving conservation, promoting education, encouraging sustainability, distributing benefits, and being ethically responsible or aware.

Burton and Rogerson also saw ecotourism "... as the promotion of appropriate and environmentally sensitive development, and as a way of achieving social justice and enhancing the quality of life and stability especially for communities in the immediate vicinity of protected areas".⁵³ It is not clear whether the authors of DGR's Integrated Tourism Development Framework followed the global discourse at the time concerning ecotourism. However, what is clear, is that government was motivated more by the need for socio-economic development than by conservation. The authors stated categorically that conservation of biodiversity was not "... the key objective or overall purpose of the Big Five DGR". Rather, they stated, the key objective was:

⁵⁰ RSA, GPG, GDED, EMP and Specific Species Management Plans..., March 2018, p. 48.

⁵¹ H.M. Donohue & R.D. Needham, "Ecotourism: The Evolving Contemporary Definition", *Journal of Ecotourism*, 5(3), 2006, pp. 193, [doi:10.2167/joe152.0](https://doi.org/10.2167/joe152.0).

⁵² H.M. Donohue & R.D. Needham, "Ecotourism: The Evolving Contemporary Definition", *Journal of Ecotourism*, 5(3), 2006, pp. 193-194.

⁵³ C. Burton & J.M. Rogerson, "Challenges of Planning and Developing an Urban Ecotourism Destination in South Africa", *Studia Periegetica*, 41(1), 2023, p. 3.2, <https://doi.org/10.58683/sp>.

“... to contribute significantly to economic growth and poverty alleviation in the Gauteng Province generally and the Dinokeng area specifically through the stimulation of a wildlife-based tourism industry”.⁵⁴ Realising the primary objective could not be self-sustaining, the suggested ecotourism model would, of necessity, include a suite of three equally important secondary support objectives: to conserve nature, to support and develop tourism, and to empower the previously disadvantaged.

The average visitor to DGR, however, is not interested in theories behind ecotourism – they are there to enjoy the wildlife and to be entertained. The range of accommodation offered by private landowners is extensive. All of the approximately 170 landowners in DGR are free to design their own game reserve-related products, which offers a sense of belonging and inclusiveness to the DGR landowners. Some prefer not to have products but simply to enjoy the privileges of living in a Big 5 reserve.

The DGRMA's task is to manage the game reserve, not the products, although increasingly, management is tapping into its own natural resources to help fund the running of the reserve through income from self-drive routes and the sale of game reserve products at their museum coffee shop. As stated in their online magazine, the reserve, like all conservation projects, has limited funds. Using their considerable initiative and natural resources, the DGRMA has embarked on three projects of its own to boost its funds: “Sekelbos” wood sales; game meat sales (biltong, chilli sticks, and dry wors); and firelighters.⁵⁵

Since its opening, the variety of tourist activities offered has greatly expanded to include at least three different unfenced picnic sites built and maintained by private landowners who do not charge for their use. Their facilities are excellent, but as they are unfenced, you use them at your own risk. The picnic sites are Bayethe, Dula Nokeng, and Veldjierondom, the latter being close to Arlington Craft Brewery. The DGR also offers the easily accessible MarSu Lombert Bird Hide in a wetland to the east.

An online search will guide visitors to the various options for commercial game drives and the self-drive routes, as well as over 60 accommodation options. Guided bush walks are also offered with qualified guides. Permits for the 140 km of self-drive routes can be bought at the gates, or at selected lodges. The cost includes a detailed glossy map with numbered reference points and

⁵⁴ RSA, GPG, GDED, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve, March 2018, p. 257.

⁵⁵ DGRMA, *Dinokeng Game Reserve Magazine*, Issue 4, October/November 2023, p. 3. <https://online.flippingbook.com/view/973248092/>, accessed 2024-02-22.

places to stop for refreshments. Such DGR marketing material reminds visitors that by buying permits and supporting their products, they are contributing financially to the future of conservation in Tshwane.

The DGR is marketed as the only residential Big 5 game reserve worldwide within the boundaries of a metropolitan area and, therefore, its model could potentially provide a blueprint for other small to medium-sized reserves close to cities. There is admission from those behind DGR that developing a new model means being in uncharted territory.

6.7 Reaching consensus on the DGR's boundaries

In 2005, Van Rooyen wrote that the GPG and other authorities, together with the stakeholders involved with the Dinokeng Project were in unison that its developmental yield was potentially extensive. However, he said, projects of such magnitude often take time to plan. From a project management point of view, it could be assumed that the stakeholder negotiations part of the venture to establish a mutually agreeable partnership was intricate.⁵⁶ Where multiple interests are involved, partnership modalities tend to become tedious and, in some cases, emotive.⁵⁷ After all, negotiations that started in the mid-1990s were ongoing until the opening of the reserve in 2011, and continue today. What van Rooyen said concerning the extensive and inclusive negotiation process prior to DGR's formation, has been evidenced in previous chapters of this thesis.

Always present, however, was that the final DGR model would be a form of public-private partnership (PPP). For convenience, the DGR development process is referred to as a PPP as it closely adheres to the definitions of PPPs favoured by public administrators. Those behind the DGR also refer to it as a PPP. Van Rooyen's discussions on definitions of various categories of PPPs is instructive.⁵⁸ For this chapter, brief reference to Van Rooyen's use of the term in relation to DGR is apt. Whereas individual PPPs tend to be "unique in many ways", which makes exclusive categorisation difficult, Van Rooyen did note in 2005 that DGR "... generally conforms to the criteria of a public private partnership".⁵⁹ Risk distribution of Dinokeng partnerships and subsequent accountability are present as expected in partnership agreements. Further, "... project planning protocols associated with stakeholder negotiations conform to the normative requirements", yet it remains unclear as to which specific form of PPP the DGR belongs. While it

⁵⁶ E.J. Van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40(4.1), 2005, pp. 617.

⁵⁷ E.J. Van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40(4.1), 2005, pp. 618.

⁵⁸ For a fuller discussion of the categories of PPPs, see E.J. van Rooyen, *The Dinokeng Big 5 Game Reserve: ...*, *Journal of Public Administration*, 40 (4.1), 2005.

⁵⁹ E.J. van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40 (4.1), 2005, p. 613.

“... reflects elements of public ownership and private operation as well as elements of community and user provision”, by 1995, Van Rooyen maintained that the specific form of PPP still needed clarification.⁶⁰ Whether this form has since been identified or categorised in a way that might reflect on the manner of contractual arrangements, is a question best answered by experts in the field of public administration.

Whatever specific definition is applicable to DGR, it is not of particular concern as the reserve functions anyway as a PPP where all parties are mutually dependent on the project's success. The fact that the game reserve came into being in 2011, and that today many of the accommodation options are fully booked on weekends and public holidays testifies to its success. The DGR website states that the co-operation required to form the reserve started through the strategic initiatives of the GPG and the efforts of more than 170 enthusiastic landowners. Together they developed the concept that ecotourism could become the main source for the upliftment of rural communities through sustainable employment.⁶¹ An important point to be made about the level of consensus among role-players is that participation in the reserve was never obligatory.

As much as conservationists and game reserve role-players might like to see large tracts of private land included in an expansion programme, it remains the prerogative of landowners to stay separate from the reserve and do with their land what they want. This thesis suggests that this freedom to make personal decisions reduced any notion of any landowner being bullied into participating in the establishment of DGR, irrespective of the impact of their decision on DGR's boundaries. Although such decisions have shaped the DGR's boundaries, there were other practical considerations concerning boundaries that did not involve landowners directly.

Establishing boundaries for a large game reserve in an area so close to South Africa's sprawling economic hub would never be easy. The Master Plan researchers had first to identify a potential boundary area prior to following up with more detailed studies. Areas that were incompatible with a game reserve were identified and set aside as non-inclusions. These included the intensive agricultural area north of the Pienaars River; densely populated settlements in the south; the N1 freeway and dense population settlements to the west; and an area of dense population settlements, cultivation, and incompatible land use to the east. Other non-negotiable exclusions were linear barriers like the N1 and the R573 Pretoria to Moloto Road. Also excluded were non-available land such as military bases, power substations, human settlements greater than 10

⁶⁰ E.J. van Rooyen, "The Dinokeng Big 5 Game Reserve: ...", *Journal of Public Administration*, 40 (4.1), 2005.

⁶¹ Dinokeng Game Reserve, "Conservation Efforts", *Info SA*, <https://www.infosa.co.za/provinces/gauteng/gauteng-tourism/gauteng-game-reserves/dinokeng-game-reserve/>, accessed 2023-05-23.

households on a parcel of land, commercial and industrial nodes, and obtrusive mining operations. Some parcels of military land were, however, ultimately negotiated for and included within DGR, most notably, Ditholo Nature Reserve.

Negotiable criteria were those that might exclude a particular area depending on the level of negative impact. Examples included current competing land use (irrigation and intensive farming); size of land units; infrastructure (roads and power lines); land claims and land rights (e.g., mineral rights); non-willing landowners (state and private); sacred cultural sites; transformed or degraded land; visual impacts such as cell phone and communications antennae; and conflicting neighbouring land use such as feedlots that might not be in harmony with wildlife.⁶² These criteria were not ultimately strictly adhered to, for example, on parts of DGR, electricity pylons march across the veld conjuring up images of Stephen Spender's industrial poem, *The Pylons*. Spender's cautionary poem alerting England to the threat of technology and modernity to the beauty of the English countryside carries a universal message, one applicable even to South Africa's harsh bushveld, as expressed in an image from Spender's *Pylons*:

Now over these small hills,
they have built the concrete
That trails black wire
Pylons, those pillars
Bare like nude giant girls that have no secret.⁶³

Land crossed by unsightly pylons should not be excluded on the grounds of poor aesthetics as it may still be valuable for biodiversity. After all, visitors to the KNP can see pylons extending across its northern section carrying electricity from Cahora Bassa. Latham and Boutin refer to these industrial intrusions into otherwise wild landscapes as industrial linear corridors (ILCs). Although ILCs like power lines and pipelines usually occur at lower densities than roads, they can be as wide as them. Additionally, they are generally usually kept clear of trees and other vegetation and they "... can cover long distances across a wide range of habitats".⁶⁴ The authors acknowledge that industrial advancements cannot be halted. In response, therefore, ways must be found to

⁶² Republic of South Africa (RSA), Gauteng Provincial Government (GPG), Gauteng Department of Agriculture, Conservation, Environment and Land Affairs (GDACEL), R. Collinson, W. Boonzaaier, M. Brett & M. Magakgala, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, pp. 10-15.

⁶³ S. Spender, *The Pylons*, <https://pickmeuppoetry.org/stephen-spender-by-the-pylons/>, accessed 2023-04-21.

⁶⁴ A.D.M. Latham and S.A. Boutin, "Impacts of Utility and Other Industrial Linear Corridors on Wildlife", in R. van der Ree, D.J. Smith and C. Grilo, (eds.), *Handbook of Road Ecology*, Chapter 27, p. 228, [doi:10.1002/9781118568170.ch27](https://doi.org/10.1002/9781118568170.ch27).

mitigate the growing danger ILCs pose to biodiversity and the environment worldwide. They suggest that integrated planning should be used to limit the overall number of lines built and to ensure that ILCs pass through less biologically sensitive regions. This method, they say, has many challenges, but it is simpler than attempting to lessen all the effects after ILCs have been built.⁶⁵



Figure 6-1: Pylons crossing a Limpopo section inside northern DGR. By permission of photographer, Catherine Prinsloo, on 2020-06-16.

Properties fenced out of DGR include various farms, mills, and other businesses. This could be described as an example of negative negotiable criteria. On the other hand, an example of a negotiated positive inclusion to DGR was that of the existing provincial and protected Ditholo Nature Reserve now included in DGR. Another area eyed for possible inclusion and under continual negotiations is Bobbejaansberg conservancy to the immediate south of DGR, which, should it ever be included, would add an aesthetically attractive mountain topography – something currently lacking in DGR.⁶⁶ Major non-negotiable linear barriers included the N1 and the R573 (Moloto Road). Underpasses to allow animal movement and to facilitate inclusion potential were

⁶⁵ A.D.M. Latham & S.A. Boutin, “Impacts of Utility and Other Industrial Linear Corridors on Wildlife”, in R. van der Ree, *et al.* (eds.), *Handbook of Road Ecology*, Chapter 27, p. 234.

⁶⁶ The importance of Bobbejaansberg Conservancy as a potential DGR inclusion is discussed briefly in Chapter Nine.

considered impractical and not cost effective.⁶⁷ Although these have been tried and tested around the world, they usually require ingenious engineering strategies and can be expensive.

Underpasses are not unusual in the United States and the Global North. Since 2000, Arizona alone has constructed more than 20 corridors, including 17 underpasses, supplemented with funnel fencing resulting in a 90% decrease in wildlife-related freeway accidents in a part of central Arizona where elk migrate.⁶⁸ There are many other examples from around the globe and also in Africa, one such being the Mount Kenya elephant corridor. Here, a 14 km long culvert was built to enable elephants to migrate between the Ngare Ndare Forest Reserve and the Mount Kenya National Reserve, a historic route for them. Funnel fencing channels elephants towards the underpass.⁶⁹ While it is not practically impossible to expand DGR by connecting available land in this manner, the costs and logistics are currently beyond South Africa's reach. Land that could not be considered for inclusion, even if it had ecological and tourism value, were sections of military bases in active use or essential for operations. Other areas which did not require negotiation as they would automatically be excluded were all formal and informal settlements.⁷⁰

The Master Plan researchers envisaged cases where an area might be eminently suitable for inclusion in DGR save for a concentration of buildings or structures being present. In such a case, it was proposed that the specific structures either be fenced off or, if assessed to be cost effective, relocated outside DGR. Two examples of large, previously existing structures that remained safely fenced off in DGR are Mphilo Milling, and Klipdrift Primary School both visible from the Rust de Winter tarred road dividing DGR into its north and south sections.

One landowner who has a substantial tourist facility in which he invested heavily, recalled that there were nearly 200 individual landowners, most of whom had an average piece of land of about 21 ha who were in a position to include their properties. He explained that originally the small plots were part of larger farms which were subdivided in 1966, a date confirmed by a land surveyor he had contracted. Commenting on DGR's current structure, he likened it to a residential lifestyle

⁶⁷ RSA, GPG, GDACEL, R. Collinson, *et al.*, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, pp. 10-15.

⁶⁸ National Geographic Education, "Wildlife crossings, 20 crossings bring huge drop in animal-related accidents", updated 2023- 05-09, <https://education.nationalgeographic.org/resource/wildlife-crossings/>, accessed 2023-10-13.

⁶⁹ O. Rose-Innes, "Elephant Tunnels, Possum Bridges", *News 24*, 2012-07-12, <https://www.news24.com/life/archive/elephant-tunnels-possum-bridges-20120721>, accessed 2023-10-13.

⁷⁰ RSA, GPG, GDACEL, R. Collinson, *et al.*, "Development of Strategies and Systems to Support the Implementation of Dinokeng. Dinokeng Integrated Tourism Development Framework Volume B – Dinokeng Game Reserve Development Framework", 2001/12, p. 13.

estate where everyone had put their small pieces of land into one pot. However, not everyone has included their land and some landowners have decided to remain fenced out on their island properties. In the same interview, the landowner described DGR's origins as being a "start-stop, start-stop thing", hinting that some of the delay could be attributed to disagreements between the Limpopo Government and the GPG jockeying for the lion's share of control over DGR. Nevertheless, he was optimistic about DGR's future believing that in time land would be added through natural succession. This natural progression would occur, he argued, as people died, needed to sell of necessity, or grew too old to live in a remote area. His final observation was that if the landowners could sort out their differences and individual agendas the reserve's future prospects were promising, and expansion would take place.⁷¹

6.8 Concluding remarks

This chapter as well as Chapters Four and Five provide considerable evidence that consultation over DGR's development was broad and inclusive. A clear link has been established between the work done by government conservationists in the mid to late 1990s and the development of DGR as a NEGI and later as a Blue IQ project. The idea of collaborative reserves was coming to the fore when the old Transvaal Provincial Administration Directorate Nature and Environmental Conservation was working on collaborative projects in the north of the country such as Atherstone and Vhembe Nature Reserves. Swart has confirmed that that was where the idea for DGR was born. Important work done in the field of Public Administration by van Rooyen outlined difficulties and uncertainties about the model that DGR stakeholders should ultimately develop. He discussed different types of public-private partnerships and established that DGR's form was not yet defined by 2005, however, it functioned as a public-private partnership and is generally considered as one today.

Perhaps there will always be those who felt they were not satisfactorily informed about or included in DGR's negotiations as to the final form of the model. Nevertheless, the partnership is functioning well and attracting tourists to its many exciting offerings. The DGR management is proactively fund raising based on the use of its natural resources by selling meat products, wood, and other products as well as raising funds through ticket sales to watch rhino collaring, for example, and selling permits for self-drives.

Firoz Cachalia, Member of the Executive Council for Economic Development, in a message in 2009, expressed his concern about the delay in the official opening of DGR. He attributed this to

⁷¹ LSPC, SOA18, Anonymous, Commercial landowners, Dinokeng Game Reserve, 2017-04-18.

the possibility of “... inadequate consultation with communities and stakeholders”.⁷² Yet his observation does not accord with the “Dinokeng Africa in One Day” report for 2009/2010, which stated that stakeholders in and around the Dinokeng Project areas “... are continuously informed, consulted and involved in shaping the development of the projects”.⁷³ To ensure that consultation was continual and inclusive, the Dinokeng “Africa in one day” project had a stakeholder engagement framework in place. Information was disseminated through monthly media releases and newsletters; stakeholder meetings, both general and specific; and public information meetings. The report recorded that three stakeholder engagement meetings took place in the Dinokeng Project area in 2009/2010 and stated that there was a symbiotic relationship between Dinokeng and its various partners in the public and private sectors.⁷⁴

Finally, DGR is a unique concept as no model can be the same as another. Private landowners agree of their own free will to include their land or not to include it and everyone retains their title deeds. All participants are free to develop their own products in accordance with the reserve’s rules. Government invests in animals and infrastructure to encourage and stimulate economic development and job creation through ecotourism. Government also contributes land where it is feasible to do. There were also many difficulties associated with fencing island properties out, and challenges of overcoming local community fears over the Big 5. This was one of the reasons that protests led to fencing being pulled down (not a logical protest action one would think considering the cause of the protests). Eventually an agreement was reached that saw the building of an expensive wall in addition to a fence at the Tau entrance to DGR to give the community the sense that the wall would be safer than just a game fence.⁷⁵

The reasons for DGR’s development were primarily socio-economic based on conservation and ecotourism. However, it is this researcher’s view that while game reserves may be wonderful places for tourists to enjoy, they should also be harnessed as natural field laboratories in the search for and dissemination of environmental knowledge. It is to the intellectual pursuit for knowledge that the following chapter turns as it reveals the considerable research underway, and that already achieved, in DGR’s short history.

⁷² RSA, GPG, GDED, LSPC, Jimmy Brümmer Archive (JBA), The Dinokeng Game Reserve Project, “Dinokeng Africa in One Day”, Annual Report 2009/2010, p. 10.

⁷³ RSA, GPG, GDED, LSPC, JBA, The Dinokeng Game Reserve Project “Dinokeng Africa in One Day”, Annual Report 2009/2010, p. 10.

⁷⁴ RSA, GPG, GDED, LSPC, JBA, The Dinokeng Game Reserve Project “Dinokeng Africa in One Day”, Annual Report 2009/2010, p. 10.

⁷⁵ CNBC Africa, “Growing Tourism in Dinokeng Game Reserve”, *Latitude*, 2013-06-20, https://www.youtube.com/watch?v=LV9buNPR_RS, accessed 2023-05-11.

CHAPTER SEVEN

DINOKENG GAME RESERVE'S POTENTIAL CONTRIBUTION TO GLOBAL CONSERVATION KNOWLEDGE

7.1 Introduction

This chapter examines the extent to which Dinokeng Game Reserve (DGR) has become a significant research hub for environmental studies, particularly in the area of indigenous knowledge, flora and fauna biodiversity, and human-wildlife interaction. DGR, a young game reserve with a conservation history of 25 years, opened in 2011, which is just over a decade ago. Yet, in a short space of time, much has been accomplished by way of knowledge accumulation and distribution.

The restoration required in DGR results from over a century of land abuse whether from prolific hunting, or from mining, quarrying, or excessive agriculture. This chapter includes an examination of scientific research on the adaptation of relocated animals to DGR, focusing on the successes, challenges, and benefits of reintroducing endemic species, while highlighting the existing research on animals in DGR. Also discussed is the ongoing work on alien plant eradication and soil rejuvenation to mitigate negative impacts of agricultural overuse. In addition, the value of collective knowledge and its transferability to enhance eco-health, receives attention.

The reintroduction of species in the DGR has been remarkable, including the successful arrival of a breeding pair of martial eagles (*Polemaetus bellicosus*) several years ago. This chapter examines DGR's achievements and potential future as a regional and global environmental research node. It discusses the value of environmental knowledge and research, regional research in flora and fauna diversity, human-wildlife interactions, ecological restoration, museum and educational development, conservation, and indigenous knowledge use. Future research opportunities are considered, and DGR's global conservation reach is assessed to provide a regional to global view.

7.2 Knowing what environmental knowledge is, and offering some future thoughts

Regarding the physical world, science as knowledge is important in identifying threats to the environment and supporting the development of effective policies. As stated by the International Institute for Sustainable Development: "Effective environmental policy requires facts derived from science as well as principles and goals derived from policy analysis". The provision of more scientific information, however, only becomes possible when there is a functional science-policy confluence allowing for negotiation and mediation. This must take place "...

between science and policy so that the evidence scientists provide is understandable to policymakers and other stakeholders”.¹

The term “knowledge” is a complex one, and the formal theory of knowledge can be categorised as a branch of philosophy known as epistemology.² The complexity and broad-reach of the term becomes apparent in The *Merriam-Webster Dictionary* definition of knowledge. It is, for example, a “... condition of knowing something with familiarity gained through experience or association”; “... understanding of a science, art, or technique”; and “... the sum of what is known: the body of truth, information, and principles acquired by humankind”.³

Shapere sees scientific research as a means of finding improved ways to think and talk about the world, and to better understand the relations between objects under discussion. This, he cautioned, will not always be easy when these objects and relations are little understood, in which case, researchers “... may have to rely on ill-grounded hypotheses, obtained, sometimes, from what are judged, then or later, to be extraneous considerations”. He adds that beliefs that prove to be successful and free of reasons to doubt their validity, gradually contribute towards knowledge as they become “... more autonomous, more self-generating”. The reason by which sciences progress, he concludes, then “... becomes more able to generate problems, lines of research, hypotheses, and so forth, from its own structure”.⁴

Scientific research requires observation. Jacquette noted that science depended on data collection which we realise through observing the natural world. The process, Jacquette continues, requires gathering of information about various phenomena and then systematising the information to formulate theories to explain and predict events.⁵ Relating this to game reserves, it is worth paying attention to the views of the late Dr S.C.J. Joubert who had, in his time, been Executive Director of the Kruger National Park (KNP). Joubert, himself a researcher and expert on the savanna-dwelling roan antelope (*Hippotragus equinus*), spoke of humans as an integral part of the environment.

To appreciate the environment, humans need, he said, “... to know more about the constituent parts of nature and the intricacies of the interdependence and interaction between them”. Further,

¹ International Institute for Sustainable Development (IISD), “The Knowledge Management for Biodiversity Initiative”, Science, 2022-12-10, n.p., <https://enb.iisd.org/topics/science>, accessed 2023-07-02.

² *Encyclopaedia Britannica*, epistemology, <https://www.britannica.com/topic/epistemology>, accessed 2023-07-03.

³ Merriam-Webster Dictionary definition of knowledge: <https://www.merriam-webster.com/dictionary/knowledge>, accessed 2022-11-09.

⁴ D. Shapere, “Reason, Reference, and the Quest for Knowledge”, *Philosophy of Science*, 1982, 49(1), p. 13.

⁵ D. Jacquette, “Theory and Observation in the Philosophy of Science”, *History of Philosophy & Logical Analysis*, 7(1), 2004, p. 177, <https://doi.org/10.30965/26664275-00701011>.

to understand, respect, and appreciate these constituent parts, “knowledge” was the key. These virtues, he argued, were “... the cornerstones of an environmental ethic – the sacred code that dictates attitudes, decision making and utilization”.⁶ Joubert viewed national parks as educational institutions and Kruger Park as a platform for environmental education. He emphasised the significance of scientific research within game reserves and its value. His observations on KNP and DGR can be applied to the history of DGR. However, to be truly educational, knowledge gained from game reserves must be disseminated globally.

Knowledge is an intangible asset that can become an enterprise's most valuable asset if managed correctly. Within DGR, knowledge has been disseminated, for example, through astronomy courses at Butjani Lodge, on offer since 2007. The lodge organised successful astronomy shows for guests and held two-day training sessions to empower hospitality staff. This approach was implemented to capitalise on the pollution- and light-free skies in winter months. The astronomy courses were negatively impacted by the Covid-19 pandemic's disruption to tourism activities.

The training was offered by astronomer, Terry Leaver, who said of his presentations:⁷

My aim is to introduce as many interested folks as possible to the exciting vistas provided by our Universe, and the scientific achievements of women and men in the Cosmos. By showing my clients easy methods of mastering a knowledge of the Constellations, Stars and Planets, they are rapidly able to become empowered to continue learning ever more about what they see in their own back yards, and whenever they travel into areas with good viewing conditions.

Leaver also stressed the importance of being able to “... follow the movements of galactic and solar bodies so that they can impart this knowledge to guests”. His midweek staff courses included an afternoon, evening, and early morning session followed up with practical sessions on one evening a month after the first sessions.⁸ The DGRMA has since produced an informative magazine, which, from 2023, has been issued in a sophisticated online format and is already reporting on research in DGR at a comprehensible level for lay people. The sort of work that Leaver has done in DGR on star gazing is likely to be less spatially and temporally bound if disseminated in due course through this informative DGR magazine and will reach a wider audience. The editorial team appear so far to be very willing to showcase work done in DGR.

⁶ Kruger National Park and Jacana Education, *Kruger National Park: Make the most of Kruger* (Jacana Education, Johannesburg, 1996), Foreword.

⁷ T. Leaver, Terry Leaver Astronomy, <http://www.astronomy-sa.com/>, accessed 2022-11-21.

⁸ Laurence Shee Personal Collection (LSPC), DGR, “Astronomy @ Butjani”, *Dinokeng Big 5 News*, Edition 2, October 2007, p. 4.

The concept of knowledge sharing is not new. The publication *Information Systems and the Environment*, for example, resulted from a July 1997 knowledge workshop conducted in partnership between the National Academy of Engineering and the H. John Heinz III Center for Science, Economics and the Environment in the United States of America.⁹ Following the conference, Richards and Kabjian wrote, in reference to any professional environment, that the speed with which information technology was growing would lead to the development of tools that would support knowledge management and sharing. They added: “The effective management of environmentally related information is brought about not by making available large quantities of information, but by delivering information that is appropriate for the decision-making tasks at hand”.¹⁰

More recently, attention has turned to the role of artificial intelligence (AI) in tackling environmental challenges. David Jensen, coordinator of the United Nations Environment Program's (UNEP's) Digital Transformation sub-programme said of AI that it “... refers to systems or machines that perform tasks that typically require human intelligence, and can iteratively improve themselves over time, based on the information they collect”. Future research will rely extensively on fast developing AI technology, which will increasingly make environmental information available to a global audience. For example, leveraging off AI's abilities to “... analyze complex, multifaceted datasets”, UNEP's World Environment Situation Room (WESR), in co-operation with partners, will curate, aggregate, and visualise “... the best available earth observation and sensor data”. This will “... inform near real-time analysis and future predictions on multiple factors, including CO2 atmospheric concentration, changes in glacier mass and sea level rise”.¹¹ While DGR management uses technology extensively for monitoring fences and poaching, as well as other tasks, it is not yet ready to discuss the use, or potential use, of AI in everyday running of the reserve.¹² One can surmise that the use of AI in combatting poaching may anyway have sensitive security implications.

Hu *et al.* suggest that scientific research can aid in conserving threatened species by enhancing knowledge about species' biology, ecology, and life history; identifying threats; and promoting awareness to the public. However, they caution that research should be linked to practical

⁹ D.J. Richards & M.R. Kabjian, “Improving Environmental Knowledge Sharing”, in D.J. Richards, B.R. Allenby & W.D. Compton (eds.), *Information Systems and the Environment*, (National Academy of Engineering, National Academy Press, Washington D.C., 2001), pp. 59-80, <https://doi.org/10.17226/6322>.

¹⁰ D.J. Richards & M.R. Kabjian, “Improving Environmental Knowledge Sharing”, in D.J. Richards, *et al.* (eds.), *Information Systems and the Environment*, (National Academy Press, Washington D.C., 2001), p. 78.

¹¹ United Nations Environment Programme, News, Stories and Speeches, “How Artificial Intelligence is Helping Tackle Environmental Challenges”, 2022-11-7, <https://www.unep.org/news-and-stories/story/how-artificial-intelligence-helping-tackle-environmental-challenges>, accessed 2023-07-10.

¹² LSPC, H. Streicher, Email, Chairman DGR Management Association (DGRMA)/L. Shee, 2022-12-02.

conservation interventions, not solely focused on pure research. This will help identify the most suitable conservation approach.¹³ This does not mean that research is restricted to sciences. It may also be conducted on socio-economic issues, or on traditional knowledge, or any other area of study that might be of value to ecosystem management. Formal scientific knowledge is only one information source. Decision-making, for example, can benefit additionally from other sources such as place-based knowledge, practitioners' knowledge, and traditional or indigenous knowledge.¹⁴

Game reserve management requires advanced technical skills, which are often limited in developing countries due to high costs or lack of essential training. Nevertheless, capacity building and institutional reforms are crucial for integrated ecosystem management responses.¹⁵ What is being researched at any moment over time holds clues as to what issues prevailed at the time. Research on shrinking wildlife habitats and human-wildlife conflict (HWC) can help alleviate conflicts between humans and animals. Future researchers will use AI techniques to enhance environmental knowledge and application, utilising research papers, literature review articles, and local ecological knowledge (LEK). This will enable comparisons and advancement of environmental knowledge across various disciplines.

7.3 DGR as an environmental research node – a past to present reflection

With rapid advances in technology, particularly in AI, research nodes will increasingly be connected by paths and links allowing for collaborative scientific research networking. In this thesis, the researcher uses the term “node” as a convenient physical term for a location where scientific activity occurs, where it is stored, and from where it is disseminated.

7.3.1 DGR on the regional map: Research, knowledge storage, and education projects

According to Gibbons, as research has grown in prominence it has tended to shift from being “... curiosity-driven and funded out of general budgets which higher education is free to spend as it likes” to more “... specific programmes funded by external agencies for defined purposes”. He argued that this research trend is more focused on problem-solving.¹⁶ As DGR is located near

¹³ Y. Hu, Z. Luo, C.A. Chapman, S.L. Pimm, S.T. Turvey, M.J. Lawes, C.A. Peres, T. Ming Lee & P. Fan, “Regional Scientific Research Benefits Threatened-Species Conservation”, *National Science Review* 6(6), p. 1, 2019, [doi:10.1093/nsr/nwz090](https://doi.org/10.1093/nsr/nwz090).

¹⁴ W.V. Reid, H.A. Mooney, A. Cropper, D. Capistrano, S.R. Carpenter, K. Chopra, P. Dasgupta, T. Dietz, A.K. Duraiappah, R. Hassan, R. Kasperson, R. Leemans, R.M. May, A.J. McMichael, P. Pingali, C. Samper, R. Scholes, R.J. Watson, A.H. Zakri, Z. Shidong, N.J. Ash, E. Bennett, P. Kumar, M.J. Lee, C. Raudsepp-Hearne, H. Simons, J. Thonell & M.B. Zurek, *Ecosystems and Human Well-Being - Synthesis: A Report of the Millennium Ecosystem Assessment* (Island Press, Washington, DC., 2005), p. 98.

¹⁵ W.V. Reid et al., *Ecosystems and Human Well-Being – Synthesis ...*, p. 98.

¹⁶ M. Gibbons, *Higher Education Relevance in the 21st Century*, (World Bank, Washington, DC, October 1998), p. 15, <https://documents1.worldbank.org/curated/en/437341468782126524/pdf/multi-page.pdf>, accessed 2022-11-24.

some of South Africa's major research universities, it attracts top researchers and supports groundbreaking science. Its importance is expected to grow, with community members, wildlife managers, and tourism-product owners contributing to knowledge. In September 2022, DGR launched its Conservation Centre at Ndlovu Gate (Figure 7-1), to promote research and education.



Figure 7-1: DGR Museum and Conservation Centre. By permission of photographer, Sarel Naude, 2022-10-31.

The DGR management has identified the need to engage with the 10 local schools and the community to provide conservation training. The conservation centre was established for this purpose as well as to cater for training requirements, host awareness events and talks for landowners, and assist Dinokeng staff with on-the-job training. It has a conference room to support such activities (Figure 7-2). The DGR management credited the following sponsors for their support: Inqaba BioTec, Ster-Kinekor HQ, and Allium.¹⁷ Education centres such as the one at DGR go some way towards reducing barriers to the free flow of knowledge.

The DGR Conservation Centre is well positioned to encourage the transfer of valuable knowledge between groups. However, knowledge transference is complex and small museums like the one in DGR (Figure 7-3) lack the necessary resources for transfer to happen effectively. Multifunctional teams need to encourage the flow of knowledge from experts to practitioners and other interested parties. John Gordon, known for his expertise on knowledge-management, and knowledge maps and structures, recommended that high-level knowledge, when captured, should be merged with other knowledge, and then shared. In any enterprise, procedures should

¹⁷ LSPC, S. Naude, Email, DGR Administration Manager, "Short story on the DGR Conservation Centre"/L. Shee, 2022-10-12.

be put in place to "... identify how knowledge can be codified as part of every professional function so that it is possible for the wider organisation to draw upon it and use it".¹⁸



Figure 7-2: DGR Museum and Conservation Centre conference room, Ndlovu Gate. By permission of photographer, Sarel Naude, 2022-10-31.



Figure 7-3: DGR Museum display, Ndlovu Gate. By permission of photographer, Sarel Naude, 2022-10-31.

As a conservation-focused game reserve, DGR needs to combine basic or general knowledge, that is, a broad knowledge of a subject with higher knowledge. The latter requires drawing from a

¹⁸ J.L. Gordon, "Knowledge Management Guidelines", *Applied Knowledge Research Institute (AKRI)*, text is from a booklet compiled in 1998 by Dr John L. Gordon and Colin Smith, Principal Lecturer, School of Engineering, Liverpool John Moores University, n.p., <http://akri.org/info/knowledge/knowledge-management.html>, accessed 2022/11/16.

variety of scientific subjects, looking at different questions, and considering a range of solutions in a creative, academic way. The museum at Ndlovu Gate needs resources to improve its displays and convey more information. Mather & Co's, K. Mulvey, offers general suggestions. These include accessibility, concise labels, and an aesthetically appealing section for memorable photos, which could modernise the museum and draw in visitors. Museums should be accessible to all, accommodating a variety of backgrounds, interests, and disabilities. Museum labels should be concise and informative, and visitors should be able to share their views, memories, and stories. Museum stories should inspire curiosity and elicit questions. By implementing these suggestions, DGR's museum could attract more visitors and improve its overall visitor experience.¹⁹

The establishment of a conservation centre and museum at DGR's Ndlovu Gate is a promising move for preserving and storing historical information. However, it's crucial to consider the resources needed for setting up and managing the museum over time to ensure it remains a good visitor experience. As technological trends change, so do the displays need to keep abreast. As seen at the Cradle of Humankind's Maropeng Centre recently, several interactive displays were either outdated or not working, indicating a lack of resources, maintenance, and management, which created a poor visitor experience.

Gordon has warned of the risk of knowledge loss and stated that because the creation of gaps in knowledge results from many possible causes, management interventions are needed to make certain that the transfer of knowledge takes place through information technology and formal knowledge acquisition techniques.²⁰ An important step taken by DGR in this direction is the publication of the attractive and informative online magazine mentioned in Section 7.2 that has immediately become a receptacle of knowledge and information.

Knowledge management is crucial to prevent the loss of knowledge, which can occur in various ways. Expert overload can lead to inability to respond to all requests, while exclusion may be intentional to retain personal power. Knowledge can also be lost if left dormant, risking obsolescence. Other potential sources of knowledge loss include personnel retirement, redundancy, resignation, or promotion. Effective knowledge management is essential to ensure the preservation and transfer of valuable information within an organization.²¹ The high turnover of staff in provincial governments has led to knowledge loss in the field of Dinokeng research.

¹⁹ K. Mulvey, Mather & Co, 2021-10-13, <https://www.linkedin.com/pulse/mather-co-discuss-key-elements-modern-museum-kelsey-mulvey>, accessed 2023-10-14.

²⁰ J.L Gordon, "Knowledge Management Guidelines", AKRI, n.p., <http://akri.org/info/knowledge/knowledge-management.html>, accessed 2022/11/16.

²¹ J.L Gordon, "Knowledge Management Guidelines", AKRI, n.p., <http://akri.org/info/knowledge/knowledge-management.html>, accessed 2022/11/16.

Retired officials have taken significant institutional knowledge with them. Files left behind may not have been professionally archived, which can result in the loss of knowledge from role-players who were once active in developing Dinokeng 20 years ago. To prevent knowledge loss, it is crucial to conduct knowledge transfer and record existing knowledge in environmental history studies to prevent irretrievable loss.

In November 2022, Mongena Lodge management signed a long-term agreement with investors to establish a state-of-the-art wildlife hospital in the north of DGR. The hospital will serve as an active research centre, focusing on the research and production of snake antivenom, a highly sought-after species. This development aims to safeguard scientific knowledge in the game reserve.²²

7.3.2 DGR in the context of global ecosystem assessment

As discussions around DGR's potential formation took place throughout the early 2000s, discussions focusing on the world's environmental issues were underway globally. In 2000, the United Nations Secretary-General, Kofi Annan, called for the Millennium Ecosystem Assessment (MA). This was conducted between 2001 and 2005 under the auspices of the United Nations. Its objective was to "... assess the consequences of ecosystem change for human well-being and to establish the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contribution to human well-being".²³ This statement adds credence to the need for scientific research to plan for conservation and ecosystem management.

The MA aimed to enhance existing knowledge by combining prior knowledge from various sources, including the private sector, practitioners, local communities, and indigenous peoples. It synthesised information from scientific literature, peer-reviewed datasets, and models, requiring experts from various fields to provide reliable input on policy-relevant questions.²⁴ The MA's intended information was converted into a form useful for environmental policy formulation, applicable to nature reserves in general. Existing or added knowledge from DGR research is crucial for guiding conservation management policy. Although the MA's examination of ecosystems was detailed, its full content extends beyond the scope of this thesis. Its insights on knowledge, ecosystems affecting human well-being, and poverty alleviation align with this Dinokeng study.

Quality of life, socio-economic needs, a healthy life, security, and employment are all issues related to the very reasons for DGR's formation. As stated in the MA, human beings "... are fully

²² LSPC, SOA29, E. Toerien, 2022-12-01.

²³ W.V. Reid *et al.*, *Ecosystems and Human Well-Being – Synthesis ...*, p. ii.

²⁴ W.V. Reid *et al.*, *Ecosystems and Human Well-Being – Synthesis ...*, p. v.

dependent on Earth's ecosystems and the services that they provide, such as food, clean water, disease regulation, climate regulation, spiritual fulfilment, and aesthetic enjoyment".²⁵ The desire for aesthetically pleasing landscapes increases with urbanisation and with a decline in areas to satisfy that desire. Developers of DGR understood the advantage of the game reserve's proximity to South Africa's most densely populated metropolitan area. With the reserve's attractive bushveld, abundant wildlife and range of affordable accommodation options, it offered an appealing getaway for city dwellers. This location presents an ideal opportunity to rewild the area for ecotourism, conservation, and economic upliftment in the Gauteng Province.

Ecosystems are crucial for employment and economic activity, with services like conservation and ecotourism dependent on DGR. The DGR project encourages participants to create tourism products that offer employment and recreational opportunities for local communities. This addresses both economic development and conservation responsibilities, as degrading these services could negatively impact local communities' welfare. It is often difficult to establish the extent to which ecosystem services affect human well-being, but evidence shows that "... the harmful effects of the degradation of ecosystem services on livelihoods, health, and local and national economies are substantial".²⁶ Interventions, including rewilding, towards environmental maintenance and game protections are thus important as preservation measures.

7.4 General research on species restored to DGR

7.4.1 Restoration science gains momentum

Regarding restoration, one needs also to include the reintroduction of species historically endemic to the Dinokeng ecosystem. Gaining momentum in the latter half of the 20th century, restoration ecology is now established as a science and studied in many research institutions. International societies and journals, such as the Society for Ecological Restoration (est. 1988) and its journals *Ecological Restoration* (est. 1981) and *Restoration Ecology* (est. 1993), are dedicated to furthering knowledge of restoration science and practice. Starting in the 1990s, the number of books and journal articles on ecological restoration has risen exponentially. There has been a strong push to formalise the science and practice of restoration, linking it explicitly with ecological theories. In fact, ecological restoration can be used as a practical test of our ecological understanding. Conversely, failures in ecological restoration can reveal gaps in our understanding of ecology.

As a new game reserve reintroducing endemic species, DGR offers an ideal landscape for studying settling patterns of re-introduced wild animals. Dr Mark Keith, an Associate Professor at

²⁵ W.V. Reid *et al.*, *Ecosystems and Human Well-Being – Synthesis ...*, p. 44.

²⁶ W.V. Reid *et al.*, *Ecosystems and Human Well-Being – Synthesis ...*, p. 49.

the University of Pretoria's (Up's) Department of Natural and Agricultural Sciences, has been instrumental in supervising research projects in DGR, particularly on mammal responses to relocation. Keith's research interests include understanding how species and communities respond to different land-use practices, and his work at the university's Mammal Research Institute focuses on this area.²⁷ As will be discussed below, the University of the Witwatersrand (Wits) and other higher learning institutions have discovered the attraction of DGR as a convenient and fruitful area for field research.

7.4.2 Black Rhino Range Expansion Project

The DGR has both species of South African rhino, the square-lipped grazer, the white rhino (*Ceratotherium simum*), and the hook-lipped browser, the black rhino (*Diceros bicornis*). Both are threatened through the illegal trade of animal commodities, particularly through the rhino horn trade. While the white rhino was introduced to DGR before the black rhino, the current small, but viable black rhino population is held to maintain genetic diversity. Their management is conducted in close co-operation with the Black Rhino Range Expansion Project (BRREP).²⁸

The DGR management officially announced in 2018 that it was proud to have been selected as the 11th BRREP site in 2017. The BRREP is a partnership between Ezemvelo KwaZulu-Natal Wildlife and the World Wide Fund for Nature (WWF), which aims to translocate "... founder populations of black rhino from the saturated provincial and national parks to private and community owned reserves with adequate security for the protection of rhino therefore expanding their range and kick-starting population growth".²⁹ Resulting from this partnership, black rhino were successfully reintroduced to DGR in October 2017. In 2018, two new calves were born, one in February and one in June. Unfortunately, one calf was lost to a predator. The rhinos were collared for monitoring purposes. The DGR management was grateful to BRREP's Jacques Flamand for sponsoring replacement collars, as well as to the DGR staff for their dedication to protecting the rhino on the ground.³⁰

During an interview with Etienne Toerien, he outlined the way in which founder rhino populations work. Toerien, representing DGR, first consulted Flamand on the possibility of introducing black rhinos. The BRREP introduced a founder population which remains their property for 25 years. Should these rhinos still be alive after 25 years, ownership goes to the host reserve and offspring are continually shared between DGR and BRREP. Initially, BRREP representatives visited DGR

²⁷ University of Pretoria Staff Profile: Associate Professor Mark Keith, <https://www.up.ac.za/mammal-research-institute/view/staffprofile/5522>, accessed 2024-02-19.

²⁸ DGR, "Conservation Success Stories, the Robust Rhinoceros", in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade* (HPH Publishing, Johannesburg, 2022), pp. 102-104.

²⁹ Dinokeng Game Reserve, "Black Rhino Range Expansion Project", 2018-11-27, <https://www.dinokengreserve.co.za/black-rhino-range-expansion-project-brrep/>, accessed 2022-11-28.

³⁰ Dinokeng Game Reserve, "Black Rhino Range ...", 2018-11-28.

to conduct a security and anti-poaching assessment as well as a vegetation evaluation to establish whether DGR could sustain and support a black rhino population Toerien suggested that if DGR acquires more northward expansion land, it could accommodate a larger BRREP black rhino population, as the quieter, densely vegetated northern part of DGR is best suited for this species. The first population settled in between 2017 and 2018.³¹

7.4.3 Cape (African) buffalo, *Syncerus caffer*

In January 2008, eleven disease-free buffalo were donated to Gameco, a public company in DGR. The Landowners Association Executive Committee approved fitting a radio tracking collar to the herd, involving experts, including the state veterinarian, to test for diseases like bovine tuberculosis, corridor disease, brucellosis, and foot and mouth diseases. Scientific data, including weight and age, was recorded, and a database was created for population monitoring. Each buffalo had a microchip implanted, enabling easy identification in case of reserve breakouts. Regular monitoring determined "... their movements around the reserve, habitat preferences, their breeding success and, very importantly, their safety".³² Research has been conducted on the spatial behaviour of the buffalo reintroduced to DGR. One report was that of Nkanyiso Cele. Cele, knowing that ungulate communities in Africa are determined by predator presence, and that research on post-release movement of translocated animals is limited, saw a research gap to fill.

As with lions and elephants, buffalo explore new habitats before settling, and as Cele points out, these movements provide animals with the chance to test environment quality and predator presence.³³ Emmett and Patrick have referred to such buffalo as "pathfinders", which are not necessarily dominant buffalo, but natural leaders of a herd. These authors also make the point that as buffalo are "bulk grazers", they are not particularly selective feeders. What they do while feeding is "... trample pastures and reduce long, less palatable grasslands to a height and quality (when it re-shoots) more easily utilised by zebra and subsequently wildebeest", a process known as "succession grazing".³⁴ Results from Cele's DGR home range analysis revealed few variations in habitat selection and home range size between the two male buffalo. The presence of predators significantly influenced the buffalo's habitat selection. Both male buffalo tended to avoid built-up areas and showed a tendency to move further away from water sources in the dry season owing to lions favouring these areas. Cele suggests that factors such as buffalo release site, vegetation health, and proximity to water sources and predators should be considered to maximise

³¹ LSPC, SOA29, E. Toerien, 2022-12-01.

³² LSPC, DGRMA, J. Harding, *Dinokeng Big 5 News*, Edition 3, January 2008, p. 1.

³³ N. Cele, "Spatial Behaviour of Reintroduced Male Buffalo and their Response to Predators", School of Geography, Archaeology & Environmental Studies, University of the Witwatersrand, 2019-05-29, pp. 10-11.

³⁴ M. Emmett & S. Patrick, *Game Ranger in Your Backpack* (Briza Publications, Pretoria, 2013), p. 30.

reintroduction success and minimise prey-predator encounters, which could influence buffalo ranging and habitat selection behaviour.³⁵

Cele's research on buffalo post-release movement was hindered by limited funding, resulting in possible inaccuracies in the use of high, multitemporal satellite imagery. The spatial resolution of the imagery made it difficult to distinguish between grass and tree areas, especially when observing grazers in dense vegetation. This limitation may have impacted the accuracy of his data analysis.³⁶ A final observation about Cele's work is that it was conducted within Wits University's Department of Geography, Archaeology and Environmental Studies which evidences earlier comments in this chapter about the trend towards inter-disciplinary and co-operative research.



Figure 7-4: Buffalo (*Syncerus caffer*) in DGR. By permission is the title of photographer, Catherine Prinsloo, on 2022-10-08.

7.4.4 A zebra's life is not stress-free

Roy Campbell's friend, poet Edith Sitwell, said of him that his poems had "... a giant's strength and power of movement" and an extraordinarily "... sensuous beauty".³⁷ Campbell used these ascribed traits in his poem, "The Zebras," to depict a beautiful herd of zebras on African plains.

³⁵ N. Cele, "Spatial Behaviour of Reintroduced Male Buffalo ...", School of Geography, Archaeology & Environmental Studies, University of the Witwatersrand, 2019-05-29, p. 42.

³⁶ N. Cele, "Spatial Behaviour of Reintroduced Male Buffalo ...", School of Geography, Archaeology & Environmental Studies, University of the Witwatersrand, 2019-05-29, pp. 41-42.

³⁷ E. Sitwell, *Taken Care Of* (New York: Atheneum, 1965), p. 192.

The scene is idyllic, where stallions “With dove-like voices call the distant fillies”.³⁸ Contrary to the imagery in this poem portraying zebras’ lives as tranquil, Elize Fourie has studied stress levels of zebras using DGR as her field laboratory. In April 2010, *Dinokeng Big Five Game Reserve News* reported that Elize Fourie (Department of Zoology and Entomology, UP) was to start working towards an MSc Zoology research project on the influence of predators on physiological, hormonal, and behavioural indicators of stress in plains zebra (*Equus burchelli*). Her thesis was supervised by Professor Elissa Cameron from the Mammal Research Institute at UP and co-supervised by Dr Andre Gaswindt at Onderstepoort.³⁹

As there were no predators in DGR at the start of her project, she assumed zebra would be regulated by resources and disease, and when predators were introduced, she would detect an increase in vigilance levels and changing behaviour patterns including higher stress levels. The impact of the threat of predation on zebra stress levels was to be determined by measuring glucocorticoid (hormone) levels in zebra living in the predator-free environment. She would then analyse the impact on these levels after predators were introduced. Differences in stress levels between seasons, sex, and reproduction status would also be monitored to identify stress-inducing factors other than predation. Working on zebra at Kwalata, Mongena, and Pride of Africa, Fourie started to identify groups by markings; number of individuals in the group; and presence of stallions, mares, and offspring. As already mentioned, zebra stress levels were monitored by measuring hormone levels, which were determined by biochemical analysis of their fresh faeces. Faecal samples collected shortly after defecation were stored and frozen. Before hormone-level analysis, steroid metabolites were extracted from the faeces by suspending a sample of faeces in methanol and then applying a specific immunoassay to the extract.⁴⁰

That Fourie’s research was underway prior to DGR’s official opening is an important indicator that the reserve was already being seen as a research resource. In July 2012, the year following DGR’s official opening, Fourie submitted her thesis, *Vigilance behaviour and its endocrine correlates in Plains zebra (Equus burchelli) living in a predator-free landscape*. This submission marked not only her own personal achievement but also another research project conducted within DGR. One of her findings was that individual vigilance could decrease in bigger herds, whereas group vigilance remained constant. This meant that lactating mothers were able to graze more freely over longer periods to reduce nutritional stress. Fourie also showed that bands with foals had lower levels of individual vigilance than bands without foals, possibly due to additional

³⁸ R. Campbell, *The Zebras*, sourced from *All Poetry*, available for educational purposes, <https://allpoetry.com/The-Zebras>, accessed 2023-10-08.

³⁹ LSPC, DGRMA, “Student from Pretoria University to conduct study on zebra in the Dinokeng Game Reserve”, *Dinokeng Big Five Game Reserve News*, Edition 11, January/February 2010, p. 2.

⁴⁰ LSPC, DGRMA, “Zebra study moving forward in the Dinokeng Game Reserve”, *Dinokeng Big Five Game Reserve News*, Edition 12, April 2010, p. 4.

nutritional stress during lactation.⁴¹ Notable in Fourie's acknowledgements was her gratitude to Lynn van Rooyen and the DGRMA for their support during her research. Such recognition adds to the argument that DGR is a research-friendly game reserve.

The layman might wonder what conservation value was identified in this study. Fourie's conclusion states that "... a reliable, non-invasive assay system as suitable for measuring glucocorticoid metabolites in plains zebra" was identified. Its practical value could be "... a valuable tool for monitoring the effect of gender-based and social factors on Faecal glucocorticoid metabolite FGM levels in this species". As a methodology for the transmission of conservation knowledge, she believed it could be "... applied to future studies on the effect of ecological and other social pressures, as well as conservation and management practices on the physiological welfare of plains zebra, one of Africa's most iconic species".⁴²

Further evidence of the co-operative nature of research in DGR is found in the acknowledgements in the article by Yiu *et al.*: "Predation risk effects on intense and routine vigilance of Burchell's zebra and blue wildebeest". The authors extended their gratitude for assistance to, among others, the University of Hong Kong Postgraduate Research Travel Award (illustrating an international research link), the Dinokeng Management Association for permission to conduct the research and allowing access to lion data, Kwalata Game Ranch, Mongena Game Lodge, Pride of Africa, and DGR landowners for their assistance in the field.⁴³ Yiu *et al.* were also involved in research on prey vigilance types, which they said had not been widely researched.

They maintained that prey vigilance increases to intensify awareness of predators; however, it comes at the cost of foraging. Yiu *et al.* identified two vigilance types: "... intense vigilance, when all feeding processes are ceased"; and "... routine vigilance, when animals continue chewing". The latter would indicate a lower foraging cost.⁴⁴ They discovered that different factors drove the intense and routine behaviour of two species of herbivores: "... zebra, a nonruminant with greater foraging time constraints, directing their response specifically to predation risk at the landscape scale" and "... wildebeest, a ruminant, responding to predation risk related to vegetation structure at the foraging area scale and relying more on herd protection". Yiu *et al.* concluded that both species demonstrated physiological flexibility in the time spent on the two vigilance types to limit foraging costs while at high risk of predation, and both species were able to remain intensely vigilant between seasons. It is possible, Yiu *et al.* maintain, that they resorted to "... other

⁴¹ C.E. Fourie, "Vigilance Behaviour and its Endocrine Correlates in Plains Zebra (*Equus burchelli*) Living in a Predator-Free Landscape", MSc. (Zoology), University of Pretoria, July 2012, p. iv.

⁴² C.E. Fourie, "Vigilance Behaviour ...", MSc. (Zoology), University of Pretoria, July 2012, p. 96.

⁴³ S.W. Yiu, M. Keith, L. Karczmarski & F. Parrini, "Predation Risk Effects on Intense and Routine Vigilance of Burchell's Zebra and Blue Wildebeest, *Animal Behaviour*, 173, 2021, p. 166.

⁴⁴ S.W. Yiu, *et al.*, "Predation Risk Effects ...", *Animal Behaviour*, 173, 2021, p. 159.

behavioural strategies to compensate for the higher foraging costs incurred during the dry season". Their study emphasised the significance of distinguishing between the vigilance types when deducing "... predation risk effects on prey behaviour and its foraging costs".⁴⁵

7.4.5 Python and puff adder studies in DGR

Professor Graham Alexander of the School of Animal, Plant and Environmental Sciences at Wits University has been involved with research on various snakes in the Hammanskraal area since 2000. In 2010, his focus was on the breeding habits and spatial ecology of Southern African pythons and puff adders. The main purpose of his research was to gather data for International Union for Conservation of Nature (IUCN) Conservation Assessments, the process used for red-listing threatened species. His team included postgraduate students. Pythons and puff adders on Kwalata were fitted with transmitters and data loggers and were tracked every second day. One python successfully incubated a clutch of eggs in January 2010, and 50 of the hatchlings were fitted with transponders so they could be identified if found again in future. Kwalata staff provided on-the-ground assistance.⁴⁶

By October 2010, Professor Alexander was tracking 23 snakes with logistical support from Kwalata. Assisted by postgraduate students, he found that puff adders spend most of their time on the surface, rarely going underground or under rocks. Towards the end of winter; however, they may enter termite holes, possibly to escape dry season fires. He found that, although, puff adders lie under grass or leaf litter, and are easy to step on accidentally, they will not necessarily strike, preferring that the danger might go away. Understanding what makes them strike might help us avoid being bitten. In DGR, puff adders mate during winter and males might travel a kilometre a day in search of mates. While on the move, they become vulnerable to predators. Another question to be studied was why do puff adders not feed much in winter.⁴⁷

Two years later, Alexander studied two telemetered pythons that had laid eggs and started incubating in the same aardvark burrow. He discovered that females did not leave immediately after hatching, remaining with the babies for at least 10 days. He used an infrared security camera to film their behaviour, and found that the mothers often emerged to bask to keep their body temperatures high, while the babies spent most of the day basking at the hole entrance. If they sensed danger, they would return to their mother's coils for their nights. One mother remained with her brood for nearly three weeks. Like crocodiles, Alexander had shown that pythons, too, could look after their young. He went on to implant many more transmitters in pythons and chipped

⁴⁵ S.W. Yiu, *et al.*, "Predation Risk Effects ...", *Animal Behaviour*, 173, 2021, p. 165.

⁴⁶ LSPC, DGRMA, "Pythons and puff adder studies in Dinokeng Game Reserve", *Dinokeng Big Five Game Reserve News*, Edition 12, April 2010, p. 4.

⁴⁷ LSPC, DGRMA, "Progress on the python and puff adder research in Dinokeng Game Reserve", *Dinokeng Game Reserve News*, Edition 14, October 2010, p. 8.

over 40, making his work the most comprehensive snake radio-telemetry project ever in Africa. Alexander's research on puff adders showed that these snakes grew quickly and experienced high predation rates with an adult having a 45% chance of being predated in a year. Again, the researchers expressed gratitude to Kwalata Lodge for their hospitality and assistance with their research.⁴⁸

Another researcher who conducted considerable work on snakes was French scientist, Dr Xavier Glaudas. Records of some of his work appear in YouTube videos, including a presentation at the 10th Anniversary Conference of the Gauteng Conservancy and Stewardship Association and National Conservancy and Stewardship Association of South Africa in September 2013.⁴⁹ His paper, entitled, "Portrait of an African killer: Food and Mating Activities in the Puff Adder (*Bitis arietans*)", was based on work conducted together with Professor Alexander. His research interests encompassed animal behavioural and evolutionary ecology. More specifically, his work on snakes in DGR focused on mating systems and reproduction, and predator-prey relationships and foraging. Glaudas tested his hypothesis that food intake affects a male's investment in mate-searching activities and reproductive success. He showed that male puff adders that are better nourished travel longer distances during the mating season to copulate with more females and father more offspring. Glaudas would capture snakes and send them back to Wits where a small transmitter would be surgically implanted in the specimen under anaesthetic, thereafter, allowing the snake to be tracked using radiotelemetry, which requires a receiver and antenna. Each transmitter has its own frequency. He kept track of two groups of his snakes for several months prior to their mating season. One group was regularly fed with mice while the other group relied on what they caught naturally.

To collect top class data, Glaudas spent several months tracking the two groups of snakes, firstly to quantify the distance travelled by fed and unfed snakes, and secondly, to keep track of the females that were located by the males. He also researched tongue-luring (lingual luring) in DGR, where he found it was a technique used by puff adders to attract frogs specifically.⁵⁰ He, together with Alexander, both funded by *National Geographic*, expanded upon the idea of luring and mimicry in an article entitled "New Puff Adder Behaviour Uncovered: it Uses Two ways to Entice its Prey". Involving nearly 5 000 hours of data collection on the foraging behaviour of puff adders in DGR, the study revealed that puff adders used two techniques to lure prey. Firstly, they extended their tongues (lingual luring), and secondly, waved their tails (caudal luring), to imitate

⁴⁸ LSPC, DGRMA, "Snake research in Dinokeng makes exciting new discoveries", *Dinokeng Game Reserve News*, Edition 15, 2011, p. 8.

⁴⁹ X. Glaudas, InvasiveSpeciesZA, School of Animal, Plant and Environmental Sciences, Wits, "Portrait of an African killer: Food and mating activities in the puff adder (*Bitis arietans*)", 2013, <https://www.youtube.com/watch?v=3o8tY3y0dY8&t=520s>, accessed 2023-10-30.

⁵⁰ X. Glaudas, Wits University Official, "Tongue-luring puff adders leave nothing to chance", 2014, <https://www.youtube.com/watch?v=3umGcQw-JWA>, accessed 2023-10-30.

invertebrates such as worms or caterpillars. The Glaudas and Alexander study was viewed as ground-breaking in the sense that they were the first to report two lures in the same organism and to record lingual luring in a predator foraging for terrestrial prey.⁵¹ Other published studies had reported on the luring of fish as prey.⁵² It was also the first discovery of puff adders' luring. Finally, Alexander and Glaudas said of their study that it revealed "... the power of the radiotelemetry-videography combination as a tool for the study of snake behaviour in a natural setting".⁵³

From personal experience and from credits in research work, it certainly appears that DGR actively supports research conducted in the reserve. However, the extent to which DGR itself benefits ecologically from feedback on researchers' scientific data has yet to be formally measured.

7.4.6 The ecological role of bats

In D.H. Lawrence's well-known poem, "Bat",⁵⁴ he displayed both a fascination with and a revulsion for the creatures. There is something entrancing about watching bats. It is a privilege to stand on the deck of Olifants' Camp in KNP and enjoy watching bats emerge *en masse* like clockwork from the restaurant's eaves. The thrill is accentuated by the bat hawks (*Macheiramphus alcinus*) patiently soaring in anticipation of the emergence of their evening meal.

Chiropterologist, Michael Pierce, has conducted field work on identifying bat species on Kwalata and surrounding plots in DGR ever since April 2010. Many bat species can navigate and feed using a sophisticated echolocation system, and they can be identified by their calls. Bats would be captured, identified, and released the next evening. Pierce would record their echolocation calls using a bat detector (a device that records ultrasound and converts it into audible sound). The recordings were used to build up a library of bat calls to assist in future identification based on bat calls. At the start of his research, little was known about the distribution and ecology of South African bats even though they made up about a quarter of all mammal species and had extensive variation in their diets. He noted that they play important ecological roles and may contribute to the biodiversity of an area. To add to the knowledge of bat activity patterns, he recorded certain environmental variables including temperature, relative humidity, and the vegetation type in which certain bats are found.⁵⁵

⁵¹ X. Glaudas & G. Alexander, "New puff adder behaviour uncovered: it uses two ways to entice its prey", *The Conversation*, 2017-02-27, <https://theconversation.com/new-puff-adder-behaviour-uncovered-it-uses-two-ways-to-entice-its-prey-72811>, accessed 2023-10-30.

⁵² See for example, "How anglerfish 'lure' their prey", *Australian Geographic*, <https://www.australiangeographic.com.au/explainers/explainer-how-anglerfish-lure-their-prey/>, accessed 2024-03-12.

⁵³ X. Glaudas & G. Alexander, "New puff adder behaviour uncovered: ...", *The Conversation*, 2017-02-27.

⁵⁴ D.H. Lawrence, "Bat", in *Birds, Beasts and Flowers: Poems* (London, Martin Secker, 1923).

⁵⁵ LSPC, DGRMA, "Bat research in Dinokeng", *Dinokeng Game Reserve News*, Edition 14, October 2010, p. 8.

By January 2011, Pierce had caught bats from 15 sample sites. Of the 139 bats caught, he identified three families and about six species. He confirmed a roost of at least six Free-tailed bats at a quarry on Kwalata; 23 bats of the family Nycteridae (Slit-faced bats), shown to be widespread; and 114 of the family Vespertilionidae (Plain-faced bats) of which none were recapture bats, which Pierce suggested indicated a good population. An exciting find for Pierce was a single male Botswana long-eared bat (*Laephotis botswanae*) caught at Kwalata, a rare bat never previously recorded in Gauteng.⁵⁶

Pierce submitted his MSc dissertation to Wits in 2012 based on his work on bats at Kwalata Game Ranch. Pierce's work is scientifically appropriate for his academic community, particularly fellow chiropterologists and perhaps, entomologists. Nevertheless, the interested layman could appreciate several of his interesting observations. For example, having identified a low bat diversity on Kwalata Game Ranch, he attributed the cause to the impacts of previous land use, especially the historical cattle grazing throughout the 1980s. An additional explanation was human land clearing that had resulted in "... a relatively fragmented savannah-woodland". Another interesting factor is that artificial lighting at game lodges and in surrounding community settlements, or peri-urban settlements, where light pollution is caused by many streetlamps and powerful spotlights, may affect both bat and insect behaviour.⁵⁷ These are some of the issues, expressed in layman's terms, upon which Pierce's study focused.

In his dissertation, Pierce added further evidence of the importance of contributing to the corpus of knowledge about bats. Firstly, he argued that insectivorous bats have a controlling effect on insect pest populations, which would otherwise have negative consequences for both the ecosystem and crops. Secondly, he noted that "... the seed dispersal and pollination of many ecologically and economically important plants are carried out almost solely by certain species of fruit bats". Thirdly, he pointed out that "... bats can form some of the largest aggregations of mammals and thus may be among the most abundant groups in terms of individual numbers".⁵⁸ Pierce and Keith have, subsequent to Pierce's MSc submission, had several more papers published on bat research they have conducted in DGR.

⁵⁶ LSPC, DGRMA, "Progressing bat research in Dinokeng", *Dinokeng Game Reserve News*, Edition 15, January/February 2011, p. 2.

⁵⁷ M.W. Pierce, "Assessing Bat (Chiroptera) Diversity: Determinants of Assemblage and Ensemble Structure at Kwalata Game Ranch, Gauteng, South Africa", MSc, University of the Witwatersrand, 2012, pp. i-ii.

⁵⁸ M.W. Pierce, "Assessing Bat (Chiroptera) Diversity: ...", MSc, University of the Witwatersrand, 2012, pp. 24-25.

7.5 An ecological balancing act: Restoring soil, plants, and animals in DGR

7.5.1 Ecological restoration and repair in DGR

Vaughan *et al.* have argued that ecological research on restoration has traditionally focused on plants. Their inclusion of animal reintroduction as an important element of conservation biology, and additionally as being restoration, accords with the views of this researcher.⁵⁹ For this reason, some observations are made on the progress of mammal reintroduction to DGR in this chapter in addition to discussion of soil and vegetation restoration.

In marginal farming areas such as DGR prior to restoration, poor farming techniques had damaged the landscape. One example of such damage is soil crusting, or surface sealing, a widespread problem in Southern Africa, including in parts of DGR. Vaughan *et al.* have said of rehabilitating substrates, that it could include "... any activity aimed at repairing altered soil texture or chemistry or restoring hydrological regimes or water quality".⁶⁰ In regard to soil crusting, and many other restoration needs, the DGR management has taken a responsible approach to restoring and preserving the DGR wilderness.

The DGR management has implemented a residential Big 5 game reserve restoration philosophy to balance wilderness preservation with harmonious coexistence between people and nature. This involves restoring degraded lands, reintroducing endemic species, and allowing humans to coexist with these species. The main strategy is to remove invasive plant species disrupting natural ecological processes. Local communities are involved in the restoration process, which creates job opportunities and fosters a shared conservation strategy.⁶¹

7.5.2 Revegetation efforts to counter soil crusting in northern DGR

This researcher has seen, first-hand, affected parts of northern DGR characterised by open land with limited and stunted vegetation caused by poor agricultural practices in the past, including the use of fertilisers. In a game reserve like DGR undergoing land rehabilitation, it is obvious that research into mitigating the effects of soil crusting should be welcomed.

It is difficult to rehabilitate land affected by soil crusting. Research has shown that mulching or the application of gypsum or organic soil conditioners, such as polyacrylamide, may mitigate soil crusting damage.⁶² The most well known and most observable negative effect of soil crusting is increased runoff due to decreased infiltration.⁶³ Soil crusting hinders soil aeration, reducing

⁵⁹ K.J. Vaughan, L.M. Porensky, M.L. Wilkerson, J. Balachowski, E. Pepper, C. Riginos & T.P. Young, "Restoration Ecology", *Nature Education Knowledge*, 3(10):66, 2010.

⁶⁰ K.J. Vaughan, *et al.*, "Restoration Ecology", *Nature Education Knowledge*, 3(10):66, 2010.

⁶¹ LSPC, DGR, *Dinokeng Game Reserve Magazine*, Issue 04, October/November 2003, pp. 10-11.

⁶² M.C. Laker & G.P. Nortjé, Review of Existing Knowledge on Soil Crusting in South Africa, p. 2.

⁶³ M.C. Laker & G.P. Nortjé, Review of Existing Knowledge on Soil Crusting in South Africa, p. 28.

oxygen content and accumulating carbon dioxide, which inhibits soil micro-organisms, invigorates unfavourable bacterial organisms, hinders seed germination, and impedes root functioning and respiration. It also impairs seedling emergence due to the soil crust's high mechanical strength, preventing coleoptiles (sheaths protecting young shoot tips as in grasses or cereals) from breaking through the soil surface. Soil crusting also impedes root development and functioning.⁶⁴ Little work has been done on soil crusting in wildlife areas, which was a good reason for Anélle Human to embark on research in DGR for her MSc in Environmental Sciences.



Figure 7-5: Soil crusting in northern DGR. By permission of photographer, Dr G. Nortjé, UNISA, on 2022-12-02.

Human's supervisor, Professor Gerhardus Nortjé of the University of South Africa, is the researcher most involved in DGR's soil crusting investigations. Professor Nortjé has had two projects underway in DGR, which were due for completion in 2023. The first was a project to examine possibilities of alleviating soil crusting in DGR using eco-friendly substances. It was a two-year project conducted by Human. The second project was a three-year soil surveying and digital mapping project aimed at mapping the whole of DGR to assist with the planning of land uses in DGR, including, for example, identifying appropriate routes for game drives.⁶⁵

Human's study area in northern DGR is in a degraded state having experienced soil loss because of erosion. Historically, the land was subjected to ploughing, as preparation for sunflower and maize cultivation without any professional soil use evaluation, which would have shown that the

⁶⁴ M.C. Laker & G.P. Nortjé, Review of Existing Knowledge on Soil Crusting in South Africa, pp. 32-34.

⁶⁵ G.P. Nortjé, *Studies on the Impacts of Off-road Driving and the Influence of Tourists' Consciousness and Attitudes on Soil Compaction and Associated Vegetation in the Makuleke Contractual Park, Kruger National Park* (University of Pretoria, Pretoria, 2013).

sodic soil was not suitable for crops. Crusting occurred which inhibited water infiltration into the soil. After unsuccessful cropping, attempts were made to grow grass by seeding, which was also unsuccessful. Cattle farming was then tried, which led to overgrazing and soil compaction. Human examined ways in which soil crusting may be ameliorated, including using soil conditioners such as polyacrylamide (a water-soluble polymer capable of improving soil structure stabilisation); gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$); and phosphogypsum (an industrial by-product), which are the chemical amendments used to reclaim sodic soils; and molasses meal, an energy rich substance that stimulates microbial growth. Human's study was aimed at identifying eco-friendly solutions for alleviating the soil crusting in DGR's natural wildlife tourist areas. In terms of conservation value, by reclaiming affected areas, re-vegetated areas would become more productive, allowing for higher wildlife numbers, and adding further to the game reserve's biodiversity and aesthetics.⁶⁶

7.5.3 Eradicating invasive plant species

At least two significant plant eradication programmes have been underway in DGR since its opening in 2011. These are the pompom weed (*Campuloclinium macrocephalum*) eradication project and the eradication of sickle bush (*Dichrostachys cinerea*).

7.5.3.1 Eradicating pompom weed in DGR

When pompom weed appears annually between December and March, it looks beautiful; however, appearances are deceptive as it is in fact a resilient invasive species. The Agricultural Research Council (ARC) describes it as an ornamental South American herb belonging to the daisy family, Asteraceae, and considers it a serious threat to South African grasslands. First, pompom weed tends to establish itself in disturbed ground before it invades grasslands. In doing so, it displaces native species, which reduces biological diversity and carrying capacity of the veld.⁶⁷ The South African research group that focuses on ecologically appropriate strategies for controlling pests, plant diseases, and invasive plants is the ARC's Plant Health and Protection (PHP) group.

Because the presence of pompom weed in DGR could potentially transform its environment irreparably by displacing native species, the DGR management has joined with the ARC-PHP to devise an action plan whose successes or otherwise, will be carefully monitored. A holistic approach is being taken, which includes experimenting with pompom thrips (*Liothrips tractabilis*), a host-specific Argentinian native insect as a biocontrol agent. The ARC-PHP recommends in the first instance that management should aim to keep the natural vegetation of an area in a healthy,

⁶⁶ A. Human, "Evaluation of the Efficacy of Selected Ameliorants to Alleviate Soil Crusting, with a View to Reclamation of Degraded Land, in Dinokeng Game Reserve", MSc proposal (Environmental Sciences), UNISA, 18 June 2021, pp. 4-5.

⁶⁷ Agricultural Research Council (ARC), "Pompom Weed", <https://www.arc.agric.za/arc-ppri/Pages/Pompom%20weed/Pompom-Weed.aspx>, accessed 2022-09-13.

productive state to limit pompom spread. However, where infestation occurs, the ARC-PHP suggests a variety of possible eradication methods.

Pompom weed can be controlled through various methods, including spraying with herbicides, physical eradication, and biological control. However, professional technical advice is needed before selecting a registered, selective herbicide. Spot spraying is recommended, if possible, to avoid damage to native shrubs and forbs. Physical control is ineffective as disturbance can cause mass germination unless aerial stems are cut before flower production. This method requires intensive labour and is more effective when applied to small areas. Fire burning kills seeds close to or on the surface but can encourage regrowth from rootstock. The ARC-HPH, while believing that the combined use of burning with chemical control has potential, know that this approach requires further research. Regarding biological control, ARC-HPH points to the pompom thrips already mentioned, and the rust fungus (*Puccinia eupatorii*) as the two current biological agents effective in controlling pompom weed.⁶⁸ It is this route that DGR management chose to follow on an experimental basis in 2014.

Discussions were held with Dr Andrew McConnachie from the ARC-HPH, and it was decided to release 10 000 thrips in one area to create a breeding site. Plants infested with *L. tractabilis* were attached to healthy pompom plants using orange cable ties for identification. This was an important experiment as it was conducted under natural conditions and not in a controlled laboratory environment.⁶⁹ The data gathered over the years would, therefore, make an important contribution to science. Adult thrips lay eggs on pompom weeds, and new generations of thrips take 28 days to reach adulthood at 25 degrees Celsius. They feed on leaf tissue and apical shoot tips, causing deformities and reduced height, biomass, and flower production. The DGR management believes biological control is the only sustainable solution for controlling pompom weed in the reserve. The hope is that pompom thrips will combine with pompom rust to control the weed, as the thrips have a high reproductive rate and spread ability.⁷⁰

Credit should also go to landowners such as Tienie and Gerd Graf, owners of iKhaya LamaDube Game Lodge, who early in DGR's development attempted, on their own initiative and at their own expense, to tackle the pompom infestation. Their method was to cut the flowers and place them

⁶⁸ Agricultural Research Council (ARC), "Pompom Weed", <https://www.arc.agric.za/arc-ppri/Pages/Pompom%20weed/Pompom-Weed.aspx>, accessed 2022-09-13.

⁶⁹ DGR, "Fighting invasive species, Pompom Weed, the not-so pretty pink flower", in A. Paton, (ed.), *Dinokeng Game Reserve, the First Decade*, p. 30.

⁷⁰ DGR, "Fighting invasive species, Pompom Weed, the not-so pretty pink flower", in A. Paton, (ed.), *Dinokeng Game Reserve, the First Decade*, p. 30.

in bags to control the approximately 3 000 airborne seeds that each pompom flower produces. During these early efforts to eradicate pompom infestations, local labour was used.⁷¹

Further batches of thrips were released in 2016, 2018, and 2020. Evidence suggests that after 22 months the thrips had begun to reduce pompom growth. However, this is an ongoing project that must be sustained to ensure success. The DGR management plans to consider mechanical and chemical control as additional control measures.⁷² Time will tell the extent to which this experimental approach is successful.

7.5.3.2 Eradicating sickle bush in DGR

The DGR, specifically the Ditholo region, is facing a significant threat from the spread of sickle bush, also known as the Kalahari Christmas Tree. This shrub can create dense thickets, acting as an impenetrable natural barrier. The DGR management's eradication of sickle bush is encouraging grass to regrow and benefiting grazers and other species. By 2023, nearly 10 000 bags of wood for sale had been harvested, demonstrating the management's dedication to ecological improvement.⁷³

7.5.4 Restoration research on post-release animals in DGR

As mentioned in the introduction to this chapter, research conducted on the behaviour of animals restored or relocated to DGR is examined separately from general animal research. The DGR has and continues to provide an ideal location and situation to examine on site, the behaviour of elephant, lion, and cheetah.

7.5.4.1 Behaviour of post release elephants in DGR

Soon after DGR's official opening in 2011, research work on elephants' reaction to their new environment in a small game reserve was embarked upon by a Wits MSc student, Jeanette de Hoog. Her supervisor, Associate Professor Jason Marshal, was appropriately qualified to lead this research as shown by his research interests: Spatial and temporal interactions of large mammals with variable resources; foraging, habitat, demography and abundance; quantitative methods to estimate and model abundance, demography and distribution of animal populations; and wildlife management and capacity building in transboundary regions.⁷⁴ At the time, the recent reintroduction of a herd of 10 elephants into DGR provided an ideal opportunity to study their behaviour in a new environment using global positioning system collar locations to determine their movements.

⁷¹ LSPC, DGRMA, "Pom Pom – an invasive alien plant taking over Dinokeng Game Reserve grasslands", *Dinokeng Game Reserve News*, Edition 15, January/February 2011, p. 1.

⁷² DGR, "Fighting invasive species, Pompom Weed, the not-so pretty pink flower", in A. Paton, (ed.), *Dinokeng Game Reserve, the First Decade*, p. 33.

⁷³ DGR, "DGR wood project, sickle bush", *Dinokeng Game Reserve Magazine*, Issue 04, October/November 2023, pp. 56-57.

⁷⁴ University of the Witwatersrand Staff Profile, Professor Jason Marshal, <https://www.wits.ac.za/staff/academic-a-z-listing/m/mar/jasonmarshalwitsacza/>, accessed 2023-01-02.

De Hoog wanted to establish firstly whether “... an elephant’s exploration resulted in an expansion of its home range as the elephant settled in its new environment”. Secondly, she hoped to establish “... how the use of resources and conditions in an elephant’s environment changed from release to the end of the study period”.⁷⁵ She expressed gratitude to DGR for providing her with data for her research, a finding of which is that it may take over a year for an elephant to adapt to its new environment.



Figure 7-6: Elephant in DGR. By permission of photographer, Catherine Prinsloo, on 2003-03-04.

While acknowledging that she was working with data from only one collared female elephant, she was still able to show that the “... elephant’s habitat selection seemed to be constrained by human settlements in its initial habitat selection” while “... it still used habitats with some preferred resources and conditions, such as habitats with low elevation and higher greenness”. Gradually, the elephant’s habitat selection appeared to be less constrained by human settlements, and it tended to select lower elevation habitats, revealing that the elephant was “... exploring, ranking habitats and settling in its new environment”. She concluded that when managing translocation programmes, “... human disturbances on elephants’ movement behaviour and habitat selection needs to be considered”, and that future translocation studies should investigate the influence of vegetation and stress to gain further understanding of elephant behaviour after translocation.⁷⁶ It has not been established whether further translocation studies have since been carried out in DGR since De Hoog’s study.

⁷⁵ J. de Hoog, “Habitat Selection of African Elephants (*Loxodonta Africana*) After Reintroduction in Dinokeng Game Reserve”, MSc. Research Report, University of the Witwatersrand, May 2014, pp. i-ii.

⁷⁶ J. de Hoog, “Habitat Selection of African Elephants (*Loxodonta Africana*) After Reintroduction in Dinokeng Game Reserve”, MSc. Research Report, University of the Witwatersrand, May 2014, pp. 30-31.

7.5.4.2 Behaviour of post release lions in DGR

The Kevin Richardson Foundation (KRF), a conservation group, is closely linked with DGR operations and acquired land for the reserve through its successful fund raising. The KRF was launched in July 2018 with the campaign #LandforLions. Within the first month, the campaign raised R2 800 000 from 1949 individual donors. The proceeds secured 1 180 ha of land bordering DGR.⁷⁷ The KRF takes full advantage of social media to raise funds across the world, including by crowdfunding. The land purchased by the KRF for DGR is secured and protected against development in perpetuity.

The KRF has collaborated with UP's Wildlife Management Centre, Professor Adrian Tordiffe, and the Carnivora Working Group to conduct research on predator cats. Since 2018, three significant projects have been conducted, including developing energetic models in roaming lions to motivate Botswana's government to maintain buffer zones against human encroachment. Pharmaceutical trials have also explored the use of oxytocin to suppress aggression and trauma in translocated wild predator cats and its potential in healing captive lions undergoing veterinary procedures. The KRF believes the trust between Richardson and the lions allows for these trials without resorting to darting or anaesthesia.⁷⁸



Figure 7-7: Lioness, DGR. By permission of photographer, Catherine Prinsloo, on 2021-04-24.

⁷⁷ Kevin Richardson Foundation (KRF) Annual Report, March 2018-Feb 2019, and March 2019-Feb 2020, 2022-11-12, "Habitat Protection, Lion Preservation", p. 16, https://issuu.com/webfrontza/docs/kwrd_fin_brochure_v9_seps, accessed 2023-01-03.

⁷⁸ KRF Annual Report, March 2018-Feb 2019, and March 2019-Feb 2020, 2022-11-12, "Habitat Protection, Lion Preservation", p. 16.

One of the names most closely associated with research on DGR's lions is Sze-Wing Yiu, whose work came at a time when reintroductions of predators to small game reserves for purposes of carnivore conservation was on the increase. Yiu *et al.* note that the first response of reintroduced animals in a new habitat is to move, this being an important process in animal movement ecology, as it affects fitness and survival. The researchers studied the dispersal patterns of reintroduced lions (*Panthera leo*) over time in DGR. One objective of studying the behaviour and movement patterns of these lions was to establish the success of the reintroduction. Exploration enables the lions to "... learn and compare habitat quality and distribution of competitors and predators".⁷⁹ The DGR research showed that the lions' individual reactions to the "forced dispersal" from reintroduction varied widely regarding exploration of and adaptation to new habitats and best movement.

Yiu *et al.* established that the lions' movement rates stabilised with time and homing behaviour became absent. These predators became used to human disturbances and their home range lessened as prey was abundant in DGR. They concluded that the reintroduction was successful and that: "An absence of homing behaviour and a sign of stabilization in movement patterns could potentially be used as criteria for assessing early establishment success in future reintroductions". However, they cautioned that movements can be impacted on by inter-group interactions and that differences in behaviour occurred between lions depending on different releases. Above all, they showed that intra-specific competition strongly influences the exploratory patterns of reintroduced animals. Knowledge gained from their research was that "... the order and release site of lion reintroductions should be planned to minimise intra-specific competition and direct conflict between groups in early establishment stages which could otherwise lead to selection of suboptimal resources and reduction in fitness".⁸⁰

As DGR is a relatively new game reserve, characterised in part by the relocation of animals, it is important that research be conducted on their adaptive ability to settle in an unfamiliar habitat. This confirms the importance of other work done by Yiu *et al.* involving reintroduced lions to DGR. Data for this project came from 11 lions ethically collared and monitored by DGR management. The lions were released in three different stages: October 2011 (two females, two years of age, and two males, two and a half years of age); November 2011 (two females and two males, all two years of age); and November 2013 (two females, five years of age, and one female two years of age). The first two groups were released in a similar area, whereas the third group was released later in a different location. After their release, the first two groups frequented the enclosure where

⁷⁹ S. Yiu, M. Keith, L. Karczmarski, F. Parrini, "Early Post-Release Movement of Reintroduced Lions (*Panthera leo*) in Dinokeng Game Reserve, Gauteng, South Africa", *European Journal of Wildlife Research*, 61, 2015, p. 861, [doi:10.1007/s10344-015-0962-0](https://doi.org/10.1007/s10344-015-0962-0).

⁸⁰ S. Yiu, *et al.*, "Early Post-Release Movement of Reintroduced Lions (*Panthera leo*) ...", *European Journal of Wildlife Research*, 61, 2015, p. 869.

they had been kept and where the third group was still in holding. This indicated that all the lions were aware of each other's presence in DGR.⁸¹

To survive and achieve peak fitness once reintroduced to an unknown habitat, animals need to identify the most favourable resource. This requires exploration over time. Yiu *et al.* noted that this would likely lead to weaker lions being dislodged from optimal resources. Their research in DGR examined changes in the lions' "... resource selection patterns across 3 years from the time of introduction, and the effect of intra-specific interactions on these selection patterns". The researchers established through their studies that eventually lions "... selected low altitudes and flat slopes that facilitate movement, high tree densities that provide cover and refuge, and areas close to water sources and flood plains that have high prey density". They also observed that males were more tolerant of human presence, by way of high densities of roads and buildings, than females. After intergroup conflicts, dominant groups retained superior resources. Their research findings underpinned "... the spatio-temporal dynamic nature of habitat selection processes for reintroduced large carnivores and emphasize the role of intra-specific interactions in influencing the landscape determinants of habitat selection".⁸²

7.5.4.3 Behaviour of post-release cheetahs in DGR – escape artists par excellence



Figure 7-8: Cheetahs hanging out in DGR. By permission of photographer, Catherine Prinsloo, on 2021-06-16.

While employed by the Endangered Wildlife Trust (EWT) as Cheetah Range Expansion Project co-ordinator, Vincent van der Merwe received a phone call from Mongena Lodge's Etienne Toerien concerning the possible reintroduction of cheetah to DGR. Van der Merwe recalled

⁸¹ S.W. Yiu, L. Karczmarski, F. Parrini & M. Keith, "Resource Selection in Reintroduced Lions and the Influence of Intergroup Interactions", *Journal of Zoology*, 307(2), 2018, pp. 4-5.

⁸² S.W. Yiu, *et al.*, "Resource Selection in Reintroduced Lions ...", *Journal of Zoology*, 307(2), 2018, p. 1.

considerable scepticism from people scornful of a Big 5 game reserve so close to a densely populated area. Nevertheless, he determined upon a reintroduction feasibility study and recalled driving through beautiful parts of the DGR characterised by grasslands and scatterings of silver cluster leaf trees. His pronouncement on the area's suitability read: "The reserve represents a remarkable effort to restore the former ecological glory of the Springbokvlakte. It was perfect for cheetahs".⁸³ A founder population of cheetah was introduced in 2012 and the first DGR litter was born in August 2013.

The founder population consisted of a female that was used to lions, introduced from Karongwe Game Reserve in the Lowveld, and the only male available, the infamous escape artist known as the Darlington Male, whose extraordinary exploits are recorded by Van der Merwe in *Dinokeng Game Reserve, the First Decade*.⁸⁴ The adult female and three cubs sired by the Darlington Male frequently escaped from DGR and were once seen crossing the N1 highway. Van der Merwe recalled that the huge expense involved in their recapture included helicopter costs. Sadly, the Darlington Male's roaming and contribution to DGR's cheetah gene pool came to an end with his death; however, some of his extraordinary genes are still present in the metapopulation. The Karongwe female was relocated from DGR to Mountain Zebra National Park, her daughter to Welgevonden in the Waterberg; and her two sons to Madikwe.⁸⁵ That ended the first cheetah relocation trial in DGR. Further successes and failures followed which culminated in a final success story for cheetah relocation in DGR. The detailed and fascinating sequence of subsequent relocations is recorded by Van der Merwe and a former DGR conservationist, Stephan Prins, in *Dinokeng Game Reserve, the First Decade*. To understand the conservation value of cheetah relocation, reintroduction, and research, one needs to understand the important role cheetahs play in ecosystems.

Amy Cocksedge has provided a succinct explanation of how species and ecosystems are linked – in short, the demise of one species affects a whole ecosystem, an effect known as a trophic cascade. It makes sense, therefore, to target the most threatened ecosystems and species for conservation. Cocksedge pointed out that cheetahs are a vulnerable species owing to such factors as loss of prey, illegal hunting, and loss and fragmentation of their habitat, and that if cheetahs, which are apex predators at or near the top of the food chain, are removed from an

⁸³ V. van der Merwe & S. Prins, "My Journey with the Cheetahs", in A. Paton (ed.) *Dinokeng Game Reserve, The First Decade*, pp. 74-79.

⁸⁴ V. van der Merwe, "The Story of the Darlington Male", in A. Paton (ed.) *Dinokeng Game Reserve ...*, 2022, pp. 81-85.

⁸⁵ V. van der Merwe & S. Prins, "My Journey with the Cheetahs, in A. Paton (ed.) *Dinokeng Game Reserve ...*, 2022, p. 77.

ecosystem, trophic cascades occur.⁸⁶ Because cheetahs prey on herbivores, if cheetahs are removed from the ecosystem, herbivore populations will increase leading to over grazing, soil erosion, and eventually desertification. Thus, when trophic cascades occur, animal populations are no longer naturally controlled, and biodiversity is impacted negatively.

According to the World Wildlife Fund, now World Wide Fund for Nature (WWF), biodiversity applies to “... all the different kinds of life you’ll find in one area—the variety of animals, plants, fungi, and even microorganisms like bacteria that make up our natural world. Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life. Biodiversity supports everything in nature that we need to survive: food, clean water, medicine, and shelter”.⁸⁷ Biodiversity is threatened when species such as cheetahs, are removed from ecosystems. This can have negative impacts on the ecosystem services that biodiversity provides. Cocksedge concluded that the role of cheetahs in maintaining the health of their ecosystems is important as all ecosystems are linked as well, meaning that changes to one can have global effects.⁸⁸

An important point to note in this section on post-release cheetah dynamics in DGR is the necessity of group co-operation to ensure the project’s success. Co-ordinated by the EWT, the wider Cheetah Range Expansion Project is a collaboration between 63 cheetah reserves in southern Africa funded by National Geographic, PricewaterhouseCoopers, Seremed, and the Ford Wildlife Foundation. Such projects raise DGR’s international profile with respect to innovative conservation measures and scientific research, and showcase its value as a field research laboratory. Van der Merwe cited several other individuals whose dedication to monitoring and managing the Dinokeng cheetahs should be acknowledged. The dedicated DGR cheetah management team included David Boshoff, Stephan Prins, Jaco Naude, Etienne Toerien, Matt Temperley, and Mike Draymond.⁸⁹

Besides the valuable role played by these individuals, Van der Merwe noted several other factors that contributed to the success of DGR’s cheetah relocation programme. Firstly, cheetahs are adaptive to new habitats with varied climates, prey densities and varieties, and a diverse array of competing predators. This biological adaptability, supported by the management team and the supporting metapopulation network, and coordinated by the EWT ensured that the DGR

⁸⁶ A. Cocksedge, “How Conserving Cheetahs Helps the Planet”, *Cheetah Conservation Fund*, 4 January 2020, <https://cheetah.org/canada/2020/01/04/how-conserving-cheetahs-helps-the-planet/>, accessed 2023-07-11.

⁸⁷ World Wildlife Fund, What is Biodiversity?, <https://www.worldwildlife.org/>, accessed 2023-07-11.

⁸⁸ A. Cocksedge, “How Conserving Cheetahs Helps the Planet”, *Cheetah Conservation Fund*, 4 January 2020.

⁸⁹ V. van der Merwe & S. Prins, “My Journey with the Cheetahs, in A. Paton (ed.) *Dinokeng Game Reserve ...*, 2022, p. 79.

population flourished despite many obstacles.⁹⁰ Mention should also be made of the contribution to the cheetah programme by the KRF.

When one of the newer cheetah females was snared by poachers in DGR, her five three-week-old cubs were left orphaned. Poachers had cut off her paws and removed her skin. Using GPS data, the DGR management, under David Boshoff's supervision, quickly located her den. The four male cubs and one female were all rescued and after veterinary checks were delivered to Kevin Richardson for an 18-month wilding process in preparation for release in DGR and other metapopulation reserves.⁹¹ Richardson raised the money needed to support the five cubs which became known as the "Miracle Five". Three further orphaned cubs were included in the rewilding and rehabilitation process.⁹² The story of the Miracle Five is presented by Richardson in a Lion Whisperer fundraising video on his Facebook Page.⁹³ As the wilding progressed, Richardson posted video updates for his followers and donors, including one of the Miracle Eight being released for the first time from their 1-ha enclosure to an interim 120-ha area to build up their fitness and hone their hunting skills.⁹⁴ In a subsequent undated video, he reported that the Miracle Eight were thriving and adapting well to their DGR habitat.⁹⁵

7.6 Human-wildlife interaction

Human-wildlife conflict (HWC) or as some researchers prefer, human-wildlife interaction (HWI), is a vast, widely researched phenomenon that warrants a discussion on its own with respect to DGR.

7.6.1 The stance of the International Union for Conservation and Nature on human-wildlife conflict

Considering the high global influence of the International Union for Conservation and Nature (IUCN), it would be amiss not to make an introductory comment on its views on HWC, particularly as IUCN researchers played an important role in drawing up DGR's original Master Plans. The IUCN Species Survival Commission (SSC) Human-Wildlife Conflict Task Force defines HWC as "... struggles that emerge when the presence or behaviour of wildlife poses actual or perceived, direct and recurring threat to human interests or needs, leading to disagreements between groups

⁹⁰ V. van der Merwe & S. Prins, "My Journey with the Cheetahs, in A. Paton (ed.) *Dinokeng Game Reserve ...*, 2022, pp. 78-79.

⁹¹ V. van der Merwe & S. Prins, "My Journey with the Cheetahs, in A. Paton (ed.) *Dinokeng Game Reserve, ...*, 2022, pp. 78-79.

⁹² KRF, "Miracle 5 Cheetah Cub Rehabilitation", <https://kevinrichardsonfoundation.org/our-work/>, accessed 2023-01-07.

⁹³ KRF, "Meet the Miracle Five", 2021-06-07, <https://www.facebook.com/LionWhispererSA/videos/meet-the-miracle-5/547579533071658/>, accessed 2023-01-07.

⁹⁴ KRF, "The Miracle 8 – into the Wild", 2022-05-13, <https://www.facebook.com/LionWhispererSA/videos/the-miracle-8-into-the-wild/5476760955690725/>, accessed 2023-01-07.

⁹⁵ The Lion Whisperer, "How Many Cubs Survived?", <https://www.youtube.com/watch?v=5QwfD0fDtkg>, accessed 2023-01-07.

of people and negative impacts on people and/or wildlife”.⁹⁶ Human-wildlife conflicts are manifold, nevertheless the IUCN generally considers them through three characteristics, which are helpful for effective management.

Human-wildlife conflicts are characterized by direct, recurring, negative interactions between people and wildlife, often rooted in social conflicts over wildlife management, and often involving species of conservation concern that negatively impact human interests. The conservation community often prefers euphemisms over the term "human-wildlife conflict" due to potential insensitivity. Alternative terms include "conflicts over wildlife" or "conservation conflicts", while those omit it may refer to "human-wildlife coexistence" or "human-wildlife interactions". Sensitivity is crucial to avoid escalating tensions, and the IUCN SSC emphasizes the need for understanding different cultural, language, community, and country terms.⁹⁷

The IUCN believes that the approach to HWC damage reduction will require some experimentation. However, any trials should preferably be based on evidence and should be carefully considered and designed by all affected parties. In DGR's case, the fall-out between DGR and Elephant Rhino and People (ERP)⁹⁸ was in part due to an imported, ready-made, “solution” by an external party – in this case the ERP. These differences of opinion are elaborated upon in Section 7.8. The IUCN itself has stated its opposition to such imports, while simultaneously encouraging “... multi-expertise collaborations, involving for example social scientists, development specialists, or conflict analysts to help understand the issues contributing to the human-wildlife conflict”.⁹⁹

A military environmental management practitioner for the South African National Defence Force (SANDF), Lt Col. E. van Blerk, explains that HWC has become more frequent, serious, and difficult to manage due to factors such as animal attacks, crop raids, property damage, zoonotic disease transmission, habitat degradation, climate change, and the growing human population.¹⁰⁰

The IUCN warns that conservation efforts can lead to unintentional HWC in areas with high wildlife populations or species recovery. It calls for a comprehensive, collaborative approach to manage

⁹⁶ International Union for Conservation of Nature (IUCN), Species Survival Commission (SSC), Human-Wildlife Conflict Task Force (HWCTF), “What is Human-Wildlife Conflict?”, Briefing Paper by the IUCN SSC Human-Wildlife Conflict Task Force, 2020, p. 1, www.hwctf.org, accessed 2022-11-08.

⁹⁷ IUCN, SSC, HWCTF, “What is Human-Wildlife Conflict?”, Briefing Paper ..., 2020, pp. 2-3.

⁹⁸ Elephant, Rhinos and People (ERP) <https://www.erp.ngo/>, accessed 2020-02-09.

⁹⁹ IUCN, SSC, Position Statement on the Management of Human-Wildlife Conflict, Human-Wildlife Conflict Task Force, 2020, p. 3, <https://www.iucn.org/resources/commission-statement/iucn-commission-statement-management-human-wildlife-conflict>, accessed 2022/12/08.

¹⁰⁰ E. van Blerk, “Mitigation of Wildlife Conflict with Flight Operations”, Air Force Environmental Plan, Directorate Logistics, SAAF, WASH Workshop, September 2020.

HWC, one that considers social, cultural, and economic contexts, among various stakeholders.¹⁰¹ Regarding interventions, the IUCN is careful not to be too prescriptive, noting that no case of HWC is identical and that each "... has unique ecological, cultural, social, physical, economic and political characteristics, and each has different histories, attributes and opportunities".¹⁰²

The DGR model has large, dangerous free-roaming animals moving between properties and structures with internal fencing, causing potential conflicts between humans and these animals. The model includes 180 fenced-off homes, island properties, and other human-occupied structures like mills, farms, quarries, tourist lodges, caravan parks, campsites, and activity centres. The scenario is further complicated by densely populated communities and major roads outside the reserve's boundaries, and only a perimeter game fence separates the animals from human settlements.

The resolution of DGR's HWC requires long-term solutions, including human tolerance for troublesome animals and the development of legal and developmental structures through creative thinking. The IUCN suggests studying species' movement patterns, resource needs, and behaviour to design depredation interventions and movement options, as these factors can help in addressing the issue.¹⁰³

7.6.2 Varying views on human-wildlife conflict incidents

Sillero-Zubiri *et al.* suggest that people may respond to wildlife damage or threats inappropriately, potentially leading to political friction between those focusing on biodiversity conservation and sustainable resource use and those defending the economic interests of affected people, highlighting the need for compromises between different lobbies.¹⁰⁴ Those opposing conservation are likely to be those at the receiving end of wildlife damage. Wildlife management, therefore, requires a delicate balancing act to understand various viewpoints and needs. In the case of DGR landowner, Jimmy Brümmer, his eventual response to the HWC on his property in southern DGR was to withdraw from the game reserve and fence his property out. This response resulted in a loss of land to the game reserve in the south. Brümmer, who had been an early proponent of DGR, had experienced extensive damage to his trees by troublesome elephants. He had originally signed an agreement to join the future DGR in 2006 and elephants first started causing damage to his trees in 2014.

¹⁰¹ IUCN, SSC, Position Statement on the Management of Human-Wildlife Conflict ..., 2020, pp. 2-3.

¹⁰² IUCN, SSC, Position Statement on the Management of Human-Wildlife Conflict ..., 2020, p. 3.

¹⁰³ IUCN, SSC, Position Statement on the Management of Human-Wildlife Conflict, ..., 2020, p. 4.

¹⁰⁴ C. Sillero-Zubiri, R. Sukumar & A. Treves, "Living with Wildlife: The Roots of Conflict and the Solutions", *Macdonald/Key Topics in Conservation Biology*, 17, 2007, p. 255, https://www.researchgate.net/publication/230844951_Living_with_wildlife_the_roots_of_conflict_and_the_solutions, accessed 2022-09-19.

He maintained that between then and 2019, he had 2 000 trees damaged or destroyed by elephants on his property at the southern tip of the DGR boundary. He reported the ongoing damage to DGR authorities, whom he maintained lacked an adequate plan to control the situation. He held extensive discussions with DGR and their attorneys as well as with his own attorney and sought input from Dr Salmon Joubert who had extensive experience in managing the KNP. After these discussions, Brümmer decided to delay withdrawing from DGR to give elephant management another chance.¹⁰⁵ However, by 2019, he maintained that the elephants were on his property “full time” causing considerable damage and disturbance. Elephants were also causing damage elsewhere in the reserve at the same time, and the counterargument was that elephants have ecological value and in time will settle down.

Brümmer cited the two main elephant culprits as Hot Stuff and Tiny Tim. In the meantime, he and his workers had difficulty entering or leaving the property because of dangerous elephant behaviour. In June 2019, Brümmer was charged by one of the bulls and incurred R8 000 of damage to his vehicle as he tried to escape the charge. That night, about six elephants broke into the private portion of land around his homestead. Fences and water works were damaged, and 30 trees damaged or destroyed. The elephants also broke through into a neighbour’s property who was not a member of DGR. The neighbour, who had earlier lost his brother to an elephant attack in Botswana, was in no mood to tolerate this behaviour. He told Brümmer that if DGR did not remove the elephants that same day, he would shoot them. These events were reported to DGR management on the 20th of June 2019 and their personnel arrived promptly that day to repair the fences and coax the elephants off the affected properties. As DGR management intended introducing additional elephants, Brümmer and his wife decided to withdraw their 64 ha of land from DGR.¹⁰⁶

Etienne Toerien of Mongena Lodge proposed an alternative method to managing conflict between humans and elephants. Initially, Mongena Lodge suffered elephant damage before the elephants settled down after selective removal. Toerien managed the challenge by upgrading his fences and preventing further damage. However, elephants occasionally cause damage in his smaller and unfenced camps, where rangers live. Toerien explained that elephants always prefer clean drinking water over dam-sourced water, so they still occasionally puncture water tanks in camps. Toerien emphasised that it is up to the lodge to protect these facilities.¹⁰⁷ His view is that some people have the wrong mindset and should be asking what they can do themselves to resolve the difficult issues that arise when both people and elephants have the right to live in and share a wild

¹⁰⁵ LSPC, J. Brümmer, Email, Dinokeng landowner “My decision to cancel my agreement with DGR”/L. Shee, 2022-12-21.

¹⁰⁶ LSPC, J. Brümmer, Email, Dinokeng landowner “My decision to cancel my agreement with DGR”/L. Shee, 2022-12-21.

¹⁰⁷ LSPC, SOA29, E. Toerien, 2022-12-01.

habitat. He acknowledged that as one of the larger landowners, he had many more trees than did smaller landowners for whom elephant damage might appear more severe. As he said, a landowner with a smaller plot might have lots of small trees, several of which he particularly likes and gets to know individually, then if a few get pushed over, the result is more noticeable than for a larger landowner.¹⁰⁸ There is also the argument that trees felled by elephants give smaller animals natural access to shelter and food, and open up space for other trees to grow.

Not all large landowners, however, share Toerien's approach. He cited the example of one large, non-participant landowner who many years ago got rid of his own elephants after they destroyed a favourite tree of his under which he often sat to relax and read a book.¹⁰⁹ In a number of South African game reserves, such as Mjejane, south of the KNP, chicken wire mesh is often wrapped around the trunks of susceptible trees to discourage strip barking by elephants, a process that eventually kills the affected trees. At Mapungubwe National Park, wire mesh has been wrapped around susceptible baobab trees to protect them from elephants. Referring to elephants' intelligence, Toerien said that the chief fence-damaging culprits, the bulls, soon learnt that gates were the weak point in a fence as normally they were not electrified so they could be opened by people. Troublesome elephants would then simply push the gates off their railings. Despite the history of elephant damage to properties in the DGR, Toerien maintained that by 2022, human-elephant conflict (HEC) was very limited.

David Boshoff, the General Manager of DGR, has identified challenges in managing HWC as both internal (landowners) and external (communities). Landowners must be familiar with the Environmental Management Plan (EMP) to manage HWC, as they live with animals 24/7. Those who contractually signed up must comply with the EMP, for example, by ensuring strong, electrified fences and understanding that elephants may behave erratically when confronted by vehicles at night. DGR differs significantly from other reserves like the KNP, which have closed gates at night and restricted public access. Instead, DGR's structure features two main public roads that are open 24 hours a day, allowing the public to conduct routine business at all hours.¹¹⁰ This arrangement is complex and entails risks.

Another factor to consider in DGR is that the animals introduced need to fit into the small game reserve's plan. When DGR's founding breeding herd of elephants was introduced from Makalali Private Game Reserve¹¹¹ in 2011, Boshoff maintained, a mistake was made in introducing several

¹⁰⁸ LSPC, SOA29, E. Toerien, 2022-12-01.

¹⁰⁹ LSPC, SOA29, E. Toerien, 2022-12-01.

¹¹⁰ LSPC, SOA27, D. Boshoff, General Manager, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2022-11-23.

¹¹¹ The Greater Makalali Private Game Reserve (GMPGR), along with the Pidwa Wilderness Reserve forms the 25 000 ha Greater Makalali Nature Reserve (GMNR), a registered Protected Area (PA). The

problematic bulls, which had already acquired fence-breaching habits. He opposed the view that elephants become a problem in a reserve. Rather, if they were already habituated into breaking through from one property to another, then, when relocated to a complex game reserve like the DGR, they, especially bulls, would continue with those established habits. Once the troublesome bulls were relocated to Zinave National Park,¹¹² Mozambique, perimeter fence breakouts in DGR were greatly reduced among the remaining herd, which could no longer follow the errant bulls across the DGR boundary.¹¹³

Similarly, Boshoff cited the need to remove other troublesome animals such as cheetahs, which, he noted, would sometimes go through fences while intentionally chasing prey into a fence as a predation technique. As a complex game reserve containing fenced off farms and with farms along its boundaries adjacent to its perimeter fence, problems have also arisen with stock predation. When interviewed in 2022, Boshoff had been managing DGR for six years and he recalled four occasions where lions had manoeuvred their way over open cattle grids (an inadequate deterrent for lions, Boshoff maintained) to hunt cattle before returning to the reserve. Such cattle farming by “island” landowners, while legal, is not a good fit for DGR’s management plan. Even where grids additionally have electric wires across them at ground level, lions will find their way across. They quickly learnt to know when the power was off because of load shedding or an electrical short and used that interruption to their advantage. Using their tusks, elephants have also learnt to find out whether electric fences are on or off.

Once the habit of fence-breaking is established by elephants it becomes extremely difficult to change their behaviour. Nevertheless, experiments are continually being tried, tested, and shared such as “tusk bracing”. To deter fence-breaking behaviour, under veterinary supervision, wire contacts may be glued into thin cuts made in a “problem” elephant’s tusks. Boshoff has confirmed that this process, known as “tusk-bracing,” is being tried on an elephant in DGR.¹¹⁴ The wire embedded into the tusk has a contact under the elephant’s lip so should the elephant try to break electric fences with his tusks, the wire acts as conductor and the elephant receives a shock. Embedding the wire is painless for the elephant as it is done while the animal is sedated. This process illustrates just one of many interventions being tried to reduce HEC. Humane Society

GMNR is situated “... outside Gravelotte in the Limpopo Province of South Africa, in the triangle between Hoedspruit, Phalaborwa and Tzaneen”. Makalali, <https://www.makalaligamereserve.org/>, accessed 2023-01-03.

¹¹² Declared a protected area in 1972, Zinave National Park in the Inhambane Province of Mozambique was devastated by civil war between 1977 and 1992. Towards the end of 2015, the Mozambican Ministry of Land, Environmental and Rural Development, to mutually develop Zinave as a component of the Great Limpopo Transfrontier Conservation Area, signed a co-management agreement with the Peace Parks Foundation. Peace Parks, <https://www.peaceparks.org/parks/zinave-national-park/>, accessed 2022-12-23.

¹¹³ LSPC, SOA27, D. Boshoff, 2022-11-23.

¹¹⁴ LSPC, SOA27, D. Boshoff, 2022-11-23.

International Africa maintains that “problem” bulls might normally be shot while in search of females and territory, an action that they maintain “... is biologically hardwired in them”.¹¹⁵ Time will tell whether tusk bracing as an intervention will reduce the need for euthanising problematic animals and whether such an intervention is cost effective.



Figure 7-9: Fence damaged by elephants, Rondefontein, DGR. By permission of photographer, DGR landowner, Flip Prinsloo, 2023-06-18.

Contestation between humans and smaller animals may also occur. Although DGR does not yet have a baboon population, vervet monkeys are problematic at lodges. Some simple remedies are available. For example, Boshoff suggested that training staff to empty dustbins regularly and leave the lids off so monkeys can see there is nothing in them eventually discourages monkeys from overturning rubbish bins. If bins are closed, monkeys will repeatedly return to knock the lids off hoping to find food scraps.¹¹⁶ On occasions porcupines have had to be trapped and removed from gardens within the game reserve, again illustrating that HWC can occur with smaller animals as well as larger ones.

A DGR success story based on learnt experiences is illustrated by the successful reintroduction of spotted hyena which were sought from the KRF. Having been bred in captivity, they had not acquired the habit of scavenging as have many of KNP’s spotted hyenas, which regular visitors there will see patrolling camp fences in search of bones thrown over the fences by poorly behaved humans. It made sense not to introduce spotted hyenas from KNP that had acquired the camp-scavenging habit but rather to introduce and monitor the KRF hyenas that had not learnt to

¹¹⁵ A. Delsink, “Tusk-Bracing to Save ‘Problem’ Elephants’ Lives”, *Humane Society International Africa*, <https://www.hsi.org/news-media/tusk-bracing-elephants-091317/>, accessed 2022-12-23.

¹¹⁶ LSPC, SOA27, D. Boshoff, 2022-11-23.

scavenge at camps. As Boshoff said, “That was one of the best projects that we did – introducing captive animals into the wild and it did not cause any issues for us”.¹¹⁷

This thesis focuses on a small game reserve tucked away in a corner of a geographically small province of South Africa that faces particular HWC challenges. Lessons can also be learned from research studies on HWC in other parts of the world. Herein lies the value of research and the dissemination of findings in that rarely does one solution fit all. However, knowledge of different approaches may be exchanged, and then, through practical trial and error over time, solutions for differing situations may be found.

7.6.3 A review of human-wildlife conflict lessons to be learnt from other reserves around the world

In this section, a historical account of attempts around the globe to combat HWC is important in that the measures suggested and recommended appear somewhat anachronistic in a world experiencing the advent of extraordinary advances in AI technology. The section concludes with several comments on ways in which AI will either complement or make redundant current measures – time will tell.

In Nepal, as part of the Reducing Emissions from Deforestation and Forest Degradation Himalaya Initiative,¹¹⁸ the Terai Arc Landscape was identified by the Nepalese government as a development programme owing to its many wildlife corridors. For example, Chitwan National Park in Nepal, like DGR, is home to both elephant and rhino. Where conservation is contributing to larger populations of wild animals in areas shared between humans and wildlife, it is expected that HWC incidents will increase. The International Centre for Integrated Mountain Development¹¹⁹ is a regional intergovernmental learning and knowledge sharing centre that aims to help people in mountainous areas understand their changing circumstances, adapt to them, and take advantage of new opportunities. It focuses on mitigating HWC in wildlife areas, particularly those with megafauna that damage property and depredate crops. Mitigation measures have included basic methods like shouting and using watch towers, to more recent electric fencing barriers. However, only a quarter of all electric fences in the project area functioned effectively due to issues such as poor maintenance culture, technical faults, natural events, unpredictable power supplies, inferior materials, lack of technical skills, and a shortage of

¹¹⁷ LSPC, SOA27, D. Boshoff, 2022-11-23.

¹¹⁸ Reducing Emissions from Deforestation and Forest Degradation (REDD+) is an International Centre for Integrated Mountain Development (ICIMOD) conservation initiative. The REDD+ Initiative operates in Bhutan, India, Myanmar, and Nepal, promoting result-based management of forest resources. ICIMOD is an intergovernmental knowledge and learning centre, based in Kathmandu and Nepal, working on behalf of the people of the Hindu Kush Himalaya (HKH).

¹¹⁹ ICIMOD serves the eight regional member countries of the Hindu Kush Himalayas: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.

expertise.¹²⁰ Similarly, in South Africa, DGR is vulnerable to erratic power supplies brought about by load shedding and cable theft.

Even when fully functional, electric fencing, as illustrated by an interviewee in the Chitwan Case Study, is not one hundred percent effective: “For us, the fence is very important because it has prevented the rhino from coming; but at the same time, we think the electric fence is virtually useless for the elephant because even though we maintain it well, the elephant keeps destroying it. The issue is that the elephant here is very aggressive and even goes to the extent of using trees to break the fence. We have now nailed barbed wires on the trees along the boundary and the elephant has not been able to enter for the past two weeks”.¹²¹ There is no one-fits-all solution to reducing HWC. Many suggestions have been made and tried including the use of chilli fencing and beehive fencing, which have proved of some value in deterring African elephants.¹²²

Ongoing investigations in Niassa Reserve, Mozambique, were undertaken by Osborn and Anstey of the Mid-Zambezi Elephant Project (MZEP) from the early 2000s to assess the extent to which HEC occurs around Niassa Game Reserve. Their findings were to guide the WWF and the Southern African Regional Programme Office¹²³ on their planning and prioritising. Secondly, they examined MZEP’s methods for reducing HEC while also investigating the feasibility for commercial chilli production as a crop option for local farmers, while simultaneously acting as an elephant deterrent.¹²⁴ Compared with a small game reserve like DGR with a total area of under 20 000 ha, Niassa Game Reserve’s challenges are immense.

This becomes particularly apparent when one compares the extent and patterns of elephant roaming within the two game reserves. The DGR has predominantly to manage internal conflict where elephants break fences surrounding properties inside the reserve’s perimeter fence, including both non-participant island properties and those of participant landowners. There have, however, been several occasions where elephants have broken through DGR’s perimeter fence

¹²⁰ B. Duncan, (ed.), Investigators: H. Banikoi, S. Thapa, N. Bhattarai, R.C. Kandel, Sudarshan Chaudhary, Shankar Chaudhary, N. Timalisina, K. Windhorst, B.S. Karky, M.D. Adhikari & C.P. Pokheral, “Mitigating Human-Wildlife Conflict in Nepal: A Case Study of Fences around Chitwan National Park”, *International Centre for Integrated Mountain Development (ICIMOD)*, Working Paper 2017/14, Kathmandu, Nepal, May 2017.

¹²¹ B. Duncan, (ed.), Investigators: H. Banikoi, *et al.*, “Mitigating Human-Wildlife Conflict in Nepal: ...”, *ICIMOD*, Working Paper 2017/14, May 2017, p. 11.

¹²² B. Duncan, (ed.), Investigators: H. Banikoi, *et al.*, “Mitigating Human-Wildlife Conflict in Nepal: ...”, *ICIMOD*, Working Paper 2017/14, May 2017, pp. viii-ix.

¹²³ SARPO is the WWF’s Southern Africa Regional Programme Office.

¹²⁴ F.V. Osborn & S. Anstey, Consultancy for World Wide Fund for Nature (WWF)/ Southern African Regional Programme Office (SARPO), “Mid Zambezi Elephant Project Elephant/Human Conflict and Community Development Around the Niassa Reserve, Mozambique”, *Mid Zambezi Elephant Project (MZEP)*, April 2002, p. 3, <https://www.biofund.org.mz/wp-content/uploads/2019/01/1548766995-F0831.Microsoft%20Word%20-%20Niassa%20ele%20report3%20no%20budget.doc.pdf>, accessed 2022-10-01.

onto public roads and private properties outside the reserve. By contrast, Niassa's incidents of HEC are far more numerous and widespread with over 20 000 elephants with a range of approximately 70 000 km² with a substantial elephant population outside the reserve. Some conflict areas were identified as far as 250 km outside the reserve. It was established that elephants roamed between Niassa Province and the reserve, and Tanzania through, for example, the Selous-Niassa corridor. They also roamed between the neighbouring provinces of Cabo Delgado and Nampula.¹²⁵ This would certainly not be the case with DGR. The 9 000 km² Selous-Niassa Wildlife Corridor, consists entirely of village land in Tanzania. It provides an important biological link between the Selous (Tanzania) and Niassa (Mozambique) Reserves for the miombo woodland ecosystem.¹²⁶ In contrast, elephant roaming in the comparatively small DGR is largely constrained by electrified fencing and vigilant monitoring. The potential to roam outside of broken fences in DGR does exist and elephants could roam into other parts of Gauteng, as well as Limpopo and Mpumalanga where dense human populations exist and where motorised traffic is ever present. However, these problems can be dealt with reasonably quickly in DGR as the reserve is comparatively small, and monitoring of boundary fences is efficient and regular.

As with DGR, poaching is an ever-present threat to wildlife in Niassa. After independence and the liberation wars in Mozambique, refugees started returning to the land to grow crops such as maize, rice, bananas, groundnuts, mangos, and beans. These crops were targeted by elephants as well as by other fauna such as porcupines, baboons, and kudu. Add to this, other agricultural challenges, such as "... poor seed quality, access to chemicals, poor soil conservation, large distance to markets and postharvest storage" and one can understand the farmers' plight and frustration when faced by marauding elephants. Politicians in Mozambique, therefore, need to walk a fine line between conserving elephants and responding to farmers' frustrations with the damage caused by elephants.¹²⁷

To mitigate HEC in Niassa, Osborn and Anstey suggested "... a package of methods, a collaborative approach and the generation of tangible benefits to affected rural communities".¹²⁸ The report suggests a combination of practical problem animal control (PAC) methodology and wildlife resistant crops to improve the security of communal land farmers in South Africa. The

¹²⁵ F.V. Osborn & S. Anstey, Consultancy for WWF/SARPO, "Mid Zambezi Elephant Project Elephant/Human Conflict and Community Development Around the Niassa Reserve, Mozambique", MZEP, April 2002, p. 5.

¹²⁶ R.D. Baldus & R. Hahn, "The Selous – Niassa Wildlife Corridor in Tanzania: Biodiversity Conservation from the Grassroots. Practical Experiences and Lessons from Integrating Local Communities into Trans-Boundary Natural Resources Management", *CIC Technical Series*, No. 6, Food and Agriculture Organization of the United Nations (FAO) and International Council for Game and Wildlife Conservation (CIC), Budapest, 2009.

¹²⁷ F.V. Osborn & S. Anstey, Consultancy for WWF/SARPO, "Mid Zambezi Elephant Project ...", April 2002, p. 5.

¹²⁸ F.V. Osborn & S. Anstey, Consultancy for WWF/SARPO, "Mid Zambezi Elephant Project ...", April 2002, p. 9.

main suggestions include growing chillies, using chemical deterrents like chilli-based chemicals or pepper spray, and using physical barriers like trenches. Vigilance is crucial to warn farmers of elephant presence, and whistles are issued. Watchtowers are built at half-kilometre intervals, and 5 m wide buffer zones are cleared to improve visibility. Passive systems are designed to impede crop-raiding elephants' passage into the field using simple physical barriers and deterrents. Pepper dung, a mixture of elephant dung and crushed chillies, is burned all-night to release smoke. Noises are made as warnings and deterrents to elephants. Cowbells are placed at 30-meter intervals on string fences coated in grease and hot chilli to irritate their skin.¹²⁹

Each situation of HWC differs, and opinions differ on how best to mitigate it within Africa itself. There is also a trend among African countries to seek their own solutions to their problems without external involvement – even if external involvement is well meant. The Zimbabwe Parks and Wildlife Management Authority (Zimparks) rangers increasingly deal with deaths and injuries resulting from HWC as humans increasingly encroach upon wildlife. According to S. Nyoka, *BBC News Zimbabwe*, 46 people were killed by wild animals in Zimbabwe in 2022. Hwange National Park (14 600 km²) in north-western Zimbabwe, has an elephant population of 55 000 in an area calculated to sustain only 15 000 elephants. These elephants stray out into surrounding areas in search of water and food. An elephant consumes up to 200 litres of water a day and around 400 kg of tree leaves and bark, which adds to the woes of poor subsistence farmers. Zimparks is conscious of the divide between comfortable armchair conservationists in the Global North and those subsistence farmers trying to eke out a living among dangerous animals in Zimbabwe. Nyoka quotes Tinashe Farawo, a spokesman for Zimparks, as saying, "You cannot always come up with solutions in air-conditioned buildings".¹³⁰ Zimbabwe, favouring fair trade ahead of aid, has requested that Cites¹³¹ should relax certain restrictions on the ivory and elephant leather trade, a move supported by Zambia, Namibia, and Botswana.¹³² Ivory stockpiles, mainly from elephants that had died from natural causes, are believed to be worth millions of dollars which could go towards the conservation of the growing elephant population, together with profits from trophy hunting.¹³³

¹²⁹ F.V. Osborn & S. Anstey, Consultancy for WWF/SARPO, "Mid Zambezi Elephant Project Elephant/Human Conflict and Community Development Around the Niassa Reserve, Mozambique", MZEP, April 2002, pp. 12-14.

¹³⁰ S. Nyoka, "Zimbabwe's Dilemma over Deadly Enemy Attacks", *BBC News Zimbabwe*, 2022-11-13, <https://www.bbc.com/news/world-africa-63597223>, accessed 2024-02-7.

¹³¹ Cites: Convention on International Trade in Endangered Species of wild flora and fauna. Both South Africa (1975) and Zimbabwe (1981) are members of Cites.

¹³² Cites is a global agreement among governments to regulate or ban international trade in species under threat. It has a programme known as Monitoring the Illegal Killing of Elephants (MIKE) "designed to monitor trends in the illegal killing of elephants, build management capacity and provide information to help range States make appropriate management and enforcement decisions". The Cites website is <https://cites.org/eng>.

¹³³ S. Nyoka, "Zimbabwe's Dilemma over Deadly Enemy Attacks", *BBC News Zimbabwe*, 2022-11-13, <https://www.bbc.com/news/world-africa-63597223>, accessed 2024-02-7.

This view contrasts with that of Burkina Faso, Equatorial Guinea, Mali, and Senegal which have proposed to Cites that the elephants in southern Africa be upgraded to give them "threatened-with-extinction status". Jim Nyamu, head of the Kenya-based Elephant Neighbours Centre, argued that lifting the trade in ivory in southern Africa would impact East Africa negatively. Preferring the ecotourism model as a more profitable alternative, Nyamu argued that poaching increased where stockpiles had been sold off. Botswana restarted trophy hunting in 2019 to lessen its proliferating 130 000-strong elephant population. Chobe community leader, Rebecca Banika, was more than happy to receive \$560 000 from hunting proceeds in 2021 together with the meat of the dead elephants. Nyoka quoted her as saying: "We are suffering but even though we are angry, we don't fight the animals because we derive some benefit from them".¹³⁴ The concern with this approach, is that although southern Africa has seen an increase in the elephant population, declining habitat and poaching are responsible for diminishing numbers elsewhere in Africa.

The Kavango-Zambezi Transfrontier Conservation Area (KAZA TFCA), which incorporates reserves in Angola, Botswana, Namibia, Zambia, and Zimbabwe, argues that while its elephants proliferate, it wants greater sovereignty regarding decisions on its own wildlife. This was in reaction to the IUCN's listing of the African savanna elephants as endangered. Zimparks' wildlife researcher, Edson Gandiwa, considers the elephant conservation debate to be too emotionally charged. Acknowledging that elephants were "flagship species", he argued that it was also about biodiversity, and that the 2,5 million people living near KAZA TFCA wildlife, who understood that wild animals were a natural resource, should be consulted.¹³⁵ Elephant control debates will remain heated, and while not necessarily agreeing with Gandiwa's approach, those people who must live alongside wild animals, and have their own, indigenous knowledge, should at least be allowed to feed their ideas into the debate on global policies.

These efforts to reduce HWC listed so far sound somewhat outdated and impractical in a world experiencing the arrival of AI solutions. Already AI applications are being devised, some of which are suggested by Marcin Frąckiewicz, who saw immense potential in AI technology to predict and prevent HWCs. Frąckiewicz has suggested that AI can "... analyze patterns and trends in data, enabling us to anticipate potential conflicts before they occur. For instance, AI can use satellite imagery and GPS tracking data to monitor animal movements and predict their future locations. By doing so, it can alert us to potential conflict hotspots, allowing us to take preventative

¹³⁴ S. Nyoka, "Zimbabwe's Dilemma over Deadly Enemy Attacks", *BBC News Zimbabwe*, 2022-11-13, <https://www.bbc.com/news/world-africa-63597223>, accessed 2024-02-7.

¹³⁵ S. Nyoka, "Zimbabwe's Dilemma over Deadly Enemy Attacks", *BBC News Zimbabwe*, 2022-11-13, <https://www.bbc.com/news/world-africa-63597223>, accessed 2024-02-7.

measures”.¹³⁶ Further, Frąckiewicz stated that AI can speedily and precisely process huge data loads on weather patterns and animal behaviour, for example, to anticipate possible conflict zones in areas where HWCs are frequent. If AI can identify, for example, patterns of behaviour that indicate when animals are likely to enter human settlements, Frąckiewicz predicted that such information can be used to develop preventive strategies “... to deter animals from these areas during these times”. It can also improve responses to events when they occur and assist in identification “... of conflict-causing species, enabling a more targeted and effective response. AI can also help track the effectiveness of conflict mitigation measures, providing valuable feedback that can be used to refine these strategies”. Finally, while warnings that AI models depend on using high-quality data for accurate predictions, and acknowledging that superior data may not necessarily be available in many parts of the world, Frąckiewicz remains optimistic about the future: “By leveraging AI technology, we can make significant strides in predicting and preventing human-wildlife conflicts, ensuring the safety of both humans and wildlife. As we continue to refine and improve these AI models, we can look forward to a future where human-wildlife conflicts are a thing of the past”.¹³⁷

Similar observations on the value of AI in mitigating HWC are increasingly being made in wildlife articles. To name a few, Wildlife Conservation Trust: “Can artificial intelligence predict human-wildlife conflict?”; Vodafone: “IoT in the wild: Vodafone tackles human wildlife conflict with new solution”; and Think Wildlife Foundation: “How is technology being used to mitigate human wildlife conflict?”. There are many more such articles.

7.7 Practicalising local conservation traditions and indigenous knowledge systems

In many parts of the world, indigenous knowledge is under threat. As claimed by Aswani *et al.*, across the globe, “... indigenous communities are facing tremendous cultural, economic and environmental changes, which contribute to weaken their local knowledge base”.¹³⁸ Continual environmental changes can negatively impact cultural and biological diversity. Aswani *et al.* showed that globally, much of the indigenous ecological knowledge loss results from “globalization, modernization, and market integration”.¹³⁹

¹³⁶ M. Frąckiewicz, “The Role of AI in Predicting and Preventing Human-Wildlife Conflicts”, in TS2 Space, IT, UK, Artificial Intelligence, News, 2023-06-03, <https://ts2.space/en/the-role-of-ai-in-predicting-and-preventing-human-wildlife-conflicts/>, accessed 2023-10-08.

¹³⁷ M. Frąckiewicz, “The role of AI in predicting and preventing human-wildlife conflicts”, in TS2 Space, IT, UK, Artificial intelligence, News, 2023-06-03.

¹³⁸ S. Aswani, A. Lemahieu & W.H.H. Sauer, “Global Trends of Local Ecological Knowledge and Future Implications, in A. Viña, (ed.), *PLoS ONE*, 13(4), 2018-04-05, p. 1, <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0195440&type=printable>, accessed 2023-07-11.

¹³⁹ S. Aswani, *et al.*, “Global Trends of Local Ecological Knowledge ...”, in A. Viña, (ed.), *PLoS ONE*, 13(4), 2018-04-05, p. 1.

Indigenous knowledge, sometimes referred to as local knowledge, is recognised globally as a useful conservation asset. Commenting on their ethnobotanical work using anthropological methodologies in two natural parks in Trás-os-Montes, Portugal, Carvalho and Frazão-Moreira referred to local knowledge as both practical and dynamic. Practical in the sense that it is grounded on empirical observation, long experience, and transmitted through oral traditions, but also dynamic in that it can integrate different sources of knowledge. Local knowledge they say “... is not merely of academic or historical interest but is fundamental to maintaining cultural identity and useful for providing more realistic evaluations of environment, natural resources and production systems”.¹⁴⁰

Botha's definition of indigenous knowledge systems echoes both the dynamism and practicality mentioned by Carvalho and Frazão-Moreira when applied to localised communities in that the “... skills, technologies, processes and systems that were developed and adapted by cohesive traditional societies”, were “... produced, applied, practised and preserved over generations to ensure their long-term persistence, sanity and progress within their natural, social and economic environments”.¹⁴¹ Aswani *et al.* see local and indigenous knowledge as “... understandings, beliefs, and practices that human societies develop longitudinally in relationship with their natural environment, and which are dynamic and co-evolving with social and ecological change”.¹⁴² Also, they refer more precisely to the value of local ecological knowledge (LEK) or, alternatively, indigenous ecological knowledge or traditional ecological knowledge. The contribution of LEK to mainstream conservation, they believe, began in the early 1990s when several researchers noted the cost-effectiveness and rightfulness of incorporating indigenous peoples' LEK into development and conservation projects. Aswani *et al.* deduced that LEK's “... inclusion in management or development plans is also a necessary recognition of the basic cultural and territorial rights of local and indigenous people who are often subjected to environmental injustice”.¹⁴³

The need for practical indigenous knowledge is something of which DGR manager, David Boshoff, is aware: “One of your best knowledge skills is to work with communities, and that is something we're lacking in this game reserve, a specialist that works with our communities, because you need a specialist on that”.¹⁴⁴ Over the past few years, DGR management has worked

¹⁴⁰ A. Carvalho & A. Frazão-Moreira, “Importance of Local Knowledge in Plant Resources Management and Conservation in Two Protected Areas from Trás-os-Montes, Portugal, *Journal of Ethnobiology and Ethnomedicine*, 7(36), 2011, p. 11, <https://doi.org/10.1186/1746-4269-7-36>.

¹⁴¹ A.P. Botha, *Knowledge – Living and Working with it* (JUTA & Co, Cape Town, 2007), p. 16.

¹⁴² S. Aswani, *et al.*, “Global Trends of Local Ecological Knowledge ...”, in A. Viña, (ed.), *PLoS ONE*, 13(4), 2018-04-05, p. 1.

¹⁴³ S. Aswani, *et al.*, “Global Trends of Local Ecological Knowledge ...”, in A. Viña, (ed.), *PLoS ONE*, 13(4), 2018-04-05, pp. 2 & 12.

¹⁴⁴ LSPC, SOA27, D. Boshoff, 2022-11-23.

hard with the Gauteng Government and community leaders to draw on indigenous knowledge to facilitate communication and to improve the efficacy of the DGR Community Trust, the formalised structure linking the game reserve to the neighbouring communities. The DGR management's use of indigenous knowledge is further exemplified by way of employing Khoisan personnel from Kimberley for inclusion in the Anti-Poaching Unit (APU), all of whom have extensive military and or tracking knowledge perfectly suited for their anti-poaching duties in DGR.¹⁴⁵ This effective unit works consistently in the bush for three months at a time followed by a three-week break.

It is also possible to make use of indigenous knowledge in DGR's training programmes that take place within the game reserve using trainers who are experts in local conditions. For example, when guides start at Mongena Lodge, they are usually on the Field Guide Academy of South Africa's (FGASA) certified Level 1, which is a basic qualification. To assist them further, Mongena, which has the benefit of hosting the Limpopo Field Guide Academy (LFGA) on its property, invests heavily in their further training. Part of the LFGA's payment is by way of a barter deal whereby Mongena can place students with LFGA for training. Mongena has a basic camp, Tau Camp, on the Boekenhout River, which is used by LFGA to give students access to the reserve's indigenous knowledge. Trainee field guides are housed in tents in the unfenced Tau Camp where there are two large, thatched areas, one used as a lecture room, and the other as a dining room and kitchen.¹⁴⁶

One observation made by LFGA after 20 years in the training of field guides was that nature commands respect. Even when comfortable with one's surroundings, one should be prepared for unexpected events in the bush. Indigenous knowledge passed on to students involves learning, in situ, wild animals' behaviour and signs of unease that allow one to immerse oneself deeply in a natural environment. Tau Camp is in one of South Africa's most biodiverse regions, which is a transitional zone between savanna and grassland biomes with abundant fauna and flora species, making it a valuable site for the transmission of indigenous knowledge.¹⁴⁷ This "training in the bush" experience gives trainee guides a huge advantage over those who have not had the benefit of being exposed to nature.

Another example of practicalising indigenous knowledge is illustrated by Charl Pretorius. As owner of Kwalata Lodge, he has lived in the DGR area all his life and attended primary school inside the current boundaries of DGR. Known locally as "Maredi", Pretorius started bringing students from Pretoria to his family's farm for conservation experiences when he was a student at teachers' college in Pretoria and a member of a conservation club. His family has a long

¹⁴⁵ LSPC, SOA27, D. Boshoff, 2022-11-23.

¹⁴⁶ LSPC, SOA27, D. Boshoff, 2022-11-23.

¹⁴⁷ Limpopo Field Guiding Academy (LFGA), "Life Lessons Learned from 20 Years in Field Guiding", <https://limpopotraining.co.za/2022/10/24/life-lessons-learned-from-20-years-in-field-guiding/>, accessed 2022-12-18.

association with conservation and community development in the area. Pretorius would initially share his knowledge on topics such as survival skills and trees, knowledge he had gained growing up on a farm inside Dinokeng. The story of Pretorius' association with and knowledge of trees in DGR is recorded in a chapter of *Dinokeng Game Reserve, the First Decade*,¹⁴⁸ which he co-contributed with Anthony Paton. This resonates with Carvalho and Frazão-Moreira's discovery in their previously mentioned study that the "... close relationship between people and their natural and agricultural environment has led to the development of a rich knowledge base on plants, plant-use and related practices".¹⁴⁹

Post-1994 there was a national demand for integrated team-building programmes and the Pretorius family took advantage of that by combining game viewing and conservation experiences with interactive community tours which exposed local and international tourists to tribal dancing, shebeens, traditional healers, and community life in general. Between 1994 and 2010, as Soweto was establishing its niche tours based on visits to historical sites combined with community life experiences, Pretorius decided to create a different model by offering wildlife experiences combined with community life experiences with the emphasis on education. After travelling extensively through African game reserves, including Gonarezhou, he saw no reason for not attracting visitors to Kwalata as a convenient destination rich in wildlife and bordering local African communities. This new business direction took place in 1997 and the Kwalata property expanded from an original 600 ha to 2 300 ha as the successful new Kwalata business model progressed. Pretorius' philosophy is to see the game reserve as a classroom as well as a research centre. Over the years, Kwalata has facilitated researchers involved with studies on, for example, snakes, bats, lions, and potential wild dog habitats.¹⁵⁰ Much of the work done at Kwalata by way of providing education to local communities is detailed in Chapter Eight.

7.8 Identifying and filtering global conservation knowledge applicable to DGR

Regular visitors to DGR, or those acquainted closely with it, can easily sense that it has a certain international feeling about it. It could be the Spanish accent of a tour guide gaining practical experience in DGR, or foreign languages being spoken in many of the accommodation offerings. However, to the discerning eye, both a local and global presence is embedded in the knowledge culture of DGR.

¹⁴⁸ C. Pretorius & A. Paton, "Growing up with Trees", in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade*, pp. 42-53.

¹⁴⁹ A. Carvalho & A. Frazão-Moreira, "Importance of Local Knowledge ...", *Journal of Ethnobiology and Ethnomedicine*, 7(36), 2011, p. 6.

¹⁵⁰ LSPC, SOA30, C. Pretorius, Owner of Kwalata Game Lodge, Dinokeng Game Reserve, 2022-12-01.

Since 2012 or 2013, Mongena Game Lodge has worked with an American group, Wildlife Protection Solutions (WPS), who specialise in anti-poaching software.¹⁵¹ Mongena has deployed 20 WPS cameras in the bush, allowing them to identify animals, humans, and cars. The WPS group has partnered with the DGR Management Association to place 20 more cameras strategically in vulnerable areas. The WPS group donated Earth Ranger, a software program for managing the APU, to DGR. Field personnel are given handheld devices to record incidents like cut electric fences or poaching. The WPS group has also donated funds for the APU and a mobile container office for operations. The WPS volunteers monitor cameras at night to alert rangers to any suspicious activity.¹⁵²

Eagan *et al.* argue for increasing global environmental knowledge due to its economic and effective delivery of public services, its usefulness in decision-making, influence in public policy, and its use in supply-chain management. They also highlight the importance of cross-media, aggregated environmental information for improved decision-making, and the existence of technology that provides spatially connected environmental information.¹⁵³

Kwalata and Mongena have established cooperative agreements with various academic institutions, including Centurion Academy, which offers farm and game management courses on Kwalata, and the University of Ravensburg-Weingarten, which brings MBA students to Kwalata Lodge. These partnerships have allowed for active intellectual exchanges between professors from both institutions, such as helping modernise Kwalata's website and presenting the Kwalata business model to the university. The relationship between Kwalata and Mongena has been a significant part of their academic collaborations, demonstrating their commitment to promoting sustainable practices and promoting indigenous knowledge.¹⁵⁴

Knowledge sharing has taken place between research peers as illustrated by Wits' herpetology researcher, Professor Graham Alexander's collaborative puff adder project in DGR with Professor Andrew McKechnie from UP. Using a high-tech method to measure "... changes in the different concentrations of different isotopes of hydrogen and oxygen to calculate the rates of carbon

¹⁵¹ On the Wildlife Protection Solutions website, <https://wildlifeprotectionsolutions.org/>, this international wildlife conservation non-profit describes its mission as using technology for the conservation of endangered species and ecosystems. Their tech experts have developed a mobile and desktop app to fight wildlife crime in real time. Monitoring is done 24/7 using camera traps and software to detect wildlife threats and enable prompt responses to illegal intrusions and activities, n.d., accessed 2023-07-05.

¹⁵² LSPC, SOA29, E. Toerien, 2022-12-01.

¹⁵³ D.J. Richards, B.R. Braden, R. Allenby & W.D. Compton, "Public Access to Environmental Information", in P.D. Eagan, L.M. Wiese & D.S. Liebl, (eds.), *Information Systems and the Environment* (National Academy of Engineering, National Academy Press, Washington D.C., 2001), pp. 173-174, <https://nap.nationalacademies.org/read/6322/chapter/17>, accessed 2023-07-10.

¹⁵⁴ LSPC, SOA30, C. Pretorius, 2022-12-01.

dioxide excretion at the lung surface”, they calculated the number of meals puff adders needed to survive and how long they could last on one meal. This research relates to the importance of puff adders as rodent predators and their value to the ecosystem service by keeping rodent populations under control. Alexander’s work involved tough research in the field with the help of others, including Brian Moritz, one of Alexander’s PhD students. Of other helpers, Alexander predicted that some would conduct their own research in Dinokeng the following year.¹⁵⁵ Alexander’s knowledge of snakes has been shared at various scientific gatherings, for example, at a plenary of the 17th Scientific Meeting of the South African Association for Laboratory Animal Science. He was invited to present his research findings at the annual Zoological Conference in Stellenbosch in July 2011.¹⁵⁶ This is what Botha refers to as networking knowledge.

Networking knowledge is a community of practice emerging from a small group of people with a specialised interest and similar sense of purpose, who have worked and communicated together over time and who combined their knowledge to understand their work more deeply.¹⁵⁷ The group of herpetologists in DGR combining their knowledge and experience in a co-operative team for a collective good or community of practice, illustrates the importance of knowledge networking.

Conferences also provide a valuable vehicle for communities of practice. Mongena Lodge has established itself as a convenient international conference destination. Beginning in 2017, and prior to the Covid-19 pandemic, Mongena hosted international veterinarian conferences with delegates from as far afield as the USA and Finland. This tradition continued, post-Covid, in 2022 when 67 veterinarians attended a week-long conference relating to horses. In the following week, 76 veterinarians attended a small animals’ conference. The attendees at the 2017 conference had already earmarked their 2018 conference for Cape Town. However, by the end of the 2017 conference, the delegates opted to continue future conferences at Mongena for the bush experience rather than the attractions of Cape Town. Toerien confirmed that bookings had already been made for the conferences at Mongena in 2023 and 2024.¹⁵⁸

Kevin Richardson, known as "The Lion Whisperer," is a passionate fundraiser and conservationist who has gained international attention for his work with captive and wild lions. His documentaries and videos highlight the conditions of both captive and wild lions. Richardson's book, *Part of the Pride*, details his life with large carnivores. The KRF, one of DGR's largest sponsors, supported the organisation during the Covid-19 epidemic. Richardson's mission is to highlight the status of Africa's most iconic predator, the lion, through his media work and collaboration with

¹⁵⁵ LSPC, DGR, “Love is in the Air ...”, *Dinokeng Game Reserve News*, Edition 16, April/May 2011, p. 3.

¹⁵⁶ LSPC, DGR, “Love is in the Air ...”, *Dinokeng Game Reserve News*, Edition 16, April/May 2011, p. 3.

¹⁵⁷ A.P. Botha, *Knowledge – Living and Working with it*, p. 143.

¹⁵⁸ LSPC, SOA29, E. Toerien, 2022-12-01.

campaigners, researchers, and scientists.¹⁵⁹ Richardson's work is mentioned here as an example of how foundations can make significant differences to communities.

With the mass of knowledge being made available daily, knowledge filtering needs human intervention, even using an intelligent agent to filter knowledge in the future.¹⁶⁰ How humans filter knowledge is not uniform. For instance, two people with the same knowledge may interpret it very differently. In DGR, two groups with the same or similar knowledge about elephant behaviour, the DGR managers and ERP personnel, arrived at differing approaches to elephant management in the game reserve.

The ERP's version of events was that because of elephant bulls breaking fences in DGR in 2013, they were requested to help the reserve in remote monitoring of the elephants using satellite collars and a monitoring app. An elephant bull, Peter Pan, was shot by a neighbouring farmer in October 2016, and another bull, Tiny Tim, had been involved in an N1 break-out freeway accident. The ERP became involved using satellite collars and a monitoring app in mitigating HECs that DGR experienced between January 2017 and February 2018. A response would only occur if elephants got too close to fences or if a threat to people was perceived. A full-time monitor was appointed as well as relief monitors, and geofences were set up along perimeter fences and island properties. Reserve management would receive an SMS if elephant bulls entered a geofence. According to ERP, owing to the large number of geofences, DGR requested that the ERP elephant monitor be the alert system. The monitor co-operated with the reserve's staff response team. Considerable elephant data was gathered during this time including that on elephant health, fence behaviour, identification kits and distinctive features, photographs, and elephant contraception.¹⁶¹

The ERP monitors wrote a report on the state of the reserve's fences and gates and kept all records of elephant incidents. They also assisted with the translocation of two of the four bulls to Mozambique's Zinave National Park. They identified the major trend for fence breakages as being related to the elephants' attraction to such things as animal feed, water, and palatable vegetation. As a strategic partner ERP was also committed to funding a beehive-project on the reserve's

¹⁵⁹ Kevin Richardson Foundation, The Lion Whisperer, <https://www.lionwhisperer.co.za/>, accessed 2022-12-08.

¹⁶⁰ 'TechTarget' defines an intelligent agent as a program that uses parameters provided by the user to search the Internet and to "... make decisions or perform a service based on its environment, user input and experiences". They can gather information autonomously when prompted to do so. They are sometimes referred to as bots, an abbreviation for robots. TechTarget, <https://www.techtarget.com/searchenterpriseai/definition/intelligent-agent#:~:text=An%20intelligent%20agent%20is%20a,the%20user%20in%20real%20time>, accessed 2022-12-29.

¹⁶¹ ERP, "ERP Elephant Monitoring at Dinokeng Game Reserve", 2018-09-05, <https://www.erp.ngo/erp-elephant-programme-project-updates-1/2018/9/5/erp-elephant-monitoring-at-dinokeng-game-reserve>, accessed 2023-01-05.

perimeter fence and to sponsoring community projects in proximate communities. However, fractures occurred in the ERP and DGR relationship over differing elephant management approaches. The former put the dissolution of the agreement down to DGR's lack of management experience, understaffing, "... dwindling engagement and action from the reserve's side, internal politics in the reserve, and the perceived power of individual landowners", all of which made it, in their view, impossible to carry out necessary interventions.¹⁶² This brief incursion into DGR-ERP relations illustrates the point that when dealing with mitigation of HWC, conflict may arise between humans on how best to approach the issue even though they might have the same knowledge about elephants. A formal DGR repudiation of ERP's apportioning of blame has not yet come to light during this research. The ERP issue aside, DGR continues learning about elephant behaviour, and has issued landowners and tourists with information on the "do's and don'ts for co-existing with ellies in the DGR".

The delivery of information to a user by an intelligent agent is known as push technology. Time constraints mean that one must be selective as one cannot read all the information delivered. Received information still needs filtering to establish which of that information is relevant to the specific task and to identify which information offers the best knowledge value. This is an enormous task to undertake by oneself. However, technology, using intelligent agents such as ATLAS.ti, will increasingly make the task easier for researchers. In the meantime, one must still establish whether the knowledge is applicable to the work at hand, whether it can be validated and verified, whether it is relevant and where it fits in, whether it can be used as is, or whether it needs to be modified. The danger of not filtering judiciously is that "... we will get lost in the world drowning in decontextualized knowledge".¹⁶³ Intelligent agents will in due course improve the ability to filter information and streamline it with a researcher's specific information needs.

Knowledge sourcing is a challenge, especially in an ocean of knowledge that is growing exponentially. In finding knowledge, one identifies the sources of knowledge (e.g., minutes of landowner meetings or government policy documents); the type of knowledge owners you are dealing with (such as community members, lodge owners, or conservationists); the formats in which knowledge is stored (e.g., government offices, electronic, or oral); and how to unlock that knowledge. Often, it depends on a special communication skill, or using the right cyber navigation tools, which are continually improving, or simply an assiduous search for and enquiry about useful documents and reliable interviewees.

¹⁶² ERP, "ERP Elephant Monitoring at Dinokeng Game Reserve", 2018-09-05.

¹⁶³ A.P. Botha, *Knowledge – Living and Working with it*, pp. 72-74.

7.9 Concluding remarks

Prior to DGR's opening in 2011, considerable research had already taken place in this biodiversity-rich area. Its proximity to some of South Africa's top research institutes, including those involved in wildlife research, has benefited both the game reserve and those institutions. Evidence has been provided of the sharing of knowledge, as well as the considerable goodwill from DGR management and land and lodge owners in facilitating research in DGR. The results of research studies are usually fed back to DGR's operational staff to improve conservation management and influence strategic decisions.

The chapter highlights the DGR's role as a regional and global environmental research node in flora, fauna, and biodiversity research. It highlights the impact of human-wildlife interaction on wellbeing in and around the game reserve, which is undergoing ecological restoration and reintroduction of endemic species. The chapter also discusses the history of scientific research in DGR, highlighting themes and projects considered ecologically important during its early years (1995–2018) and beyond. It also highlights the attraction of local and international researchers to DGR and the value of their findings to the conservation community. The chapter provides valuable insights into the DGR's scientific research history and future research opportunities.

Some of the research projects documented in this chapter indicate current research trends, notably the examination of habitat exploration involving wild animals reintroduced to DGR. Several other studies showed how animals vulnerable to predation had to balance their time between grazing or browsing and vigilance.

Not all research projects conducted in DGR have received attention in this chapter, largely because information on them was scarce or unavailable. For example, research on warthogs has been underway on Mongena for several years. Further information is still awaited on research done by a Danish heart surgeon group who came to DGR for a week at a time over several years to understand how giraffe control their blood pressure. These were human heart surgeons, not veterinarians, who stayed at Mongena, making use of boardrooms and other facilities while conducting their practical work at Wildlife Assignments quarantine facility inside DGR. Developments such as the proposed state-of-the-art wildlife hospital for which a long-term land lease has been signed with Mongena, highlight a growing confidence in DGR as a place of learning, creative thinking, research, and experimentation in conservation management.

Referring to conservation-minded tourists and researchers who have visited DGR, Dinokeng author and landowner, Ludger Helm, had the following to say: "... these are the people we wish to attract to our new conservation model. And since they share the same vision and belief, we hope they will come back again and again to follow our achievements, to learn about our

challenges and to find ways to adapt and use our example in their own environments. At the same time, we will create increasing interest among researchers and scientists”.¹⁶⁴

When conducting research on DGR one must never lose sight of its primary goal and purpose. As consistently noted throughout this thesis, DGR’s primary goal was to bring about socio-economic upliftment through ecotourism to those communities in northeastern Gauteng that were proximate to the game reserve. Several formal attempts were made to quantify the influence DGR had on the lives of those communities living close to the reserve. There were, however, no baseline studies against which comparative improvements could be measured. In the next chapter, the attempts made to quantify the socio-economic effects that DGR has had on local communities are scrutinised. During these formal assessments, little attention was given to the many unacknowledged pro-community projects that have been underway for many years in DGR. In Chapter Eight, this omission is countered by strong evidence that in fact a good deal of humanitarian work has been in progress in the area, both prior to and after DGR’s development.

¹⁶⁴ L. Helm, “Take Care of Nature, and Nature will Take Care of Us”, in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade*, p. 20.

CHAPTER EIGHT

COMMUNITY PROGRAMMES AND BENEFITS WITHIN AND BEYOND DINOKENG GAME RESERVE'S BOUNDARIES

8.1 Measurement of community-based conservation project successes – an introduction

Chapter Eight covers the last research aim by identifying where Dinokeng Game Reserve's (DGR) social responsibility programmes are based, how they are organised and what their impact has been on local communities within and neighbouring the reserve. Close attention is also given to how community engagement programmes have been received by local communities since the opening of DGR in 2011.

The chapter begins with a record of social responsibility programmes and actions that preceded DGR's opening in 2011. This evidence caused the researcher to consider whether sufficient credit had been given to actions by a variety of individuals and organisations already engaged with assisting local communities prior to DGR's opening. This is followed by a record of some of the main social responsibility activities after DGR's opening in September 2011. Finally, two 2022 reports on DGR's contribution to local communities are examined. These reports, which provide valuable suggestions, appear to be based on views recorded in responses to questionnaires. These views do not fully align with written and oral evidence the researcher has uncovered concerning the very real economic and social contributions to neighbouring communities by the DGR management and landowners.

The two measuring attempts, one by Queiros and Mearns in 2022 and the other, the 2022 Synthesised Socio-Economic Assessment Report (SSEIA),¹ a report commissioned by the Gauteng Provincial Government's (GPG) Dinokeng Project, were consulted. Both reports largely relied on perception-based evidence and did not cite or examine any of the actual community upliftment programmes that the researcher had encountered in his primary and secondary sources. The latter report presented terms, methodologies, findings, and recommendations. Although acknowledging the value of DGR, the findings appear to have overlooked the historical record of altruistic work done for communities before and after the reserve's opening. As DGR is a relatively new developmental project, no prior in-depth study existed as a baseline for a comparative measure of improvement. A recommendation is that for comparative progress reports in future, more precise research tools are needed to accurately assess post-2011 benefits.

¹ Moonraises Strategic Solutions (MSS), *Synthesised Socio-Economic Impact Assessment Report, Evaluating the Socio-Economic Impact of the Dinokeng Game Reserve Project on its Adjacent Communities & Businesses*, April 2022.

The contributions of the community of landowners who enabled the development of DGR are often overlooked. While government funding and expertise for socio-economic upliftment of neighbouring communities made the current model possible, it is important to recognise those whose contribution of land to the game reserve made the venture a reality. Where DGR's social responsibility programmes are based and how they are organised is also a focus of this chapter. Equally important is the need to establish the extent to which they have had an impact on the communities within and neighbouring the reserve. In establishing the benefits of ecotourism, Adeleke and Nzama observed that theoretically, at least, "... support for conservation from the various types of stakeholders inside and outside protected areas is maximized if stakeholders benefit proportionally to the opportunity cost they bear".² A number of researchers concur with the refrain that disproportional benefit may lead to diminished support from stakeholders for an ecotourism project.

If one considers Zimbabwe's first Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) project at Chilo Gorge, Gonarezhou, for example, its development was based on the basic principle that if you want the community to care about wildlife, they need to benefit from the wildlife and to be engaged in conservation efforts. Failing that, conservation projects will likely fail. Andrea Hugo³ pointed out that, while this approach is not new today, it was groundbreaking over 40 years ago when Clive Stockil⁴ founded Chilo Gorge. His initiative has since inspired many versions of his conservation model across Africa.⁵ That is not to say that CAMPFIRE is without its weaknesses.

While the aims of this chapter do not allow space for a detailed digression into the history of CAMPFIRE projects in Zimbabwe, it is worth noting that a substantial genre of CAMPFIRE literature exists that critiques the model. Tchakatumba *et al.*, for example, provide an excellent analysis of CAMPFIRE's advantages and disadvantages. They have queried the extent to which households benefit economically from wildlife. Their study encompassed three CAMPFIRE projects at Chipinge, Chiredzi, and Beitbridge in Zimbabwe's southern lowveld. Overall, their findings were positive with an acknowledgement that communities felt they were better off with,

² B.O. Adeleke & T. Nzama, "Assessment of Community Participation in Ecotourism and Conservation at Hluhluwe-Imfolozi Park, South Africa", *Journal of Environment and Earth Science*, (Online) 3(3), 2013, p. 27.

³ A. Hugo, "Gonarezhou National Park, Zimbabwe" - Webinar presented by Andrea Hugo Associates, 2019-04-05, <https://www.youtube.com/watch?v=YsSeSYMHUFI>, accessed 2023-09-11.

⁴ Clive Stockil is known for his contribution to creating the Save Valley private reserve in the southeast of Zimbabwe, and later for his role in the Mahenye Community Project whose principles were to become incorporated into Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE).

⁵ *Legends and Legacies*, "Clive Stockil a Pioneer in Community Conservation", <https://legendsandlegaciesofafrica.org/clivestockil.php>, accessed 2024-02-25.

rather than without, CAMPFIRE. However, at household level, community members felt that they benefit least from CAMPFIRE, "...as compared to other stake-holders, mainly safari operators, hunters, district council, Government, and ward councillors". Local people also complained of a lack of transparency, the district council's "top-down" approach, poor remuneration, and poor programme management.⁶ The Tchakatumba *et al.* studies, along with others, such as that of Balint and Mashinya, reference the hard knocks the CAMPFIRE projects took after 2000 when donor funding was withdrawn from Zimbabwe and a severe political and economic crisis struck.⁷ The dysfunctional Zimbabwean political system has failed to self-correct despite targeted economic sanctions.

Attempting to measure the efficacy of community-based conservation (CBC) projects in general, has been limited, and may not yet meet, for example, criteria outlined by Brooks *et al.*, who used vast databases for quantitative and qualitative studies of community-based conservation projects, so providing a more nuanced history of community benefits.⁸ It is perhaps too soon to establish with certainty who the real beneficiaries are of the establishment of DGR, particularly as the goals of South Africa's National Biodiversity Strategy (NBES) to which DGR adheres, remain controversial. Based on the researcher's personal observations in the field, his discussions and interviews with many role-players over a period of seven years, and his extensive reading about the study area, he feels equipped to comment on DGR's benefits. Arguably, participant landowners in DGR can enjoy a lifestyle that few South Africans of all races can afford, together with opportunities to create their own ecotourism products should they wish to do so. For local, neighbouring community members, an important benefit lies in employment opportunities within the reserve; however, these remain finite unless DGR can further expand its boundaries. Finally, biodiversity has benefited from the reintroduction of endemic species, improved ecosystems, and efforts to increase genetic diversity.

8.2 Altruistic efforts at socio-economic upliftment prior to DGR's opening, 2011

Without denigrating the Queiros and Mearns study and the Dinokeng Project-commissioned report, one could argue that a reader unfamiliar with the inner workings of DGR might conclude from these reports that at the time of their release, very little had been done towards the social

⁶ P.K. Tchakatumba, E. Gandiwa, E. Mwakiwa, B. Clegg & S. Nyasha, "Does the CAMPFIRE Programme Ensure Economic Benefits from Wildlife to Households in Zimbabwe", *Ecosystems and People*, 15(1), p. 130, doi.org/10.1080/26395916.2019.1599070.

⁷ P.J. Balint & J. Mashinya, "CAMPFIRE During Zimbabwe's National Crisis: Local Impacts and Broader Implications for Community-Based Wildlife Management", *Society & Natural Resources*, 21, 783-796, [doi:10.1080/08941920701681961](https://doi.org/10.1080/08941920701681961).

⁸ J. Brooks, K.A. Waylen & M.B. Mulder, "Assessing Community-Based Conservation Projects: A Systematic Review and Multilevel Analysis of Attitudinal, Behavioral, Ecological, and Economic Outcomes", *Environmental Evidence*, 2, Article number 2(2013), <https://doi.org/10.1186/2047-2382-2-2>.

and economic upliftment of its close communities over the preceding two decades, and that little concern was shown for the eco-health of these communities. In the interests of fairness and objectivity, historical evidence is presented in this section that reveals a long-standing tradition of civic and social duty in DGR, one that was already present and active well before DGR's opening in 2011.

From the research done, there is a sufficient footprint from the mid-1990s to indicate that the development of the DGR was premised on the idea of including previously disadvantaged people. In recent years, the Department of Forestry, Fisheries and the Environment (DFFE) has further emphasised the need to build nationally on the successes of the economic approach to wildlife conservation that has been underway since the 1970s. This it is doing through the National Biodiversity Economy Strategy (NBES) which was updated in 2024 to move further away from colonial "fortress conservation". Thomson *et al.*, who support the DFFE's strategy, which has not gone uncontested, identify the development of partnerships and the creation of economic links among different land users as a start to transition away from the old "fences and fines" conservation. They recommend more cooperative and integrated conservation measures for the South African context. They conclude that "... the most encouraging aspect of the plan is its focus on inclusivity and bringing hitherto excluded rural communities into the biodiversity economy".⁹

Dan Brockington famously challenged aspects of fortress conservation as early as 2002 in his book, *Fortress Conservation: The Preservation of the Mkomazi Game Reserve, Tanzania*.¹⁰ Since then, some environmental organisations have challenged the methods employed by fortress conservation for several reasons. Greenpeace, for example has been outspoken about its perceived negative approach to conservation. It says that evicting local residents and indigenous peoples from their ancestral lands in the name of fortress conservation is unethical and has disastrous results. It accuses international funders of supporting armed eco-guards who have been accused of raping, abusing, harassing, and killing local residents. These horrors, it continues, stem from a failing colonial-based conservation approach that views marginalised communities as wildlife threats. It strongly recommends that governments looking to reach their conservation targets should give up on what it considers an antiquated method as it cannot be the solution to the global crisis.¹¹ As mentioned in Chapter Two (Section 2.8), from about 1997,

⁹ G. Thomson, R. Lubilo, S. Johnson, A. Dickman, M. t'Sas-Rolfes, C. Brown, M. Lindeque, C. Bruce, F. Vorhies, K. Madders, B. Child, S. Muyengwa & S. Snyman, Monetising Wildlife "Op-Ed", *Daily Maverick*, 2024-03-24.

¹⁰ D. Brockington, *Fortress Conservation: The Preservation of the Mkomazi Game Reserve, Tanzania* (James Curry Publishers, Oxford, 2002).

¹¹ I. Wabiwa Betoko & S. Carvalho, "To Protect Nature, Bring Down the Walls of Fortress Conservation", Greenpeace, 2020-10-20, n.p., <https://www.greenpeace.org/international/story/45497/indigenous-people-biodiversity-fortress-conservation-power-shift/>, accessed 2024-05-28.

DGR's planners set about following a more inclusive approach to conservation, intentionally avoiding the exclusive strategy of fortress conservation.

Thomson *et al.* identified one of the weaknesses inherent in South Africa's national biodiversity strategies of the past decades as being the exclusion of rural Africans, "... particularly those living in communal areas with no secure land tenure and therefore no legal ownership over wildlife".¹² It must be re-emphasised that a major feature of DGR is that the land within the reserve is largely privately owned by mostly white landowners and the provincial government. This arrangement meant that no poor community was forced out of the area to make way for a game reserve as is common with fortress conservation. There are no communal areas within DGR; however, there are several neighbouring communities whose participation in the game reserve would be most welcome by management. Nevertheless, the landowner community within DGR is strongly aware of the need to assist and cooperate with neighbouring communities in many ways.

8.2.1 Kwalata's early role in community engagement

Prior to DGR's opening, private landowner initiatives supported underprivileged children. Kwalata Game Farm recognised the need for meaningful investment in communities and has been actively involved since 1990. In 2004, a case study was conducted by Travel and Tourism students from Prestige College in Pretoria, examining the tourist potential in the Hammanskraal area. The students hoped that this would alleviate poverty and contribute to Hammanskraal's economic development. The Kwalata team continues to actively engage with communities and apply their hands-on philosophy.¹³

Five years prior to DGR's opening, Kwalata Game Ranch joined forces with Helpmekaar College in Johannesburg to design an outreach programme where learners could expand their knowledge and skills through practical training. This programme recruited approximately 120 learners, who, in three groups of 40, undertook various projects that would leave a legacy for the ones they helped. Between 2006 and 2008, rotating Helpmekaar groups painted a day care centre in Steve BikoVille, sandpapered and varnished school benches at Saint Camillus Catholic School, attended brick-making classes at Phananani Development Centre, helped repair and clean two more day care centres, and spent several days painting the Ikageng and Letabong day care centres.¹⁴ Appropriately, the school's slogan, "Komaan", was taken from the title of a Jan F.E.

¹² G. Thompson, *et al.*, Monetising Wildlife "Op-Ed", *Daily Maverick*, 2024-03-24.

¹³ Kwalata Community Development Initiative (KCDI), "Community Tourism in Hammanskraal (Gauteng)", 2004-12-01, <https://kcdi.kwalata.co.za/>, accessed 2023-01-26.

¹⁴ N. Schmidt, "Dinokeng's Kwalata Game Ranch gets involved", *Daily Southern and East Africa Tourism Update*, 2008-10-20, <https://www.tourismupdate.co.za/article/dinokengs-kwalata-game-ranch-gets-involved?page=35>, accessed 2023-02-02.

Celliers poem, titled, “Komaan Helpmekaar”, translated literally as “come on help each other”. Helpmekaar originally concentrated on youth development in the Afrikaner section of the population, while also facilitating a distinctive Afrikaner culture. Ehlers, noted, however, that although historically it had a sectional ethnic and racial focus, “... its contributions benefited a far wider community than had originally been intended”.¹⁵ Helpmekaar College’s work in the DGR in the 2020s appears to support that positive viewpoint.

Beginning in 2007, Adventure Addicts, a tour company, partnered with experienced facilitator, Stanley Megana, to offer safe township tours in Hammanskraal. Tours commenced with a taxi drive to Hammanskraal's Mandela Square arranged by local taxi boss, Jonas Thapedi. Here, tourists could see a life-size statue of Nelson Mandela; watch local crafters, including wood carvers at work; and watch gumboot dancers while quaffing “Shake-Shake”, a traditional sorghum beer.¹⁶

Mekateko Ya Bana, an NGO supporting 4000 disadvantaged children in Hammanskraal, organised a "Fun in the Safari Sun" field trip to Kwalata Game Farm in October 2007. The trip involved children aged three to six from 37 centres, with sponsorship from various organisations and businesses. Onicca Hlabela, the organiser, emphasised the importance of the children learning to appreciate their environment and the beauty of Dinokeng, despite their poverty. The children, living in a natural splendour, needed encouragement to appreciate and enjoy their environment.¹⁷

By 2009, interest by benefactors in developing the communities around DGR was growing and Kwalata, with the help of Grant Thornton,¹⁸ erected two roofing structures in Mandela Village, Hammanskraal, one at each of the Bangiswani and Kesentswe day care centres, and gave assistance to Mokubjane Old Age Home.¹⁹ In 2010, Grant Thornton personnel returned to the community, donating jungle gym equipment to both Bangiswane and Kesentswe day care

¹⁵ A. Ehlers, “The Helpmekaar: Rescuing the ‘volk’ through Reading, Writing and Arithmetic, c.1916-c. 1965”, *Historia*, 60(2), 2015, p. 108, <http://www.scielo.org.za/pdf/hist/v60n2/05.pdf>, accessed 2024-02-27.

¹⁶ “Mandela Village, a unique township tour in Dinokeng”, *The Calabash*, November 2007 Edition, p. 6.

¹⁷ “Dinokeng’s disadvantaged children enjoy safari fun day”, *The Calabash*, November 2007 Edition, p. 8.

¹⁸ SNG Grant Thornton is the South African member firm of Grant Thornton International Ltd. Of their social responsibility projects, they say: “We are passionately committed to having a positive impact in the regions in which we have a presence. By supporting local people we can build ties with communities, which ultimately makes our business stronger and leads to better solutions for our clients”., <https://www.granthornton.co.za/about-us/corporate-social-responsibility/>, accessed 2023-02-02.

¹⁹ KCDI, “Thanks to Grant Thornton”, 2009-11-29, <https://kcdi.kwalata.co.za/>, accessed 2023-01-26.

centres, and a roof for a broiler chicken operation at Regataregatoga Cooperative, so contributing to the betterment of the communities around DGR.²⁰

In 2009, Kwalata graded a new soccer field for pupils of the local Fanjan School, while First National Bank (FNB) donated soccer balls.²¹ The following year, with interest in the 2010 FIFA Soccer World Cup at fever pitch, FNB Hammanskraal donated soccer kits to the Fanjan soccer team, “kuduzelas” (plastic trumpets in the shape of a kudu horn popular with South African soccer supporters), and an entrance gate to the Fanjan School Soccer Club.²² Fanjan School also benefited from a leadership development project held at Kwalata, which included a presentation on herpetology and the value of snakes to our natural environment.²³

The Just Footprints Foundation identified Kwalata Game Farm as a focal point for community programmes, particularly its Adventure Camp. Camp Footprints was designed to provide learning and play therapy for children with life-threatening illnesses, disabilities, or trauma. The camp is wheelchair- and environmentally-friendly, with a staffed medical unit, and is reportedly a first-of-its-kind camp in South Africa. The camp's therapeutic wildlife space aims to make a positive impact on the lives of children unable to participate in normal childhood outdoor experiences due to illness or traumatic life circumstances.²⁴

Among experts in various fields who offered their time and talents to children during Just Footprints camp sessions at Kwalata in 2011 is Ed Dean.²⁵ Dean's "One Photo at a Time" project teaches children classical photography, allowing them to view the world from their own perspective. This approach helps children undergoing medical treatment find their voice and create powerful imagery, allowing them to express their unique perspectives on the world.²⁶

In 2011, Mayor of Tshwane, Kgosietsi Ramokgopa, visited Tender Loving Care (TLC) nursing home for the elderly and praised Joanna Mokubane for living out Mandela's values. Mokubane, from Hammanskraal, initially cared for the elderly in her home before acquiring land. With donations and assistance from Kwalata and Colin McGeer of Oasis Revival Ministries, she built

²⁰ KCDI, “Our thanks to Grant Thornton”, 2010-04-09, <https://kcdi.kwalata.co.za/>, accessed 2023-01-27.

²¹ KCDI, “The first game”, 2009-12-07, <https://kcdi.kwalata.co.za/>, accessed 2023-01-26.

²² KCDI, 2010-05-02, <https://kcdi.kwalata.co.za/>, accessed 2023-01-27.

²³ KCDI, “Leadership development projects”, 2011-02-27, <https://kcdi.kwalata.co.za/>, accessed 2023-01-27.

²⁴ Just Footprints, “Our dream home”, <https://justfootprints.org.za/our-dream-home/>, accessed 2023-01-27.

²⁵ KCDI, “Ed Dean for Just Footprints”, 2011-03-25, <https://kcdi.kwalata.co.za/>, accessed 2023-01-27.

²⁶ E. Dean, Project Outlook, personal message, 2020-04-09, <https://www.backabuddy.co.za/champion/project/justfootprints>, accessed 2023-01-27.

zinc structures for the elderly. Kwalata organised a celebration for the foundation-laying for a new set of rooms for 30 people. According to Graeme Thorpe of nearby Desto training college, as long as the materials were donated, his apprentices would finish the whole building as a training exercise.²⁷

Much of Kwalata's work was done on the understanding that it would assist in developing a sustainable tourism model to benefit surrounding communities where skills were low and unemployment high. In 2008, having recently won the Tshwane Tourism Award recognising the efforts of tourism leaders who have enhanced the quality of community life, Pretorius, said: "Our reward is knowing that we have personally put our hands to the plough to touch lives, one school learner at a time, one little toddler in day care centre at a time ... this is a proud legacy for tourism success".²⁸

8.2.2 Other pre-2011 efforts to bring hope to DGR's communities

Other community outreach efforts, including introductions to conservation and environmental education, took place outside of Kwalata Lodge. The Noko Eco Camp, held at Nokeng Eco Lodge in 2007, prior to DGR's opening, aimed to promote social consciousness and introduce disadvantaged girls from Johannesburg to nature through eco-based tasks, earning certificates in the process. Sponsors provided food, financial contributions, game drives, pottery, and bicycles to support the initiative, so demonstrating the lodge's commitment to social and economic upliftment.²⁹ Throughout Dinokeng, other private projects were quietly underway without any fanfare prior to DGR's official opening. One of these was Tshepo ya bana (Hope for children).

Tshepo ya bana, was started by owner, Chris Harding, in 2003 as a residential haven for orphaned or abandoned children in a game reserve environment, providing short and long-term residential care of children from birth to 15 years.³⁰ Situated inside DGR, the haven continued its admirable work until Chris sold her farm in 2023 to retire to Pretoria. Prior to leaving, she found homes for the last 10 children in her care. As with many private projects, sponsorships and donors were essential to keep Tshepo ya bana running. On Mandela Day on the 18th of July 2013, staff of Iliso Consulting, an environmental management company based in Centurion, assisted with the painting of window frames of the haven's buildings.³¹ Being inside Dinokeng, the home facility

²⁷ LSPC, JBA, N. Jackson, "Met honderd soos sy sou SA kon kook", *Beeld*, 2011-07-19.

²⁸ "Tourism pays for all ... Kwalata shows how it's done", *The Calabash*, October 2008 Edition, p. 6.

²⁹ "Eco camp: Nokeng Eco camp 24-28 September 2007", *Dinokeng Big 5 News*, Edition 2, October 2007, p. 4.

³⁰ LSPC, SOA1, C. Harding, Director of Tshepo ya Bana, foster care and temporary safe care, DGR, 2021-04-27.

³¹ "Mandela Day at Tshepo ya Bana", *Dinokeng Game Reserve News*, Edition 25, August/September 2013, p. 6.

was exposed to wildlife intrusions. Considering Tshepo ya bana's considerable running costs and its reliance on donations, it continually needed to find extra funding for unexpected events. When elephants continually broke through flimsy fencing, Chris' son, James Harding, organised a crowdfunding drive to help build a secure elephant-proof fence around Tshepo ya Bana. The crowdfunding raised £1 050 from overseas' donations. Chris Harding's daughter posted on the crowdfunding page that she was running the Bath Half Marathon in 2019 to raise these funds. She said that the current fence was severely damaged and was often breached by elephants which posed a high risk to the children's safety.³² In this small way, fundraising reached across international borders bringing in assistance for those in need in DGR.

A Nokeng Angels Project was inspired by Nokeng Eco Lodge owner, Elsje van der Westhuizen "... to unite our youth with nature and create a sense of wellbeing and balance in their lives that is otherwise overrun with city living, peer pressure and the day-to-day slog of Jo'burg's smog". Part of the concept during collective efforts in the outdoors programme was to single out leaders and achievers who came to the fore.³³ Similarly, F. Jiyane, CEO of Dinokeng Projects, announced in January 2011 that a very successful campaign involving day trips for Grade 6 learners from all eight primary schools in and around DGR was held to expose them to DGR's establishments and environment.³⁴

Someone who found an entrepreneurial opportunity was Solomon Molokela, when, towards the end of 2007, a considerable number of cattle fences had to be removed as part of the preparations for a free-roaming game reserve. The DGR Landowner's Association secured a community recycling team headed by Molokela who would re-use the material for various new entrepreneurial ventures.³⁵ Another entrepreneur benefiting from his proximity to DGR is the green-fingered, Solly Mohale.

As one approaches DGR's Tau Gate, a well-stocked plant nursery catches the eye with plants for sale on both sides of the road. It is owned and run by Solly Mohale. Originally, Solly started his nursery as a home business in 2004, then moved his nursery to its current position in 2008. He was encouraged by Charl "Maredi" Pretorius to open his business on that spot, and to focus on

³² J. Harding, "We've raised £1,050 to help build a safe and secure, elephant-proof fence around Tshepo Ya Bana", <https://www.justgiving.com/crowdfunding/james-harding-3>, accessed 2024-03-03.

³³ "Nokeng Angels – women leaders of tomorrow", *Dinokeng Game Reserve News*, Edition 13, July 2010, p. 5.

³⁴ F. Jiyane, CEO Dinokeng Projects, communique to landowners and project owners, *Dinokeng Game Reserve News*, Edition 15, January/February 2011, p. 3.

³⁵ "Recycling fences in Dinokeng", *The Calabash*, 2007 Edition, p. 3.

indigenous plants of which he now stocks a large variety. Mohale reported that his business has grown considerably and benefits from its proximity to DGR.³⁶

Paul Mashatile, Member of the Gauteng Executive Council (MEC) for Finance and Economic Affairs, addressed 800 residents of Steve BikoVille on the 21st of August 2007 to discuss the progress of the Dinokeng Blue IQ budget in promoting economic activity and job creation. He highlighted the importance of ecotourism and Dinokeng as the most beneficial economic activity given the water scarcity and low agricultural potential in the area. Also present was Councillor A. Mlondobozi, Executive Mayor of the local Metsweding District Municipality, who emphasised the importance of tourism opportunities and urged residents to participate in these opportunities. She also praised the artistic talents of the residents and encouraged them to create businesses and produce artwork for tourists.³⁷ There has also been a long tradition of the Dinokeng landowners contributing to both academic and environmental education in local communities.

As part of the preparations for the future reserve, government had decided to relocate the Fanjan School from inside the future reserve to a safer location outside the reserve. Mashatile announced that he would liaise with the MEC for Education to ensure the dilapidated and overcrowded Fanjan Primary School, situated within the game reserve, would be relocated to a new site in Steve BikoVille and that R23 million would be set aside for building a new primary school there. The Nokeng tsa Taemane Local Municipality had made land available for the erection of the new primary school and the plan was to build a high school later. Mashatile also agreed to investigate the possibility of a clinic for Steve BikoVille. Mayor Mlondobozi pointed out that the Metsweding District Municipality had trained 40 members of the community and the tourism industry as chefs, guides, and bartenders. “It is important for people to be skilled and to work together in order to make the most of the economic opportunities that have been created through the Dinokeng Blue IQ Project”, she said.³⁸

8.2.3 Working on Fire

Working on Fire (WOF), an important community employer in DGR today, was involved in the Dinokeng area prior to DGR’s official opening. On the 25th of May 2009, DGR’s Jenny Stevens announced to landowners that as part of its community upliftment programme, Blue IQ (Dinokeng Projects) had made funds available to employ the WOF team based at the Ditholo SANDF military base for that year. Stevens outlined a fire management plan for the Boekenhoutskloof Reserve,

³⁶ Republic of South Africa (RSA), Gauteng Provincial Government (GPG), Eye on Gauteng, Gauteng Department of Economic Development (GDED), “Dinokeng Game Reserve in one day”, 2013-01-26, <https://www.youtube.com/watch?v=UcfuJ2H2Si0>, accessed 2022/10/07.

³⁷ “MEC Mashatile meets the residents of Steve BikoVille”, *The Calabash*, November 2007 Edition, p. 4.

³⁸ “MEC Mashatile meets the residents of Steve BikoVille”, *The Calabash*, November 2007 Edition, p. 4.

focusing on preparing for the upcoming fire season. The plan involved burning preventive firebreaks along the reserve boundaries to prevent fires from entering DGR. Landowners were reminded of their responsibility to contain fires within their properties or face legal liability for damage to neighbouring properties. The WOF management agreed to fight landowners' accidental fires, but at the following rates: Call out – free; Labour – free; Traveling fee: R15/km; Overnight ration packs: R35; and Fuel: R200 per team per day.³⁹ Teams from WOF have become a fixed feature of fire management in DGR ever since.⁴⁰

Admission as a WOF team member involves a rigorous process, with 80% of applicants being deterred by the tough physical tests. Those who pass the physical tests are then required to attend a 25-day basic firefighting course at the national training camp. The tests are physically demanding, especially as trainees have to wear boots and full personal protection body suits. Those who fail to meet the demands are expected to resign. The WOF team's daily tasks include burning firebreaks, fighting fires, removing alien plants, and clearing vegetation from fences (known as fence clearing).⁴¹ This work in a Big 5 game reserve is dangerous, and safety specialists are crucial to ensure the safety of the WOF team.

The WOF safety specialists were originally trained by 'Oom' Willie van Wijk, an experienced trail guide, who trained three individuals in bush patrol, rifle handling, and safety to prevent conflicts with potentially dangerous animals. The safety specialists were to patrol the surrounding bush to locate and monitor threats to the WOF team. The aim was to ensure that the safety team could operate without direct supervision in identifying the position of dangerous animals and protecting their WOF colleagues without confronting the animals. Safety specialist spokesman, Parapara Mokgahlela praised the discipline, work, commitment, and hunger for new challenges in his teams, stating that their service to DGR is essential and they appreciated their exciting jobs.⁴²

The WOF teams in DGR implement the Natural Resource Management project, whose aim is to ensure that the state, as a landowner in DGR, cares for the land in terms of the National Veld and Forest Fire Act, 101 of 1998, and the Conservation of Agricultural Resource Act.⁴³ The WOF team are dedicated to supporting tourism, biodiversity, and social upliftment while safeguarding the Dinokeng Master Plan, the Environmental Management Plan, and the Habitat Report. The team

³⁹ LSPC, JBA, Email, J. Stevens, DB5 Admin to Landowners, "Fire", 2009-05-25.

⁴⁰ DGR, "Fighting Invasive Species, Lantana", in A. Paton (ed.) *Dinokeng Game Reserve, The First Decade*, p. 34.

⁴¹ DGR, Fighting Fire with Fire, in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade*, p. 38.

⁴² DGR, Fighting Fire with Fire, in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade*, p. 38.

⁴³ RSA, 1998, National Veld and Forest Fire Act, 1998, (Act No. 101, 1998), To reform the law on veld and forest fires; to repeal certain provisions of the Forest Act, 1984; and to provide for related matters, 401(19515).

is also committed to rehabilitating inherited farmland to ensure a wild ambience in the reserve. Their DGR functions include fire management, vegetation management, erosion control, and waste management. They are part of an extended public works programme and are also involved in fire awareness and controlling fire frequency and zoning according to the Environmental Management Plan requirements. The WOF team's natural resource management programmes contribute to the exciting atmosphere of the Big 5 game reserve, resulting in increased tourist and visitor numbers.⁴⁴

8.3 The history of socio-economic upliftment after the opening of DGR, 2011

Tourism scholars, Burton *et al.*, cite 2000 as the year in which high unemployment levels and a diminished manufacturing sector led urban governments in South Africa to lean "... towards the building of competitive tourism economies as an anchor for local economic development, employment creation and small enterprise development".⁴⁵ In that year, already aware of the need to leverage off a growing demand for ecotourism, the GPG accelerated its plan to develop a game reserve that would contribute to economic and social upliftment.

8.3.1 Kwalata's post-2011 expanding community engagement role

Kwalata's tradition of socio-economic engagement with local communities and national and international sponsors, starting in 1992, continued apace after the official opening of DGR in September 2011.

Strategically placed inside DGR and adjacent to Hammanskraal in the Tshwane Municipality of Gauteng, Kwalata Game Lodge has ready access to the local rural communities. Whereas there are the many early examples of Kwalata building relationships with local communities, it was in 2011 that Kwalata formalised a socio-economic enterprise known as the Kwalata Community Development Initiative (KCDI). The KCDI now facilitates and assists international partners and corporate South Africa to identify and roll out their social responsibility obligations. Built on establishing long-term relationships with the neighbouring communities, its vision was to position itself as a single-entry point where outreach and development approaches could be discussed and carried through by networking with their partners. Corporate Social Investment is a requirement in South African Broad-Based Black Economic Empowerment (B-BBEE) law.⁴⁶ The

⁴⁴ RSA, GPG, Cradle of Humankind World Heritage Site and Dinokeng Projects, Annual Report 2018/2019 Financial Year, pp. 57-58, [https://provincialgovernment.co.za/entity_annual/460/2019-gauteng-cradle-of-humankind-world-heritage-site-\(cohwhs\)-annual-report.pdf](https://provincialgovernment.co.za/entity_annual/460/2019-gauteng-cradle-of-humankind-world-heritage-site-(cohwhs)-annual-report.pdf), accessed 2023-02-01.

⁴⁵ C. Burton, C.M. Rogerson & J. M. Rogerson, Abstract, "The Making of a 'Big 5' Game Reserve as an Urban Tourism Destination: Dinokeng, South Africa", *African Journal of Hospitality, Tourism and Leisure*, 9(6):892-911, 2020, doi.org/10.46222/ajhtl.19770720-58.

⁴⁶ RSA, Details and background to the expectations and implementation of B-BBEE may be found on the South African Department of Trade, Industry and Competition (DTIC) website at:

KCDI, using its indigenous knowledge of local communities, specialises in needs analysis. Once appropriate projects are identified in consultation with the community and sponsors, KCDI makes the necessary connections with a view to creating micro free-market systems.

The KCDI supports community entrepreneurs through capacity building and skills transfer, acting as an accountable international funding conduit. It uses social media to track project progress and maintains a record of the latest projects. Projects focus on smallholders, subsistence farmers, day care centres, schools, clubs, and frail care centres. The KCDI's official website, Kwalata Community Development Initiative (<https://kcdi.kwalata.co.za/>) and Facebook page, provide evidence of past and current projects, fostering cooperation between lodges and DGR management, and lodges themselves. It is not easy to create, in text only, an impression of the conditions under which the rural poor live in and around Dinokeng, nor is it easy to illustrate the kind of social work being done to assist them and the opportunities that may result from this good work. For that reason, recommended here to readers are two short videos, one of which is a tourism promotion narrated by a field guide named Peter.⁴⁷ The other, presented by Johan Erasmus, illustrates much of the hands-on work being discussed in this chapter.⁴⁸

In 2011, DGR's Information and Reception Office organised a game reserve visit for 43 orphaned and disadvantaged children and 10 caregivers from Thandanani Care Centre. The children started their day at Klipdrift Primary School, receiving snack packs and drinks before embarking on a game drive sponsored by Kwalata and Mongena Lodges. At Kwalata's Phiri Camp, they learned about snakes' importance in the ecosystem. Private sponsors, Zebra Country Lodge, and Safari Animal Feeds also supported the initiative.⁴⁹ This pattern of goodwill, generosity, and resource sharing is a characteristic of DGR's socio-economic upliftment approach.

Kwalata makes every effort to inculcate an awareness of the social responsibility programmes that it coordinates. For example, in 2012, the Dinokeng Dames, a local landowners' group, attended a talk on Kwalata's social development programmes by John Mphahlele. They visited Kwalata's facilities, including the conference area, stone chapel, chalets, and boma area, as well as the Phiri Adventure Camp for environmental education and entertainment. They also visited the TLC Old Age Home in Steve Biko village to see progress on new dormitories. Another TLC Old

<http://www.thedtic.gov.za/financial-and-non-financial-support/b-bbee/broad-based-black-economic-empowerment/>, accessed 2023-01-12.

⁴⁷ South African Tourism, "Live South Africa! Kwalata Game Lodge", 2023-08-08, <https://www.youtube.com/watch?v=4LboBz9RoGM>, accessed 2024-02-26.

⁴⁸ Johan Erasmus, in association with Laeveld Agrochem, "Good News for Change – Kwalata", 2019-01-06, <https://www.youtube.com/watch?v=CDrZmdA6ROM>, accessed 2024-02-26.

⁴⁹ "Thandanani Care Centre visit Dinokeng Game Reserve", *Dinokeng Game Reserve News*, Edition 19, January/February 2012, p. 7.

Age Home initiative is the collection of non-perishable food from Renbro Spar and other donors by the DGR Conservation Team to help feed the TLC residents.⁵⁰ Clearly, a strong bond has been forged between Kwalata and the TLC Home.

8.3.2 Kwalata's Tender Loving Care Old Age Home and Frail Care Centre building project

There is a historical source in video form (2012 or 2013) of the TLC Home's early history available.⁵¹ In the video, Pretorius recalled Steve Bikoville's growth since 2011 from several informal settlements on DGR's border, to 4000 households on government land close to Kwalata. The elderly in this community suffered through, or succumbed to, extreme winters. To address this and other hardships, interested parties, including Kwalata, arranged for small group projects, like an annual blanket drive, which were more effective than individual efforts. Desto (Pty) Ltd, an academic and technical training company, sponsored project managers and labourers, who in turn, gained experience and knowledge of community development through their work in and for the community. Other companies and institutions, such as Kwathlano Transportation Company, Immunadue, Oasis Church, and the Carousel (a casino hotel in Temba, rural Pretoria, near to DGR), contributed generously by providing essential resources, such as bricks, cement, windows, doors, and glass, to the community to improve their living conditions.⁵²

The result of this combined effort to assist the elderly resulted in the launch of the TLC Old Age Home and Frail Care Centre project, launched on Mandela Day, 18 July 2011. The project aimed at first to build a functional old age home and frail care centre for over 30 elderly people in Hammanskraal with the support of many donors, such as the Helping Hands Foundation,⁵³ and the Hatfield Rotarians and Belgian/Dutch Rotaries, Laarne Lochristi. In 2013, Hatfield Rotarians hosted Rotaries Laarne Lochristi, who supported the installation of a borehole on the TLC site.⁵⁴ Construction company, CONCOR,⁵⁵ donated cement for the building of new ablution facilities and a kitchen and dining room.⁵⁶

⁵⁰ "Dinokeng Game Reserve Conservation Team", *Dinokeng Game Reserve News*, Edition 21, July/August 2012, p. 7.

⁵¹ Fascination Pictures ZA, "Tender Loving Care (TLC)", 2011-10-24, <https://www.youtube.com/watch?v=X1shUHceS8c&t=413s>, accessed 2023-01-25.

⁵² Fascination Pictures ZA, "Tender Loving Care (TLC)", 2011-10-24.

⁵³ KCDI, "Completion of phase 1 accommodation block", 2013-03-20, <https://kcdi.kwalata.co.za/>, accessed 2023-01-28.

⁵⁴ KCDI, "Borehole delivers water to TLC", 2012-11-04, <https://kcdi.kwalata.co.za/>, accessed 2023-01-30.

⁵⁵ CONCOR was formerly Murray & Roberts Construction. It is a construction company with core competencies in infrastructure, building, mining, and property development.

⁵⁶ KCDI, "CONCOR donation of cement to TLC Old Age home", <https://kcdi.kwalata.co.za/>, accessed 2023-01-31.

In 2013, Matthew Hollard and Matthew Wood, students from Johannesburg's King Edward School, committed 40 hours to a community project in Skierlik. They were introduced to the TLC Old Age Home by Charl Pretorius and assigned to plaster the walls of the new lounge. Thomas and Pardon, community plasterers, whose surnames were not provided, taught the students how to plaster, with the boys' parents funding the project. This example of skills transfer highlights the importance of creative community involvement in fostering positive change. The TLC Old Age Home provides the Training and Skills Academy with the opportunity for its healthcare students to receive practical training for their qualification. The arrangement ensures that at least 20 caregivers are present at any time. This benefits the TLC Old Age Home, which has evolved from two tin shacks to a modern facility with smart bathrooms, hospital beds, and wheelchairs for residents.⁵⁷

The TLC project, divided by KCDI into phases, was completed between 2011 and 2015, including the basic accommodation phase with kitchen, dining room, and lounge. In 2016, the scullery, reception, and office were built. Additional structures and facilities included a laundry, walk-in cool room, storeroom, clinic, veranda, shed, and workshop. The exterior walls were painted in 2016, and the clinic, veranda, office, and reception were electrified in early 2017.⁵⁸

The TLC Old Age Home also benefited from Swedish assistance. As an international partner of KCDI, Karlskrona community representatives visited Hammanskraal in February 2017. They visited the Ikageng Day Care Centre, where their assistance had enabled an ablution facility to be built. They also visited TLC to observe project progress. The Karlskrona community has long been involved in the TLC project and its fundraisers receive regular feedback on how their donations benefit DGR communities. The Swede's 2017 visit enabled beneficiaries to show their appreciation and showcase their support for the TLC project.⁵⁹

8.3.3 Kwalata and Karlskrona

Residents of Karlskrona, a Swedish city built on an island in southern Sweden and home to Sweden's largest naval base and the headquarters of the Swedish Coast Guard, have been active in community development in the Dinokeng area for over a decade. In 2014 the Karlskrona community funded a new classroom for the Kentsentswe Day Care Centre.⁶⁰ On occasion, the

⁵⁷ "KES students learn to plaster in local community", *Dinokeng Game Reserve News*, Edition 26, November/December, 2013, p. 47.

⁵⁸ KCDI, "TLC Old Age Home and Frail Care Centre", 2017-02-07, <https://kcdi.kwalata.co.za/>, accessed 2023-01-31.

⁵⁹ KCDI, "Karlskrona visit to Ikageng Day Care Centre", 2017-03-10, <https://kcdi.kwalata.co.za/>, accessed 2023-01-31.

⁶⁰ KCDI, "Kentsentswe Day Care Centre classroom", 2014-06-12, <https://kcdi.kwalata.co.za/>, accessed 2023-02-01.

KCDI has introduced representatives of the Karlskrona community to the rural community of Hammanskraal. The Karlskrona community's assistance has enabled several day care centres to improve their facilities and educational environment, including Kentsentswe, Takalani, Mama Shadow, Lethabong, Malatsema, and Modisa Bana.

8.3.4 The Kwalata Community Development Initiative's philosophical approach to community engagement and social responsibility programmes

Kwalata, through its KCDI, has been an active agent in local community engagement and development. Owner, Charl Pretorius, has credited his staff and facilitators for KCDI's success. His team are all accredited with the Field Guides Association of South Africa. Kwalata, an owner-managed operation, was awarded Fair Trade in Tourism South Africa's certification within a year or two of its opening.⁶¹ Pretorius' philosophy is that fair trade ensures equal playing fields and a supportive community, leading to sustainability. Being on the border of DGR and the community, Pretorius has long understood that the fresh approach towards wilderness and nature tourism is to make the community their priority so that community members become guardians of Kwalata's conservation initiatives. Pretorius based his model on asking how the community would benefit from KCDI's initiatives, an approach that contrasted with "... the colonial position that wildlife must be protected for generations to come, or for the privileged few who can afford to enjoy it". He hoped the KCDI approach and responsible branding would be an example to other operations in Dinokeng. He recalled how having just hosted a group of tourists from Sweden for a game drive, he recommended a lunch in Mandela Village. The Swedes agreed, and while there, visited some KCDI social responsibility initiatives, after which they booked more visits and pledged R10 000 for educational equipment to several day care centres.⁶² The KCDI's influence as a focal-point organiser of community projects has had an enormous impact on the local community. Its active social media platform includes a "View History" archive on its website, which keeps a record of KCDI's and its partners' achievements. Some highlights from the "View History" follow.

In 2016, representatives from Hochschule Ravensburg-Weingarten, celebrated their 10th annual visit to Kwalata. Ravensburg-Weingarten University of Applied Sciences is a public university in the city of Weingarten, in the German state of Baden-Württemberg. Guests were treated to South African hospitality and experienced the vibrant township lifestyle on a cultural tour, which included gumboot dancing as a reflection upon mining's cultural history. For adventurous gastronomes, chicken feet, ("runaways") were prepared for the visitors. Hochschule Ravensburg-Weingarten

⁶¹ The Fair-Trade Tourism logo, according to the FTT website, <https://www.fairtradetourism.org/>, is the mark of best practice in responsible and Fair-Trade Tourism, defined by fair wages and working conditions, fair purchasing and operations, equitable distribution of benefits, and respect for human rights, culture, and the environment, accessed 2023-01-30.

⁶² KCDI, "Q&A: Charl Pretorius (Mareidi), Kwalata Game Ranch, Dinokeng", 2013-02-18, <https://kcdi.kwalata.co.za/>, accessed 2023-01-28.

students met with members of the Field Band Foundation, a foundation focusing on youth development through music and dance.⁶³

Besides the larger social responsibility initiatives there have been numerous smaller, yet important, contributions made by individuals and groups determined to assist local DGR communities. For example, in May 2014, Round Square⁶⁴ visited Rethabile Village Primary School to donate soccer and netball kits to the pupils. The netball kits were sponsored by Abbottholme School in England. Soccer kits were sponsored by Scotch Oakburn College through the facilitation of Stuart Walls, a South African teacher who had emigrated to Tasmania, Australia.⁶⁵

It has become a tradition at Kwalata to hold annual informative and interactive scientific exhibitions. Taking the year 2015 as just one example, one becomes aware of how prolific Kwalata's social and educational projects are. For example, students at the 2015 Science for Resilience Expo could interact with experts from more than 20 universities, science bodies, conservation organisations, companies, and government departments in the following fields: earth science and geography, life sciences and geography, healthy responsible and green living, and career guidance. For that event, Kwalata partnered with, among many others, DGR, USAID Southern Africa, RESILIM (Resilience in the Limpopo Basin Programme), Africa Alive, and Science Unlimited. Some statistics illustrate the importance and reach of this Kwalata and DGR science initiative. The Science Expo hosted 1883 learners, all from disadvantaged rural communities, 138 teachers, 176 NGO representatives, 44 principals, 164 exhibition representatives with 39 exhibition stands, and 15 government departments and public institutions. The participating learners were provided with free transport to and from the event, lunch, and free access to project events.⁶⁶ The Science Expo has become an annual event, and the 2018 Expo was recorded in a video.⁶⁷

The KCDI's educational initiatives also extend into other fields of education. Hot on the heels of the 2015 Science Expo, Kwalata partnered with Grant Thornton for the Grant Thornton (GT)

⁶³ KCDI, "Hochschule Ravensburg-Weingarten, 10th Annual visit to Kwalata", 2016-04-06, <https://kcdi.kwalata.co.za/>, accessed 2023-02-01.

⁶⁴ According to <https://www.roundsquare.org/>, the Round Square (RS) group of schools "... collaborate on teaching and learning programmes, courses and initiatives, to connect students with their peers in other countries and bring the world to their classroom through the RS network".

⁶⁵ KCDI, "Rethabile Primary thanks Round Square", 2014-05-08, <https://kcdi.kwalata.co.za/>, accessed 2023-01-31.

⁶⁶ KCDI, "Science for Resilience EXPO, 2015", 2015-06-08, <https://kcdi.kwalata.co.za/>, accessed 2023-02-01.

⁶⁷ Kwalata Community Development Initiative (KCDI), "Kwalata Science Unlimited Expo", <https://www.youtube.com/watch?v=GPXcPx5yDA&t=137s>, accessed 2023-09-12.

Accounting and Educational EXPO 2015. Kwalata Game Lodge invited four high schools within the Hammanskraal community to attend this Expo. Three hundred learners, along with their teachers, attended the 2015 GT Accounting EXPO. Morning sessions were arranged for learners, and afternoon sessions for local community entrepreneurs, small businesses, and day care centres. The aim was to raise awareness of corporate social responsibility globally and to demonstrate how GT releases potential for growth in underprivileged rural communities. Fellow corporate, media, and government departments who shared GT's vision were invited to participate. The initiative, known as "Liberation through education!" was designed to help those with limited opportunities to realise their potential and possibilities through purposeful education and accounting opportunities.⁶⁸ Initiatives that take place between partners to maximise the impact of their initiatives are quite common in DGR.



Figure 8-1: Grant Thornton Accounting Expo, Kwalata, n.d. Permission to use this Kwalata Community Development Initiative photograph was granted by Charl Pretorius on 2023-09-12.

During the GT EXPO, for example, GT partnered with Nashua, who reached out to principals from day care centres in Steve Biko village offering entrepreneurial development sessions during the Expo. All entrepreneurs attending were sponsored with paper, and paper was also delivered to several local day care centres.⁶⁹ Grant Thornton ended off 2015 by visiting the Steve Biko village

⁶⁸ KCDI, "Grant Thornton Accounting & Educational EXPO 2015", 2015-10-14, <https://kcdi.kwalata.co.za/>, accessed 2023-02-01.

⁶⁹ KCDI, "Nashua Tshwane support local enterprises 2015", 2015-11-08, <https://kcdi.kwalata.co.za/>, accessed 2023-02-01.

community and distributing Christmas gifts to the children of Mama Shadows Day Care Centre and to the elderly in the TLC Old Age Home.⁷⁰ Many more examples of KCDI's social responsibility programmes could be drawn from its social media postings. However, the point has been made that its influence is far-reaching. Many other social responsibility projects, too numerous to record here, have been quietly underway in DGR over the past few decades, driven by different actors, both individual and corporate.

8.3.5 D'nokasi project – the artists at Tau Gate

A collective interview with several artists representing D'nokasi⁷¹ revealed that, whereas unemployment is a serious issue, they felt DGR had offered opportunities to create a better lifestyle. It concerned them that job seekers went to “town” rather than becoming instrumental in creating their own work opportunities close to DGR. As one said of them, “... there is opportunity at home. Just come looking here”.⁷² D'nokasi's proximity to DGR has heightened the artists' awareness of wildlife, encouraging them to enjoy reading up and watching wildlife, and seeking information online in their leisure time. This self-education about their wildlife has stimulated them into increasingly drawing aspects of wildlife into their art. One member cited 95% as the local unemployment figure.⁷³ Interviewees were particularly concerned about unemployed youth who sit on street corners in groups with nothing positive to occupy their time, adding that they invariably took to crime.⁷⁴ In their recent 10-year DGR anniversary book, DGR itself identified D'nokasi crafters as being a creative group with a bright future.

The D'nokasi crafters were formally established as a group in 2012, the founders having been trained in sewing, beading, and pottery by John Anthony Boerma and Lorette van Zyl from Tshwane University of Technology (TUT). One success story is that of Thabo Ngobe who joined the group, bringing experience in wire work dating back to his youth. After experimenting with various plastics, he and Mmutla Mashishi found that using a medium of high-density scrap plastics was ideal for crafting designs to cover their frames. Thabo has since partnered with Ishmael, a musician and artist, to experiment with bronze as a challenging and expensive art medium. Ishmael has also introduced “JamBox”, a platform for attracting collaborative musicians. An original and long-standing D'nokasi member, Ananais Mashishi, is a resident, skilled potter.

⁷⁰ KCDI, “Grant Thornton in the community: Christmas gifts”, 2015-12-14, <https://kcdi.kwalata.co.za/>, accessed 2023-02-01.

⁷¹ D'nokasi is an art and craft collective at the Tau Gate entrance to DGR where the talented artists inspire each other to create experimental art in painting, plastics, and fabrics.

⁷² LSPC, SOA8, Anonymous, Artists' collective response at D'nokasi Arts and Crafts, Kekana Gardens, at Tau Gate, 2021-05-10.

⁷³ Not a verified statistic. More likely used figuratively to emphasise the high unemployment situation.

⁷⁴ LSPC, SOA8, Anonymous, Artists' collective response at D'nokasi Arts and Crafts, Kekana Gardens, at Tau Gate, 2021-05-10.

Another long-standing member, Mamie Chabangu, a sewer and beader, was joined by “Bobby” Ongkopotse Tsheko, who arrived in Gauteng from the Free State area of Thaba Nchu in 2018 in search of economic and artistic opportunity. Together, they are working on their own fashion label. The DGR community recognises D’nokasi as “... a very important component of the public perception of the Dinokeng Game Reserve” and one that “... demonstrates how communities can benefit from conservation and tourism initiatives”.⁷⁵ One could add that the DGR community’s support of D’nokasi comes in several ways, including the ongoing material maintenance of its buildings, and payment of electricity costs.⁷⁶

8.3.6 Recycling

By 2013 it had become apparent that households and lodges within DGR and the adjacent community were generating large amounts of waste. Landowners in DGR decided that they would like to make a difference and start working with the local community, which has several entrepreneurial members who have started small recycling enterprises. A problem was that the nearest companies that collected the recycled items were in Pretoria and that they would only come out to DGR for bulk collection. As the local Babelegi recycling business had closed, many people began dumping their waste on the roadside near Kekana Gardens. As well as being a health hazard for the local community, it was an eyesore for tourists entering DGR via the Tau Gate. The optics were not appropriate for attracting re-visits. While some local entrepreneurs were trying to break into the recycling business, they too often received non-recyclable household waste, which had to be disposed of through burning on adjacent vacant stands next to the main highway to Pretoria.⁷⁷

As a result, DGR role-players planned on embarking on a recycling project to create employment for the local community, and in the long term, to start generating saleable items from recycled materials. For example, recycled material could be used by creative artists. Although the project would require considerable planning and financial input, DGR management was determined that it would come to fruition. and assured the public that it would be kept updated on progress.⁷⁸ It would appear, however, that whereas the idea of recycling-projects began spreading, recycling continued in a random manner with no organised structures in place such as central drop off and pick up points.

⁷⁵ “Community Projects in the Dinokeng Game Reserve: D’nokasi Crafters – a Creative Community Crafting a Brighter Future, in A. Paton (ed.) *Dinokeng Game Reserve, The First Decade*, pp. 170-171.

⁷⁶ LSPC, SOA27, D. Boshoff, DGR Reserve General Manager, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2022-11-23.

⁷⁷ “Recycling a priority for DGR”, *Dinokeng Game Reserve News*, Edition 26, November/December 2013, p. 3.

⁷⁸ “Recycling a priority for DGR”, *Dinokeng Game Reserve News*, Edition 26, November/December 2013, p. 3.

On Thursday the 25th of May 2017, Elephant, Rhino and People (ERP) held workshops at Kekana Gardens with local business entities and local informal waste collectors. The workshop was to explain ERP's projects and to establish the community's confidence in possible interventions. Over 50 participants attended, including officials from the South African National Civics Organisation, the City of Tshwane, and small, medium, and micro enterprises (SMMEs) covering a range of economic development interests within Kekana Gardens. The participants received insight on ERP and how the PEACE model works. The core principles of ERP's PEACE poverty alleviation methodology are Planning, Education, Agriculture, Cooperatives, and Environment.⁷⁹ One of the interests was in waste management so the ERP presenters conducted a waste management and recycling business evaluation survey by questionnaire. Low literacy levels were revealed among some waste collectors who required assistance with filling in their forms, which were to be returned several days later. After the workshop, the idea of a buyback centre was discussed, whereby, instead of collecting and selling individually, it would make better business sense to deliver waste materials to a central buyback centre. A potential site, but with limited space, was identified.⁸⁰ Still, little co-ordinated progress occurred until more recently. A decade after its opening, DGR was able to report some recycling success.

A local initiative in the Hammanskraal area was started by a nominated trustee of the DGR Community Trust, Jacob Rashekula, who, together with Peter Mamabolo and Johannes Thomas Ngobeni, felt the need to do something constructive in a demoralised community plagued by crime, drugs, and unemployment. Realising that the considerable amount of litter was problematic, they saw an opportunity to convert at least some of the discarded waste into useful objects. They then brought in Oupa Matjokane and Tsakane Matjokane to run a tyre project. By 2022, they had gathered and trained a group of about 30 local people in the craft of converting discarded tyres into chairs and tables after a thorough cleaning. The work included drilling, roping, and threading of the seats, which are sometimes painted. Other projects, some of which use discarded bottles, are underway.⁸¹ Elsewhere, other efforts were being made to co-ordinate and streamline the collection and recycling of discarded waste.

⁷⁹ Further information on ERP's Planning, Education, Agriculture, Cooperatives and Environment (P.E.A.C.E.) model is available at <https://www.erp.ngo/peace-hubs>.

⁸⁰ ERP, Month of May activities feedback – Dinokeng/Kekana Gardens Project, 2017-06-06, <https://www.erp.ngo/updates/2017/6/6/month-of-may-activities-feedback-dinokengkekana-gardens-project>, accessed 2023-01-04.

⁸¹ "Recycling Project – Turning Waste into Wonders, in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade*, pp. 172-173.

In 2023, Kwalata reported on a two-day workshop it held to examine the benefits of recycling. It has had a long-standing relationship with Plastics SA,⁸² Petco,⁸³ and the Recycling Federation of South Africa,⁸⁴ who attended along with DGR and community role-players. As Lerato Mogolegwa said, waste was a problem and stressed the importance of recycling as an attempt to conserve nature. Plastics SA's, Douw Steyn, appreciated the opportunity to consider collaboration with DGR and the community to ensure that recycling would become increasingly well established. Petco's Belinda Booker's task at the workshop was to educate people on not to litter and on how to recycle. Petco, she said, provided accredited training as well as project and equipment support, including for municipalities. Pretorius noted an increase in individual buy-back centres and said it was necessary to examine ways of formalising that and finding solutions. He stressed the importance of upcycling and showed examples of impressive cheetah, buffalo, and other animals made by D'nokasi Crafters out of recycled plastic. At Kwalata itself, there is a display of plastic bins for recycling placed conspicuously for visitors to see that it is a recycling lodge. Booker mentioned that Petco gets requests from environmentally-conscious overseas visitors for recommendations of lodges that practice recycling as a condition for their visit. This discussion shows that the recycling initiative associated with DGR has a protracted history of fits-and-starts, but recent evidence indicates that progress is being made in both educating communities about recycling and creating responsible and trained community members to seek employment in the industry.⁸⁵

8.3.7 Kevin Richardson Foundation – a DGR friend indeed

When the Covid-19 pandemic struck, tourism in the Dinokeng area was hit hard resulting in schools closing, the game reserve and lodges being closed to tourists, and many projects being interrupted. The Kevin Richardson Foundation's (KRF) response to the hard-hit community's needs was swift. Focusing on the neighbouring Kekana Gardens community, the KRF determined to provide food for needy children by partnering with the Southern Lodestar Foundation, a nutrition non-profit organisation. The KRF also stepped in to help pay salaries of DGR staff members, particularly those of the Anti-Poaching Unit (APU). For two months, the KRF took on the full cost of Dinokeng's staff members and continued to support the APU monthly by way of salaries of the expanded team, and by improving their technology and equipment. The KRF also provided new equipment to the APU as poaching surged during lockdown months. Covid-19 had led to a zero-

⁸² Plastics SA website: <https://www.plasticsinfo.co.za/>.

⁸³ PET is the acronym for a versatile plastic called Polyethylene Terephthalate. It is the safe plastic used to make most plastic soft drink bottles today. The official website for the PET Recycling Company NPC (PETCO) is: <https://petco.co.za/>.

⁸⁴ The Recycling Federation of South Africa's official website is: (RSA) <https://recyclingassociation.wixsite.com/recyclingsa>.

⁸⁵ KCDI, "Dinokeng Recycling Workshop", Facebook video, n.d., <https://nep.facebook.com/kwalata.co.za/videos/dinokeng-recycling-workshop/816478016128008/>, accessed 2023-01-14.

income scenario for DGR, the result of which led to an increase in hunger, and in turn, subsistence poaching. The KRF distributed 1,3 million meals in the first month of lockdown and continued to feed 2075 children aged one to six for 18 months.⁸⁶

The KRF focuses on education and supports classroom-based conservation programmes in rural areas. One such program, the Big 5 Schools' Collective, is located in Kekana Gardens, integrating nature-based learning into early childhood development centres. Activities include storytelling, shadow puppets, masks, and animal sounds delivered in the children's home language.⁸⁷

8.3.8 Dinokeng Voluntary Rangers

The following background on community work conducted by the Dinokeng Voluntary Rangers (DVRs) was provided by Sarel Naude, DGR's Administration Manager who has been closely associated with the DVRs. The DVR group was established at an inaugural meeting on the 4th of November 2015 where an Executive Committee was elected for the Memorandum of Understanding (MOU) between the DGR and the DVRs to be signed. This MOU stipulated the terms and conditions between the DGR and the DVRs. It was agreed and duly signed on the 22nd of March 2016.

The services offered by DVRs to both DGR and the public include assisting with gate duties, particularly over busy weekends. Further, using their own vehicles, they help patrol the 150 km Self Drive Route to keep guests and animals safe, as well as patrolling 200 km of perimeter fencing to reduce the damaging and cutting of fences by poachers. They also keep a watchful eye to ensure that visitor behaviour is appropriate, and that high attraction animals such as cheetahs and lions are not agitated by exuberant tourists. Another of their tasks is to ensure that tourists do not alight from vehicles during sightings.

Educationally, they run conservation training courses for the public drawing upon well-qualified speakers, while also providing conservation training for children, some of whom are vulnerable children who value their day out in the bush. The DVRs physically remove poachers' snares in the park, so reducing the chances of animals suffering injury or an excruciating, lingering death. A constant thread within the DVRs mission is that of involvement in community projects, which they consider indispensable for good relations between DGR and the proximate communities who

⁸⁶ Kevin Richardson Foundation, "Covid-19 & anti-poaching relief", 2022/03/10, <https://youtu.be/e9Tok7JvwGM>, accessed 2022-10-13.

⁸⁷ Kevin Richardson Foundation, "Education, a Key Focus for the Foundation", <https://kevinrichardsonfoundation.org/our-work/#:~:text=Covid%2D19%20%26%20Anti%2DPoaching%20Relief&text=During%20this%20time%2C%20we%20partnered,on%20Anti%2DPoaching%20Units>), accessed 2023-02-02.

are also essential stakeholders in DGR's future success. Why do they give of their time and resources one might ask? Their reasons are based on those of the South African National Parks Honorary Rangers Pretoria Region, which are selflessness, a love of nature, and a need to make a difference where possible.⁸⁸

As it was difficult to find substantial DVRs reports prior to 2018, Roshan Nana, current Chairman of the DVRs, kindly provided an updated DVRs "Project Overview".⁸⁹ His willingness to assist with information was in keeping with the tremendous work that the rangers do in conjunction with multiple partners. For example, the DVRs held a Community Clean-up Project on the 10th of September 2022. Participant partners included DGR management, the Dinokeng Bee Project, the Community Trust, the City of Tshwane, the GPG, community residents, non-community members of public, and the DVRs.

Clean-up participants reported for duty at 07:30 at Tau Gate on the Saturday morning (10 September 2022) for a briefing session where Nana provided an overview of the Community Clean-up Project and explained the process to be followed and the safety requirements. Teams were mustered for duty and got going with the clean-up as they walked along the roadside from the Tau gate. Many local children joined in the clean-up conducted in very hot conditions. Approximately 80 bags of litter were collected, and with City of Tshwane's assistance, were disposed of. Friendships were forged between DVRs and participants, and an increased awareness of DGR and DVRs activities was created within the local community, with some children wanting to know what they needed to study to become rangers themselves.

The DVR conducted their third "Kids Project" from the 23rd to 25th of September 2022 for a mixed group of children and their respective "house parents" from the Nederduitse Hervormde Kerk (NHK) Diakonale Pleegsorg. The children (8-17 years of age) came from Montana House in Pretoria and Prinsloo House in Rustenburg. Care was taken to accommodate children with special needs. Various stationery items were donated to each child, who also received two T-shirts and a cap. The children benefited from two informative game drives. The objective of the "Kids Project" was to educate the children on various conservation topics, one of which was titled, "The Big Five, Small Five and Ugly Five". During leisure time the children enjoyed various *boeresport* activities, a braai (barbeque), and swimming.

⁸⁸ LSPC, S. Naude, Email, DGR Administration Manager, Dinokeng Game Reserve, "DVR background"/L. Shee, 2022-09-01.

⁸⁹ LSPC, R. Nana, Email, Chairman of Dinokeng Game Reserve Voluntary Rangers, "DVR Project Overview"/L. Shee, 2022-11-24.

The DVRs have also contributed to vegetation restoration. In the past this group has organised a lantana control day where landowners and staff cut down lantana (*Lantana camara*) infestations. Such infestations are most prominent in the central and eastern sections of DGR.⁹⁰

An Invader Species Eradication Project was held on the 12th of November 2022. Participants included DGR role-players and the DVRs. They were briefed at Riverside picnic spot by the DGR General Manager who outlined safety procedures before explaining how to remove the invasive *L. camara* plants. These are category 1b species in South Africa in terms of the Alien and Invasive Species Regulations, National Environmental Management: Biodiversity Act (Act No 10 of 2004). If present on land, the residents are bound by law to eradicate this plant species, or at least, control it. Spread "... by fruit-eating birds, it establishes along fence lines and under trees, where it out-competes indigenous plants and forms impenetrable, prickly thickets that reduce natural pasturage, productivity of cattle farming, access to water supplies and tree plantations, biodiversity and land values".⁹¹ As with the eradication of pompom weed discussed in Chapter Seven, South African current research on lantana eradication focuses on biological control of lantana using host-specific, biocontrol agents.

The DVRs approached the task in a rather more physical way. Wielding gardening tools in groups of three, the participants removed all the visible *L. camara* around the Riverside Picnic Site before moving along the riverbank. The outcome of the project was that a 1,5-ha surface area was cleared of an estimated 60 lantana plants. As stated on the DVR's website, it is operated and run voluntarily, and the DVR Association is a registered non-profit organisation working together for the love of nature and wildlife.⁹²

8.4 Mongena's contribution to community upliftment

About six months after the DGR was reopened to the public after the Covid-19 lockdown, it was decided at a KRF Board meeting that Mongena and the KRF would combine their community projects. Mongena's Etienne Toerien was himself a Board Member of the KRF. Each week, Mongena game vehicles pick up 20 children from a different school, together with their teachers,

⁹⁰ DGR, "Fighting Invasive Species, Lantana", in A. Paton (ed.) *Dinokeng Game Reserve, the First Decade*, p. 34.

⁹¹ Agricultural Research Council, "*Lantana camara* (Verbenaceae)", <https://www.arc.agric.za/arc-ppri/Pages/Lantana-camara.aspx#:~:text=Ophiomyia%20camarae%2C%20the%20lantana%20herringbone%20leafminer,> accessed 2022-11-30.

⁹² Dinokeng Voluntary Rangers website: <https://dinokengvr.co.za/>, accessed 2023-01-16.

and take them for a game drive and lunch before returning them to school.⁹³ By the end of 2022, Mongena had put 150 children through the relaunched educational programme.

In November 2022, 150 children attended a year-end function at Mongena, where each school presented an eco-related play showcasing their Big 5 school programme. The winning school received a prize, and 50 teachers and children enjoyed lunch in Mongena's gardens. The social responsibility page on their website showcases community work in a series of slides dating from 2010 that illustrate and record a timeline of programmes and events that have contributed positively to the welfare of local communities.⁹⁴

Once a year when hotel linen and towels are replaced, but still in good condition, they are distributed to the old age homes through Reward, a township block chairman. Although Reward was not a member of the Community Trust, Toerien had established a good working relationship with him over the years. As Toerien put it: "I love working through Reward, he's a very good, honest person and you know he represents a community – the block leaders".⁹⁵ In the meantime, Toerien also connects with the DGR Community Trust chairman, Bull Hlupo, and has helped him out with various projects on occasions. Toerien predicted that if DGR were to expand north, a likely scenario, then it would automatically become involved with the northerly Pankop community, which would become a neighbour of Mongena's expanded property.

Regarding donations, Toerien said that sometimes corporates attending conferences at Mongena offer to contribute in some way to community upliftment. In such cases, Mongena would normally deal directly with an institution such as an old age home or school to ensure that the donation reached an authentic cause. The point here is that not all contributions necessarily go formally through DGR but can be dispensed in a variety of ways.

Mongena Lodge and Blue-Ribbon bakery have a long co-operative history of assisting with feeding schemes. Both are permanently involved in supplying daily bread and soup to vulnerable children. Records show that donors, such as Renbro Superspar, Helios Petroleum, and Mongena have been supporting vulnerable children as far back as 2011.⁹⁶ Mongena has a long association

⁹³ LSPC, SOA29, E. Toerien, Owner of Mongena Game Lodge, Boekenhoutkloof, Dinokeng Game Reserve, 2022-12-01.

⁹⁴ Mongena Private Game Reserve, (part of DGR), Social Responsibility, "Mongena's Community Footprint", <https://mongena.co.za/mongena-social-responsibility/#:~:text=Mongena%20organized%20social%20projects%20with,way%20for%20another%20in%202024>, accessed 2024-02-26.

⁹⁵ LSPC, SOA29, E. Toerien, 2022-12-01.

⁹⁶ DGR, "Local businesses reach out to the needy during the festive season", *Dinokeng Game Reserve News*, Edition 19, January/February 2012, p. 5.

with the Perseverance Rural Development Centre (PRUDEC) which is a registered non-profit organisation situated in Hammanskraal Township. The centre provides home-based care programmes, literacy classes for the elderly, and counselling and support services for those infected with HIV/Aids. There is also a feeding scheme for orphans and vulnerable children, and other community-based services. Mongena Game Lodge, in conjunction with other sponsors, donates food monthly to the orphans and vulnerable children who visit the soup kitchen at PRUDEC.⁹⁷

8.5 DGR programmes

8.5.1 Background to DGR's official involvement in community responsibility projects

Regarding DGR's involvement in community projects, it was necessary to speak to David Boshoff, DGR's on-the-ground manager. He noted that many ways in which DGR benefited the communities might not be immediately apparent. For example, regarding staffing he said that he currently had two permanently appointed ladies from the community. He mentioned the contributions that DGR made towards the running costs of the D'nokasi projects and the maintenance and regular refurbishing of the D'nokasi building. The reserve made funding and vehicles available for many projects that it manages in the community.

The DGR also oversees many of the projects to ensure that they are sustainable, and to make sure they are free of corruption. Since the establishment of the DGR Community Trust several years ago, great progress has been made between DGR and the Trust, progress that saw about 15 community projects develop. According to Boshoff, DGR was actively involved with the community by making purchases, such as building materials from community businesses; by encouraging tourists to visit shebeens; and by employing local people. He regretted that none of the researchers who compiled the GPG's Dinokeng Project-commissioned report had ever consulted DGR management, or the two ladies employed directly by DGR who work with communities, to validate the results of their research on community perceptions. He would have been able to make facts available to them, such as on the income DGR generates for the community, where and how that money is spent, and how management assists them in spending that money responsibly to ensure sustainability.⁹⁸

Of the various DGR income streams, for example, 88% of the buffalo revenue goes to the community, which incurs no buffalo-related expenses, whereas the DGR Management

⁹⁷ "Game drive in the Dinokeng Game Reserve for children from PRUDEC", *Dinokeng Game Reserve News*, Edition 21 July/August 2012, p. 6.

⁹⁸ LSPC, SOA27, D. Boshoff, DGR Reserve General Manager, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2022-11-23.

Association (DGRMA) covers all the management costs of the buffalo, including veterinary bills, costs of tracking collars, and any other expenses. In addition, 1% of the self-drive income on private land is paid to the community. The DGRMA employs and pays for the bookkeepers who manage community funds. D'nokasi's maintenance and electricity costs are carried by the DGRMA.

During the Covid-19 pandemic, DGR, although under severe financial pressure itself owing to lockdown, ran a large project driven by landowners to distribute 350 food parcels daily to the communities. It also implemented two fundraising projects as financial resources began to dry up: a food parcel drive for its local community; and a drive to support the park's conservation efforts, including anti-poaching, fire control, and wildlife management. The DGR's position was no exception to the most trying of times for humanity, and the DGR management was under extreme financial pressure to keep the reserve afloat. As the DGRMA stated in its call for donations:⁹⁹

Dinokeng Game Reserve is a cornerstone of socioeconomic development within the region providing job opportunities and outreach to many including our local communities, which have all been impacted during this time. Furthermore, the Game Reserve is a model for future conservation where humans and wildlife live together in harmony in a densely populated area.

Many projects run by DGR are supported by the generosity of contributing lodges and landowners. Boshoff added that more could be done, which was why it was necessary to work with both the government and the elected members of the DGR Community Trust. He recalled that when he joined DGR in 2017, very little was happening with the community structures despite efforts to get them up and running. There was not even an established community bank account.

8.5.2 To bee or not to bee, that is the question

In 2017, the NGO, ERP, discussed earlier in Section 8.3.6, approached Steve Biko Secondary School to recruit former matriculants for a bee project. The group of 12 unemployed youth were trained by Anton Schehle, DGR apiarist and owner of Honey Lodge. Prior to his death in 2021, Schehle played a significant role in training community beekeepers. As mentioned elsewhere, many residents and landowners of Dinokeng quietly go about contributing in their own private way to the eco-health of DGR and its community and are largely unrecognised. One such individual deserving of recognition was the late Anton Schehle.

⁹⁹ DGR, Donations, <https://www.dinokengreserve.co.za/donations/>, accessed 2023-01-16.

Of the original group of 12 youths, a few were able to get jobs, some feared wild animals, and others simply decided bees were not their thing.¹⁰⁰ In 2018, six of the group trained by Schehle formed “D’nokasi Bees and Honey”. Of this group of six, only Gontse Hlongwane and Goitseone Raseroka have continued to work as business partners. Besides beekeeping, the group was involved in community projects, including the raising of funds to buy food for the poorest of the community members.¹⁰¹

An interesting project attempted by the beekeeping group was to establish a “beeline fence” in the northern Ditholo region of DGR. Elephants had been causing considerable damage to the outer perimeter fence there, so it was decided to try installing a beeline fence. The ERP organisation reported in 2018 that its original group of 12 young beneficiaries had established and populated 42 beehives to make up the Ditholo Beehive Fence. This project was later exhibited at the Kwalata Science Expo where the participants explained how research by Dr Lucy King and others had demonstrated elephants’ aversion to bees. Subsequently, the group extended their services to include the removal of bees from houses in the community.¹⁰²

Dr Lucy King, mentioned by the participants at the Expo, is one of the most well-known zoologists and researchers of beeline fences. She heads the Save the Elephant’s (STE) Human-Elephant Co-Existence Program and is leader of the STE’s Elephants and Bees Project. The STE’s work concentrates on finding cost-effective ways for humans and elephants to live in harmony while sharing the land. Some of these methods were discussed in detail in Chapter Seven.

Since 2006, King’s work has focused on using honeybees as a natural way of dissuading elephants from raiding crops. Core to this ideal is the STE’s Elephants and Bees Project.¹⁰³ King based her research on the pioneering work of Dr Fritz Vollrath and Dr Iain Douglas-Hamilton from STE, who had taken note of traditional stories relating to elephants’ avoidance of beehives. King picked up, expanded upon, and fine-tuned the technique of using beehive lines as elephant deterrents. The technique has been adapted for South African conditions as there are few free-roaming elephants, their movements being largely constrained by fences. In South Africa, the technique is useful for reducing elephant pressure on vegetation and trees in concentrated areas.

¹⁰⁰ DGR, “Dinokeng Beekeepers- Rich Hive of Hope and Action”, in A. Paton (ed.) *Dinokeng Game Reserve, The First Decade*, p. 174.

¹⁰¹ DGR, “Dinokeng Beekeepers- Rich Hive of Hope and Action”, in A. Paton (ed.) *Dinokeng Game Reserve, ...*, pp. 174-177.

¹⁰² ERP, “Beehive Fencing at Dinokeng Game Reserve: Resolving Human-Elephant Conflict Using Bees”, <https://www.erp.ngo/> accessed 2023-01-17.

¹⁰³ Save the Elephants (STE), “Elephants and Bees Project”, Dr Lucy King’s TED Talk given at the TEDWomen Conference in Palm Springs, California in December 2019, <https://elephantsandbees.com/>, accessed 2023-01-17.

In DGR, the use of beelines was specifically to reduce breakout attempts through electric fences. So it was that the idea of using beehives to deter elephants, which had its roots in Kenya decades earlier, was implemented in DGR by the group of 12 youths, as described above. The ERP suggested two reasons as to why beehive fencing as a concept is very attractive. Firstly, they keep elephants away from where they are not wanted and secondly, beekeeping, although hard work, can be a lucrative form of income.¹⁰⁴ In DGR, these two advantages were recognised and understood at the outset of the beeline project. An additional advantage in DGR was that the project brought about a new level of trust between the beekeepers and DGR stakeholders.

The project did experience problems, however. Owing to the beekeeping group not having their own transport they could not inspect their hives as regularly as they would have liked. Sadly, their hives declined from 67 hives to 12. Vandalism was suspected as a probable cause. A major setback to their work came with the news of Anton Schehle's death on the 30th of June 2021. He had been dedicated to the beekeeping group and supported their development to the full. The group said of their mentor that his death would encourage them not to fail. We must, said, Gontse, "... succeed in order to honour the memory of this remarkable and passionate man who gave us the knowledge and skills to succeed in working with one of the most remarkable and amazing creatures on the planet – the humble honeybee".¹⁰⁵

Although the beeline was intended to be an income stream for the community project, it never really got off the ground. At the time the beeline was established, the DGR Community Trust was not fully involved with its funding. David Boshoff, DGR manager, stressed the importance of setting up projects that DGR could support. As the beeline was situated in a dangerous area owing to the presence of free roaming wild animals, rangers needed to be allocated to protect the beekeepers in the field. In addition to requiring reliable transport and ranger protection, to conduct their work efficiently, beekeepers also needed permission to traverse various properties within DGR. In general, the project required better co-ordination between the GPG and the game reserve managers.¹⁰⁶ In conclusion, one could say of the DGR beeline project that it has potential to succeed; however, considerably more research is required on it, together with provision of the necessary resources and communication between all role-players.

¹⁰⁴ ERP, "Two bees – one stone", 2020-12-13, <https://www.erp.ngo/blog/tag/poverty+alleviation>, accessed 2023-01-17.

¹⁰⁵ DGR, "Dinokeng Beekeepers - Rich Hive of Hope and Action", in A. Paton (ed.) *Dinokeng Game Reserve*, ..., pp. 177.

¹⁰⁶ LSPC, SOA27, D. Boshoff, 2022-11-23.

8.5.3 A clean start to the laundry project as it sets new heights

The establishment of the DGR laundry project, the New Heights Laundry, has provided a convenient service for DGR visitors. This laundry was established as a cooperative in 2016 with five main members. There are, in addition, three women who are paid employees of the cooperative. The primary members were trained by Bayajula Academy, a 100% black-owned consulting firm, and Dr Mohapi from B&B consulting. Staff training included business management, marketing, effective business leadership, inventory control, and computer literacy. By 2017, all staff had obtained their drivers' licenses. Industrial strength laundry machines were bought through sponsorships. The company has acquired a conveniently situated container space at Ndlovu Gate and hopes that will contribute to expanding the business.¹⁰⁷

8.6 DGR Community Trust

The first DGR Community Development Trust (DGRCDT) was established in Steve BikoVille to manage developmental projects related to the DGR implementation. The Trust Board, consisting of community, DGRMA, and local municipality representatives, was introduced to the community at a public meeting on the 4th of July 2010, attended by over 100 members. This was the fulfillment of an assurance made by Gauteng MEC for Economic Development, Firoz Cachalia.¹⁰⁸ The trust would not last the test of time and soon lapsed despite the formalised structure.

During a three-day community workshop prior to the public meeting, the nine trustees were selected from over 50 local stakeholders who were trained on leadership, democracy, corporate governance, conflict resolution, and management. The selected trustees, all apparently close to and familiar with the community, were tasked with communicating community needs between the DGRMA, the Dinokeng Project, and the local authorities. The Trust held its first meeting on the 18th of June 2010. Immediate tasks were identified, including developing a Training and Developmental Centre and job creation. The National Development Agency was to provide continual support to the Trust and trustees, and the trust was not a substitute for municipal or ward structures already in place.¹⁰⁹ The DGRCDT initially represented communities within the jurisdiction of DGR, around Portion 12, Steve BikoVille, and Refilwe communities. However, it was expected to expand to other communities, as far as Mmametlhake.¹¹⁰ Given that the latter is in Mpumalanga and north of Rust de Winter Dam, DGRCDT's responsibility for it and other currently

¹⁰⁷ "DGR laundry project – New Heights is raising the bar", in A. Paton (ed.) *Dinokeng Game Reserve*, ..., p. 173.

¹⁰⁸ "It is here ... The DGR Community Development Trust", *Nokeng Nuus/News*, July 2010, p. 9.

¹⁰⁹ "It is here ... The DGR Community Development Trust", *Nokeng Nuus/News*, July 2010, p. 9.

¹¹⁰ "Trust members and their portfolios", *Dinokeng Game Reserve News*, Edition 13, July 2010, p. 4.

outlying communities would be somewhat of an overreach and would only be practical if DGR were ever to expand north of Rust de Winter Dam and Reserve.

The DGRCDT was an advisory structure with the chairperson's focus on strategies and management of the Trust for its sustainability and accountability to its beneficiaries. A combination of secretariat and finance was to strengthen the Strategic Team. An information officer would act as a liaison between the community and the Trust. There would also be a Training and Development portfolio.¹¹¹ Trust members and their portfolios were quite expansive and included, among others, the chairperson, Terance Monama (Strategic Planning and Management), a treasurer, and a secretary. Heading community liaison was Amos Mahlaola (Support and Public Relations). The representative from the Dinokeng Project was Collins Sekele, while the representative from DGRMA was Etienne Toerien. Other portfolios included Support and Administration, Training and Development, Beneficiary Support, and a representative from the Local Authority (still to be elected).¹¹² Indeed this impressive array of structures indicated that progress was at hand. However, for reasons not researched here, little came of this arrangement, and this was the situation that met Boshoff on taking up his DGR management position in 2017. A new attempt to select a workable community trust became urgent.

Fortunately, in 2017, Mr P. Molokwane, Director of the Dinokeng Project, began to drive the establishment of the community trust in a more positive direction. Some of the issues that needed resolving were related to which communities should benefit from the trust. There were ongoing concerns that DGRCDT benefits should reach the marginalised in DGR's immediate communities. This required clear spatial limits on which communities could benefit, otherwise distant communities, not closely associated with DGR, could also lay claim to a piece of the modest pie. Boshoff recalled that five or six meetings were held to elect a new board of trustees. In a telephone discussion between the researcher and Mr Molokwane, he was at great pains to stress that the process was thoroughly democratic in every respect.¹¹³ This was an important statement as it was essential that all members of the community should have their say in the election process.

Concerning inclusivity, it is wise to heed the Brooks *et al.* observation that contemporary CBCs face several criticisms, one being that communities should not be idealised as harmonious

¹¹¹ T.R. Monama, "Dinokeng Game Reserve Community Development Trust", *Dinokeng Game Reserve News*, Edition 13, July 2010, p. 4.

¹¹² "Trust members and their portfolios", *Dinokeng Game Reserve News*, Edition 13, July 2010, p. 4.

¹¹³ Private phone call between Mr P. Molokwane, Director Dinokeng Project, and L. Shee doctoral researcher, 2022-12-06.

units.¹¹⁴ It is appropriate also to mention several other cautionary criticisms of CBCs listed by Brooks *et al.* that could be identified as being relevant to DGR. For instance, the Dinokeng Project is a decentralised provincial project, yet no research has been done on the extent to which its stalling might have resulted from centralised government's unwillingness to cede power. Nor has adequate research been done to assess the extent to which "... market-based approaches to community-based natural resource management" are "... compatible with conservation goals".¹¹⁵

Boshoff was confident that since the new DGRCDT was a legitimate community structure with an official communication channel, it would be easier for DGR to work within this organised structure rather than with disparate community groups. This was important in DGR's case because rather than communities harvesting natural resources from the reserve, the emphasis is on providing alternative employment or creative business opportunities as economic benefits. Expected benefits would be those from wage labour opportunities, development of infrastructure, or direct sharing in benefits, for example, revenue from buffalo. Brooks *et al.* were aware of the danger of elites capturing benefits, which they considered "... a core obstacle to effective decentralization of resource management". They added that "... economic benefits must also be equitably distributed among community members, with no capture of benefits by community elites".¹¹⁶

The new DGRCDT was launched at the Sebothoma Hall in Hammanskraal on the 6th of July 2017 as a crucial intervention in the Dinokeng area to boost and revitalise the local township economy. The trust was expected to "... further leverage public participation in the activities of the game reserve". It was also expected to "... create working and beneficial relationships between the landowners in the Dinokeng Game Reserve (DGR) and the surrounding communities".¹¹⁷ At the launch, the acting CEO of DGR, Mr John Nesidonge, said that the project would benefit the people of Hammanskraal fairly and that the trust would be a link between DGR and the communities. Nesidonge confirmed that black business ownership had already increased from two in 2011 to 14 in 2017. The trust was assured by Mr Matthew Sothege, Chief Director of Tourism of the Cradle and Dinokeng Project, that the DGRCDT's projects and business opportunities would benefit the

¹¹⁴ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects: ...", *Environmental Evidence*, 2, Article number 2(2013), p. 2.

¹¹⁵ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects: ...", *Environmental Evidence*, 2, Article number 2(2013), p. 9.

¹¹⁶ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects: ...", *Environmental Evidence*, 2, Article number 2(2013), p. 9.

¹¹⁷ "Gauteng MEC for Economic Development, Environment, Agriculture and Rural Development, Lebogang Maile will on Thursday, 06 July 2017 launch the Dinokeng Game Reserve Community Trust in Hammanskraal", *Polity*, 2017-07-05, <https://www.polity.org.za/article/gauteng-to-launch-dinokeng-game-reserve-community-development-trust-2017-07-05>, accessed 2023-01-16.

residents of Hammanskraal.¹¹⁸ The Dinokeng Project offered non-financial support to the DGRCDT through two training sessions provided to the members of the trust. Sixteen members of the Trust attended financial management and project management training. Further, the Dinokeng Project held two feedback meetings for the local communities concerning the DGRCDT implementation process and progress.¹¹⁹

8.7 Employment creation in DGR – its quintessential reason for being

It is difficult to establish the total number of jobs that have been created in the protracted development of DGR over the period of a quarter of a century. The number of DGR employees can be tracked through the reserve's efficient administrative records and those of the Dinokeng Project. The number of lodges and products in DGR has mushroomed over the past decade. Unfortunately, statistics showing their total number of full time and part time staff are unobtainable. Bigger commercial lodges like Mongena and Kwalata certainly employ staff by the score.

Although this thesis is loosely time bound from 1995 to 2018, the Manager of DGR, David Boshoff, kindly provided employment statistics for the DGR, itself, as of January 2023. Whereas these statistics provide some measure of the direct employment numbers in DGR's personnel cohort, they do not reflect the large numbers employed in the tourism sector or those employed in businesses leveraging off DGR. According to Boshoff, as of January 2023, employment figures for DGR operations were as follows:

From the local community:

Self-drive route maintenance: 3 people in the team (1 supervisor and 2 operators)

Fence maintenance: 2 people in the team (1 driver and 1 general worker)

Fence patrol team: 2 people (1 driver and 1 general worker)

Storeman: 1

Gardener: 1

Workshop: 1

Technical Manager: 1

Human Resources and Community Department Head: 1

Office staff: 4 (1 community liaison officer, 1 cleaner, 1 information officer and 1 administrative officer)

¹¹⁸ Staff Reporter, "Dinokeng Trust will benefit Dinokeng Community", *Moretele Times*, 2017-07-07, https://moreteletimes.co.za/2017/07/07/dinokeng-trust-will-benefit-hammanskraal-community/#.Y8V_a_ozblU, accessed 2023-01-16.

¹¹⁹ RSA, GPG, Cradle of Humankind World Heritage Site and Dinokeng Projects, Annual Report 2018/2019 Financial Year, p. 60, [https://provincialgovernment.co.za/entity_annual/460/2019-gauteng-cradle-of-humankind-world-heritage-site-\(cohwhs\)-annual-report.pdf](https://provincialgovernment.co.za/entity_annual/460/2019-gauteng-cradle-of-humankind-world-heritage-site-(cohwhs)-annual-report.pdf), accessed 2023-02-01.

Gate cashiers: 21

Gate cashier relievers: 3 (casual workers – non-permanent)

Tractor driver: 1

Ranger: 1 (safety officer who looks after teams in the Big 5 area)

Not from the local peripheral community:

Anti-Poaching Unit members: 16

Management team (park management): 6, all resident within the reserve

Additional teams:

Project teams for 12 months: 25 people in the natural resource management team whose term was due to end in April 2023

Working on Fire (WOF) team: 25 people.

Another source from which some idea may be gleaned of employment statistics is the 2018/2019 Annual Report of The Cradle of Humankind World Heritage Site and Dinokeng Projects. The purpose of this DGR sub-programme was to contribute to economic growth and poverty alleviation in Dinokeng through wildlife-based tourism and the maintenance and enhancement of the "pristine African" landscape and rich biodiversity. Of the three components of the broader Dinokeng Project, DGR is regarded as the primary tourism product as it offers game-viewing experiences. Its aim was to maximise income streams, job creation, small business development, investment opportunities, and all other potential benefits and opportunities to local disadvantaged communities.¹²⁰

The annual report provided insight to the employment situation as it stood at the 2018 financial year-end, the end year of this thesis. According to its own report, the Dinokeng Project recorded a sustained 721 job opportunities during the period under review. These were through several operations in DGR, the DGRMA, and the WOF project. Various operations in the DGR sustained 611 job opportunities (93% African and 38% women), while the DGRMA and WOF sustained 60 and 50 jobs, respectively. These operations helped address three societal challenges: unemployment, poverty, and inequalities.

A high percentage of people employed by businesses in the DGR were from local communities, as were many appointed in management positions. Development and training to increase their prospects for higher positions took place intermittently. The WOF collaboration created 50 job

¹²⁰ RSA, GPG, Cradle of Humankind ..., Annual Report 2018/2019 Financial Year, p. 55.

opportunities during the period under review. The composition of the WOF workforce was 100% Africans, 90% youth, 20% women, and included two people with disabilities. The WOF workforce was trained in crew leadership and participated in refresher courses. The DGRMA employed 83,3% Africans, 53% youth, and 10% women, indicating a contribution to the objectives of increased youth employment. The DGRMA is tasked with the day-to-day operations of the game reserve, which include "... game management, anti-poaching, habitat management, fence maintenance, office management and administration, financial management, bookings, marketing and promotion of the reserve, etc".¹²¹

The Dinokeng Project supported 10 cooperatives and five in Hammanskraal. Of the five cooperatives, four were secondary cooperatives: sewing, pottery and ceramics, a laundromat, and the beeline project. The fifth was a primary cooperative, which bought products from the secondary cooperatives and sold them on to various markets. The Dinokeng Project assisted with registration of the cooperatives, purchasing of different working materials, and information on investment promotion and access to funding institutions. Operational funding covered the shortfall in terms of operational costs for the reserve. Operational staff were required to maintain and patrol the perimeter fence line of 207 km on both state and private land, the five gateway buildings and gardens, and the roads. Funding also went to electrical works, including generators, ticketing systems, and boom-gate mechanisms. The armed APU and skilled on-site management, also needed to be funded. The Dinokeng Project's operational funding was also required for managing valuable animals like the disease-free buffalo and both the black and white rhino populations.¹²²

It is essential for government to work with the private sector to identify ways to preserve existing jobs, as well as how to create new job opportunities for local communities, particularly for youth, women, and people with disabilities. During the 2018 assessment period, the Dinokeng Project provided the opportunity for 50 youths and 50 elderly people to visit the game reserve in the hope that these participants would become ambassadors of the project and promote the DGR destination by word of mouth.¹²³

8.8 Measuring the success of DGR's community-based conservation projects

8.8.1 Measuring community-based conservation

The GPG's placing of community and economic upliftment ahead of conservation, while acknowledging their interdependence, was in line with a community-based conservation (CBC) approach, which recommended that long-term conservation success requires engaging with and

¹²¹ RSA, GPG, Cradle of Humankind ..., Annual Report 2018/2019 Financial Year, pp. 57-58.

¹²² RSA, GPG, Cradle of Humankind ..., Annual Report 2018/2019 Financial Year, p. 60.

¹²³ RSA, GPG, Cradle of Humankind ..., Annual Report 2018/2019 Financial Year, p. 60.

providing benefits for local communities. How best to implement these projects, while ensuring that they are value for money, and how best to measure a project's success or failure are challenges that have faced and continue to face CBC researchers. Greater efforts are required to identify and understand "... the factors associated with the success and failure of conservation projects, and the scale at which these factors operate".¹²⁴ Brooks *et al.* focused on many domains, rather than one, such as forestry or wildlife. They also used a large database of CBC projects, identified by a thorough literature review, and a multi-level design and model-fitting approach to assess CBC success.

The idea of involving communities in sustainable tourism and ecotourism is nothing new, thus, DGR was not a pioneering model for evaluating participation of communities in ecotourism based on conservation, nor was it the first game reserve to receive a review of park benefits accruing to local community residents. In this regard, one could consider a few examples of previous community participation studies, such as those of B.O. Adeleke on Hluhluwe-Imfolozi Park and J. Dyer *et al.*, who assessed participatory practices in community-based natural resource management using southern African examples; and PK Mogomotsi *et al.*, who examined factors influencing community participation in wildlife conservation in the face of Human Wildlife Conflict in Botswana. These examples suggest that no CBC is identical.

The idea in DGR's case was to uplift the socio-economic conditions of local communities, in part by creating employment in ecotourism as a strategy for nurturing and protecting wildlife habitats and species. What does distinguish DGR's community-based programme from others, where communities live inside wilderness areas is that, in DGR's case, poorer communities live outside the game reserve boundaries and do not own land inside the reserve, which is predominantly privately owned and contractually donated to DGR. Another important factor is that DGR's development took place in an area where land claims had already been largely settled meaning that, unlike other game reserves such as the Kruger Park and Pilanesberg, no removals of human populations took place from within the reserve.

8.8.2 Queiros and Mearns' Dinokeng study, 2015–2017

Several attempts have been made to measure the extent to which benefits have accrued to DGR's local communities. One such attempt was that by Queiros and Mearns, who reasoned that one must "... determine the factors that generate or undermine community support for conservation,

¹²⁴ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects ...", *Environmental Evidence*, 2, Article number 2(2013), p. 2.

so that appropriate management interventions can be implemented”.¹²⁵ Their qualitative research project, conducted between 2015 and 2017, used both focus group interviews and an adapted form of nominal grouping technique. Their focus group was a small sample of residents in Kekana Gardens near the entrance to DGR, and they considered that perceptions, whether positive or negative, provided evidence useful for evaluating the impacts conservation has on communities. As Mogomotsi *et al.*, commented, to balance “... conservation and livelihood security in a rural setting is a delicate affair requiring a deep understanding of socio-economic positions and perspectives of households that live alongside biodiversity in general and wildlife in particular”.¹²⁶

Bennett *et al.* have reinforced the value of understanding perceptions. They discovered through their quantitative research into small Mediterranean fishing communities’ perceptions of Marine Protected Areas (MPAs) that understanding of perceptions may have several important implications for conservation policy makers and practitioners. Overall, small scale fishers were reasonably supportive of MPAs. By monitoring people’s perceptions, they believed it would help management prepare better responses, such as building relationships, communicating science, and identifying outreach programmes, which would improve perceptions and increase support for MPAs. In addition, they found that to increase support for conservation, certain determinants such as “... transparency, conflict management, recognition, trust, and knowledge and education”, were important. The research undertaken by Bennett *et al.* also suggested that conservation practitioners and managers needed “... to be attentive to the quality of governance and the social impacts of conservation just as they need to attend to the ecological effectiveness of conservation”.¹²⁷ Some of these Bennett *et al.* research conclusions resonate with the findings of the 2022 Dinokeng Project-commissioned report (discussed in the next section).

Returning to the DGR community findings of Queiros and Mearns, they identified a greater need for communication between management and communities, without which the latter felt excluded. Whereas DGR communities did appreciate the conservation education learning programmes already in place, communities bordering DGR felt that “... an extension of these for adults and in schools would be beneficial”. The research suggested “...providing learning opportunities would

¹²⁵ D. Queiros & K. Mearns, “Engendering Community Support for Conservation: A Case Study of Kekana Gardens Community and Dinokeng Game Reserve, South Africa”, *Journal of Asian and African Studies*, 2022. p. 391, [doi:10.1177/00219096221111358](https://doi.org/10.1177/00219096221111358).

¹²⁶ P.K. Mogomotsi, L.S. Stone, G.E.J. Mogomotsi & N. Dube, “Factors influencing community participation in wildlife conservation”, *Human Dimensions of Wildlife*, 2020, p. 11, doi.org/10.1080/10871209.2020.1748769.

¹²⁷ N.J. Bennett, A. Di Franco, A. Calò, E. Nethery, F. Niccolini, M. Milazzo & P. Guidetti, “Local Support for Conservation is Associated with Perceptions of Good Governance, Social Impacts, and Ecological Effectiveness”, *Conservation Letters*, 12(4), 2019, pp. 1-10, [doi:10.1111/conl.12640](https://doi.org/10.1111/conl.12640).

increase positivity and a sense of being part of Dinokeng”.¹²⁸ Although general goodwill prevailed, a greater sense of custodianship was required to increase a sense of involvement resulting in more positive behaviours. The Kekana Gardens’ study sample felt excluded from the reserve because of what they considered high entrance fees. Owing to community fear of wildlife, particularly snakes, Queiros and Mearns recommended that information and meaningful support be provided to allay community fears over the dangers of wildlife.¹²⁹

Of tangible benefits, only employment opportunities were identified. These were seen as improving quality of life and increasing support for conservation. The employment of non-locals in DGR was seen as a negative factor to be remedied. Queiros and Mearns argued DGR, “... like most conservation areas, is unable to provide sufficient tangible benefits to support a growing community”.¹³⁰ Generally, however, they found a positive thread of goodwill by the Kekana Gardens’ participants towards DGR. Their results, based on smaller samples, appeared more positive than those of the 2022 report already mentioned. Queiros and Mearns concluded their study by noting that by identifying the aspects engendering, or undermining local support for conservation, “... stakeholders can craft interventions that will benefit local communities as well as the conservation of biodiversity in the future”.¹³¹ Accepting then that community impressions and perceptions can be considered as valid historical evidence, one needs to examine closely the nature and findings of the 2022 report.

8.8.3 The Synthesised Socio-Economic Assessment Report, 2022

This section discusses the Dinokeng Project-commissioned Synthesised Socio-Economic Assessment Report (SSEAI) of 2022, which gauged DGR communities’ impressions of the value to them of the game reserve.

8.8.3.1 Perceptions as historical evidence

As Ebi *et al.* have indicated, socio-economic changes influence human health and wellbeing: “Processes that frame and shape the relationships between people and their environment, with subsequent impacts on global health, include how societies function and organise themselves, use land and natural resources, and manage health, water, and sanitation”.¹³² A reading of the

¹²⁸ D. Queiros & K. Mearns, “Engendering Community Support for Conservation: ...”, *Journal of Asian and African Studies*, 2022. p. 406.

¹²⁹ D. Queiros & K. Mearns, “Engendering Community Support for Conservation: ...”, *Journal of Asian and African Studies*, 2022. p. 401.

¹³⁰ This claim may be valid, but there is a dearth of statistics to pronounce this with certainty.

¹³¹ D. Queiros & K. Mearns, “Engendering Community Support for Conservation ...”, *Journal of Asian and African Studies*, July 2022, p. 407.

¹³² K.L. Ebi, F. Harris, G.B. Sioen, C. Wannous, A. Anyamba, P. Bi, M. Boeckmann, K. Bowen, G. Cissé, P. Dasgupta, G.O. Dida, A. Gasparatos, F. Gatzweiler, F. Javadi, S. Kanbara, B. Kone, B. Maycock, A. Morse, T. Murakami, A. Mustapha, M. Pongsiri, G. Suzán, C. Watanabe & A. Capon, “Transdisciplinary Research Priorities for Human and Planetary Health in the Context of the 2030

SSEAI leaves the reader somewhat doubtful of DGR's contribution to the lives and eco-health of local communities over the past decade. It must be stressed that the report's findings were based largely on impressions and perceptions. Not everyone agrees that these form valid historical evidence. Nevertheless, a case can be made for including perceptions of local communities regarding, in this case, a game reserve on their doorstep. It is necessary to provide, if not an alternative perspective, at least an additional one to the subdued findings of the SSEIA. The DGR landowners have long understood that the reserve could not survive without the acceptance of local communities. As discussed in this chapter, many efforts to assist these communities predated the opening of DGR in 2011, and came from altruistic, individual landowners out of a desire to assist poorer local communities.

The authors of the SSEIA Report acknowledged that its brief had not included an examination of functioning projects, nor did the Queiros and Mearns' report appear to consider actual projects that had already contributed to local eco-health. This omission limited the objectivity of both reports. Brooks *et al.* have emphasised the importance of high-quality studies and acknowledged that quality of outcomes could be influenced by such factors as a lack of time and funding as well as difficult logistics, particularly in isolated places. Nevertheless, they stressed the need for continuous improvement in these studies.¹³³

The SSEAI Report indicated that DGR is perceived by the poorer communities as being a well-off institution with bountiful financial resources, whereas DGR actually has limited resources and enormous running costs and cannot be regarded as a socio-economic panacea. Management relies on membership fees; government subsidies; and donations and generous assistance in time, skills, and money. Further, DGR's managers and employees are, for the most part, employed to manage a game reserve and conduct their conservation responsibilities. To add too many socio-economic community responsibilities to their already difficult and under-resourced task, would be unfair.

A negative aspect of DGR is that historically, few local community members could afford land ownership within the reserve, leading to a perception of "us and them". This perception could change if communities became more invested in direct ownership of land and products. The ga Mashung Community continues to discuss with DGR's expansion personnel the possibility of developing, owning, and running their own lodges and products within DGR if they decide to join

Agenda for Sustainable Development", *International Journal of Environmental Research and Public Health*, 2020, 17(23):8890, doi.org/10.3390/ijerph17238890.

¹³³ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects ...", *Environmental Evidence*, 2, Article number 2(2013), p. 31.

the reserve.¹³⁴ Their inclusion would help overcome any perception that there might be of DGR being a “whites only” eco-estate.

The SSEIA investigators needed to ask a wider variety of searching questions, the answers to which should have been held up to greater scrutiny. The game reserve had only been functioning for a decade at the time of the investigation, nevertheless, the results were to give the provincial government direction for the future managerial decisions and planning for DGR. A brief background history of the SSEIA Report follows.

8.8.3.2 Background to the project brief

In April 2022, Moonraises Strategic Solutions (MSS) presented the Dinokeng Project with its completed SSEIA Report evaluating the socio-economic impact of the Dinokeng Project on its adjacent communities and businesses, the Dinokeng Project being an entity of the Gauteng Department of Economic Development (GDED). A socio-economic impact assessment evaluates the extent to which, in this case, tourism development or activity, affects income generation, employment, and various community benefits. The report identified several factors that influenced the extent to which DGR had made an impact on local economies and communities.

The SSEIA researchers had to examine the levels of unemployment and development in neighbouring communities, and the level of tourism infrastructure. They also had to consider DGR’s location and the size of the neighbouring study area. Regarding indigenous knowledge, it was necessary for the researchers to ascertain the level of community participation in DGR, and the way in which the local people regarded the game reserve. The advantages of the DGR landscape needed to offer tangible benefits and stimulate local economic development.¹³⁵ In such a study, the expectation would be that if successful, the project area would create an elevated sense of acceptance and a higher income than previously experienced. Conversely, a negative view of the reserve would adversely affect the level of acceptance.

Three sets of questionnaires were used in the three key study areas: Kekana Gardens, Refilwe Block G, and Ramotse. In each there was a community survey, a business survey, and a survey for visiting tourists.¹³⁶ The MSS’s approach appeared professionally constructed under difficult circumstances and was considered a reliable indicator of DGR’s socio-economic impact on nearby communities.

¹³⁴ LSPC, SOA27, D. Boshoff, Ndlovu Gate, 2022-11-23.

¹³⁵ Moonraises Strategic Solutions (MSS), *Synthesised Socio-Economic Impact Assessment Report, Evaluating the Socio-Economic Impact of the Dinokeng Game Reserve Project on its Adjacent Communities & Businesses*, April 2022, p. 8.

¹³⁶ MSS, *Synthesised Socio-Economic Impact Assessment Report*, April 2022, pp. 10-15.

8.8.3.3 Hurdles facing the Moonraises' researchers

The communities' negative perceptions of the Dinokeng Project were studied by MSS, focusing on macro-perspectives rather than individual projects. They recommended following up on specific areas of inquiry, as examples from DGR and landowners could provide a more positive picture. Challenges to the MSS research included inexperienced fieldworkers, poor work ethic, increased costs, and lack of transport and confidence, further exacerbated by the Covid-19 impact.

8.8.3.4 Some guiding statistics revealed in the SSEIA report

The report highlights the difficulties faced by young community members in visiting DGR and suggests that DGR should improve communication and facilitate local visits, as financial constraints are the primary reason for the youth not visiting the reserve.

8.8.3.5 Positive projections of the SSEIA Report

Although the SSEIA did reveal valuable trends, DGR management claimed that fieldworkers neither consulted management for their perspective, nor did they interview two local DGR employees who work daily on programmes bringing benefits to communities.¹³⁷ Nevertheless, the DGR management wasted no time in putting corrective, remedial measures in place. The DGR's general manager, David Boshoff, acknowledged that although DGR management worked hard to include communities in the reserve's benefits, his team needed continually to strive to do better.¹³⁸

A valid argument proffered in the SSEIA report was that the "... voice of the community occupies a critical space, among other stakeholders, because the sustainability of conservation and tourism initiatives hinges on whether ... residents can identify with them or not".¹³⁹ Also important was the report's view that conservation and tourism authorities be alerted to the challenges, concerns, expectations, and attitudes of the proximate communities. Only with their buy-in could sustainable conservation, ecotourism, and socio-economic upliftment take place. The need for community approval, is and has been, a research refrain for many years. In fact, there are instances where community satisfaction with tourism or ecotourism has even been related to Social Exchange Theory (SET).

Vanessa Muler Gonzalez, for example, noted in her doctoral thesis that SET is the most extensively used theory applied to resident impact perceptions. Concerning tourism, "... SET suggests that expressed support for tourism development is considered as a willingness to enter

¹³⁷ LSPC, SOA27, D. Boshoff, 2022-11-23.

¹³⁸ LSPC, SOA27, D. Boshoff, 2022-11-23.

¹³⁹ MSS, *Synthesised Socio-Economic Impact Assessment Report*, April 2022, p. 81.

into an exchange, and residents select exchanges after assessing the benefits and costs”.¹⁴⁰ Adeleke and Nzama, in their work on community participation in Hluhluwe-Imfolozi Park, stressed the importance of having “... knowledge about the value which local communities attach to ecotourism development projects”, as this could assist park managers with decisions on how to design ecotourism projects to benefit greater numbers of individuals in local communities.¹⁴¹

8.8.3.6 Findings on conservation, socio-economic development, benefit-sharing, and tourism

Neighbouring communities acknowledged the importance of nature exploration in DGR, but argued jobs were lacking for poor, unemployed community members. They expressed concerns about living near dangerous animals, lack of environmental education, and expensive entrance fees. Most respondents had never visited DGR but were concerned about the slow pace of conservation expansion.¹⁴² On a positive note, the report did not find serious gender disparity or exploitation of youth that researchers have discovered in projects elsewhere across the globe.

Such concerns were found, for example, during research conducted by Monterrubio and Espinosa who examined effects of tourism employment in ecology-related activities on the livelihoods at a micro level in San Miguel Regla Ecotourism Park, central Mexico. Their study suggests that government and organisational interventions are needed to combat gender-based discrimination in rural areas of developing countries where women frequently face exclusion from tourism benefits.¹⁴³ Arguably, as the GDED oversees the management of DGR, a public-private partnership that relies on skilled and unskilled personnel, its organised structure limits the chances of abuse.

The MSS's SSEIA Report revealed that local communities felt their culture was being showcased and their crafts could be sold to tourists at DGR and that they themselves benefited from exposure to other cultures. The reserve had a positive economic impact, but they saw few benefits by way of business opportunities. Employment in tourism supported families; however, respondents felt DGR was getting richer while communities were benefiting little from DGR resources.¹⁴⁴ There is little evidence to suggest that DGR is getting “richer” in any way. As already mentioned, during the Covid-19 pandemic for, example, DGR was unable to pay salaries from its own resources and

¹⁴⁰ V.M. Gonzalez, “Furthering Social Exchange Theory in the Study of Resident Impact Perceptions: Three Approximations to the Limits to Tourism Growth”, University of Girona, Doctoral Programme in Tourism, 2020.

¹⁴¹ B.O. Adeleke & T. Nzama, “Assessment of Community Participation in Ecotourism and Conservation at Hluhluwe-Imfolozi Park, South Africa”, *Journal of Environment and Earth Science*, (Online) 3(3), 2013, p. 29.

¹⁴² MSS, *Synthesised Socio-Economic Impact Assessment Report*, April 2022, p. 82.

¹⁴³ J.C. Monterrubio & B. Espinosa, “Characterisation of Ecotourism Employment in a Developing World Destination”, *GeoJournal of Tourism and Geosites* Year VI, 11(1), Article no. 10106-126, 2013, pp. 60-64, https://gtg.webhost.uoradea.ro/PDF/GTG-1-2013/6_Monterrubio_126.pdf, accessed 2024-02-28.

¹⁴⁴ MSS, *Synthesised Socio-Economic Impact Assessment Report*, April 2022, pp. 82-83.

needed to secure assistance from benefactors such as the KRF, the Dinokeng-based private, non-profit conservation organisation discussed in Section 8.3.7.

Brooks *et al.* argue that a considerable corpus of literature points to the benefits to conservation of "... devolving decision-making and control to local communities". The reasoning for this is that local organisations "... are thought to be more responsive to local conditions, have more detailed knowledge of resource dynamics, and have more incentive to harvest resources sustainably because they tend to feel more secure in their access to future benefits and thus discount future returns less than outsiders". In the case of DGR, local communities are limited in their harvesting of natural resources as they, with very few exceptions, are not landowners. Nevertheless, "... by engaging with local cultural traditions and leaders, projects may encourage greater local participation and insight and decrease the likelihood of failure due to cultural insensitivity".¹⁴⁵ The DGR management, to its credit, has a history of encouraging communities, such as the ga Mashung community, to present inclusion partnership models for consideration so they could leverage off the reserve's infrastructure and rich wildlife tourism offerings.

8.8.3.7 Recommendations of the SSEIA concerning community, business, and visitors

As provincial government follows the People and Parks (P&P)¹⁴⁶ model, adapted to fit DGR, the recommendation was that the projects be audited against the application of the model. Capacity-building interventions were recommended for community representatives whose knowledge of governance is limited. Local communities remained largely marginalised with respect to the business activities of the game reserve, "... including the awarding of concessions, business contracts, entrepreneurship opportunities, skills development, job opportunities, and consultation in decisions regarding projects aimed at their own development".¹⁴⁷ An important business finding was the need for capacity building by SMMEs.

The DGR, primarily funded by donations and subsidies from the GPG, needs to find sustainable ways to fund its operations. This includes increasing visitor numbers and spending, focusing on school groups and lower-income groups, and offering discretionary entrance fees and discounts. The reserve should also hold more birding events and cycling competitions, and engage with

¹⁴⁵ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects ...", *Environmental Evidence*, 2, Article number 2(2013), p. 7.

¹⁴⁶ The People and Parks Programme in South Africa aims to promote rural community participation in Protected Areas, strengthen governance, and support biodiversity conservation through infrastructure development and community involvement in protected areas management. The programme strives to bridge the gap between conservation and communities, focusing on empowering previously displaced communities to establish protected areas. RSA, Department of Forestry, Fisheries and Environment, About People and Parks Programme, <https://www.dffe.gov.za/projectsprogrammes/peopleparks/about>, accessed 2022-11-28.

¹⁴⁷ MSS, *Synthesised Socio-Economic Impact Assessment Report*, April 2022, p. 84.

media like radio, social media, and outdoor magazines. A comprehensive marketing strategy should include understanding the product base, branding, target markets, and communication plans.¹⁴⁸ Another marketing recommendation was that all marketing activities should involve collaboration with national, provincial, and regional tourism promotion agents.

Brooks *et al.*'s 2013 research on community-based conservation (CBC) highlighted the importance of institutional capacity building, skills development, equitable resource distribution, and social capital enhancement. They suggested CBC projects work better with low population sizes and locally held tenure. They emphasised non-tangible benefits and equitable benefit distribution over tangible ones.¹⁴⁹ The DGRMA and the GPG's Dinokeng Project did not brush aside the SSEIA findings, in fact their constructive response was prompt, one example being the introduction of the game reserve's sophisticated and informative online, *DGR Magazine*, the first issue of which appeared in April/May 2023. The magazine is archived to provide public access to back copies for free.

8.8.4 DGR's response to the SSEIA Report

The Dinokeng Project reacted positively to the report, which identified remedial projects and strategies to address DGR's shortcomings, with a focus on short-term and medium-term projects. Project 1 involved providing governance and leadership workshops for local community leaders and stakeholders, with the cost expected to come from the DGRCDT's own budget. Project 2 established a DGR Management/Community Forum committee, meeting quarterly under the joint responsibility of the Dinokeng Project, the DGRMA, and the DGRCDT. Project 3 established a management internship for graduates and bursary beneficiaries, selected through a skills audit by the DGRCDT. Project 4 focused on developing a special game ranger training programme that considered historical socio-economic and political disadvantages of local black employees and community members. The project would identify interested youths and select service providers to offer appropriate training. Project 5 involved conducting a feasibility study on potential projects that could be part of the DGR's Beneficiation Scheme to benefit both host communities and the business community. Project 6 intended to increase benefits associated with the existence of the DGR and improve cooperation between municipal offices. The management of the DGR, non-governmental organisations, the Community Trust, and the local tourism industry needed to be tightened. Project 7 aimed to develop specialised human resources in spatial planning, tourism, and promotion, with the City of Tshwane invited to participate. Project 8 encouraged residents and the public to participate in planning and implementation processes. Project 9 linked existing

¹⁴⁸ MSS, *Synthesised Socio-Economic Impact Assessment Report*, April 2022, pp. 86-88.

¹⁴⁹ J. Brooks, *et al.*, "Assessing Community-Based Conservation Projects ...", *Environmental Evidence*, 2, Article number 2(2013), p. 31.

products to the DGR website, and determined to recruit a DGR influencer from unemployed youth by October 2022. Project 10 proposed a database of goods and services to assist with procurement of local goods and services, with the DGRCDT responsible for compiling it and sharing it with the DGRMA.¹⁵⁰ How successful these admirable 10 projects will be is yet to be revealed over time and will provide future researchers with a baseline for measuring socio-economic benefits to the communities around DGR.

8.9 Concluding comments

The research direction of this thesis has been to illustrate that the DGR community, including its management structures, landowners, lodge proprietors and others, had always been, even prior to DGR's official opening in 2011, conscious of a moral and civic duty to support local communities. From the diversity of activities and initiatives it's clear that a strong sense of community care is exercised. The publication of the SSEIA Report in April 2022 revealed experiential perceptions, emotions, and impressions felt by the peripheral DGR community about the presence of DGR and how it benefits them.

The nature of the data on which the report is based required this researcher to point out its positive findings, while simultaneously recognising and recording the work done to support local communities that might otherwise have been dismissed or gone unrecognised. Many DGR structures, formal and informal, group and individual, should be credited for assisting local communities in many constructive ways.

A close study of the KCDI website reveals an accurate historical timeline of projects co-ordinated by KCDI at Kwalata Game Lodge. These projects drew in actors from all walks of life – communities, landowners, sponsors, academic institutions, educationists, social workers, researchers, and various other experts in their fields, to ensure projects were worthwhile, focused, and organised. As DGR Manager, David Boshoff pointed out, DGR can always do better regarding community engagement. Nevertheless, the work done is impressive by any standard.

When one considers social responsibilities, one needs to remember that, while DGR's formation was to contribute to employment and economic upliftment, its limited personnel and resources also needed to ensure that the game reserve survives, and that its conservation directives are met – a full-time, demanding task in its own right. The difficult process of getting a structured Community Trust in place took long and hard negotiating while trying to keep the process as

¹⁵⁰ LSPC, GPG, GDARD, TSHILAMULELE, E., 2nd Draft Plan: Dinokeng Project Implementation Plan of the Dinokeng Game Reserve Socio Economic Impact Assessment Study Recommendations, 2022-11-19.

democratic as possible. Its formation and implementation were essential, without which DGR would be regarded with scepticism by local village communities on the reserve's perimeter. The level of its success too will become apparent over time. Getting the balance right between conservation funding and community development, is essential. Without a functioning game reserve, the community benefits would also disappear.

Much of the thesis has focused on boundaries, particularly concerning the enormous potential for expansion and the obstacles to the desired growth of DGR. However, the main purpose of the development of DGR has, from its inception, been premised on the need for improving the living standards and, therefore, the eco-health of its neighbouring communities. The last chapter to follow constitutes a critical summation of the many issues so far discussed.

CHAPTER NINE

FINAL OBSERVATIONS ON DINOKENG GAME RESERVE AS PUBLIC-PRIVATE PARTNERSHIP AND CONSERVATION INITIATIVE 1995-2018

Inspired by the concept of a Big 5 game reserve on the doorstep of two large Gauteng cities, Johannesburg and Pretoria, I was curious to find out more about the innovative thinkers who conceptualised the Dinokeng Game Reserve (DGR) project. How they ultimately brought it to fruition as a public-private partnership and conservation initiative to benefit more than just the owners became a fascinating question worthy of exploring.

The DGR model, appropriate for the region, was found to be unique as a form of public-private partnership, which includes about 170 landowners living within its boundaries. As early as 2005, Van Rooyen in his study of DGR as a socio-economic public-private partnership, commented on the originality of the Dinokeng model. The Gauteng Province he said had focused on several original projects aimed at transforming the northeastern part of Gauteng, of which Dinokeng was one. He noted that a founding principle of the project was that "... a unique mutually beneficial partnership agreement should be negotiated in which local communities (historically disadvantaged), landowners (smallholdings and farms), the business sector and the respective local, district and provincial authorities" should be "... involved to establish a conservation area and tourism destination of note".¹ DGR is also unique in that it is the only wildlife sanctuary in Gauteng in which the Big 5 roam freely. Its proximity to South Africa's major industrial, business, and urban hub; major centres of learning and research; and major transport networks contribute to its unique status. The fact that it is a malaria-free game reserve also gives it a competitive edge over game reserves in malaria endemic areas.

There were landowners and Gauteng government officials, who went from farm to farm explaining the game reserve project to often suspicious landowners and community leaders. Curiosity piqued, I set out to record the environmental history of DGR's development from 1994, the early "Amakulu days", to 2017 when the black rhino were introduced to DGR, so completing the full range of re-introduced Big 5 animals. In 2018, the first two baby black rhino were born in the reserve. The research involved meeting role-players in person or poring through documents and correspondence collected from the generous people who accompanied me on my seven-year journey of exploration.

¹ E.J. van Rooyen, "The Dinokeng Big Five Game Reserve: Envisaging a Socio-Economic Development Partnership", *Journal of Public Administration*, 40(4.1), 2005, p. 605.

Chapter One provided a background demography, geography, and history of the area in northeastern Gauteng that is today DGR. I ventured briefly into an explanation of how the study area and environs found itself depleted of wildlife largely as a result of 19th century hunters, and later, agriculturalists. Environmental history was found to be an ideal connector with other disciplines, including many sciences, which were essential in better understanding the topic upon which my narrative was based. In both Chapters One and Two, I engaged with environmental history and boundary studies literature to familiarise myself with the demands of a study conducted within their respective frameworks. I referred frequently to DGR's initial paper boundaries that represented the original anticipated boundaries, ones never fully achieved. The dynamic nature of DGR's boundaries was revealed as landowners either joined or withdrew from the reserve.

Already considered a trans-provincial game reserve as it crosses into Limpopo Province, DGR could potentially expand across Mpumalanga's boundary. The GPG's Dinokeng Project aimed to boost the local economy by investing in tourism infrastructure and addressing unemployment, poverty, and inequalities. Of the three tourism hubs included in the broader Dinokeng Project, Cullinan, Roodeplaat, and DGR, I focused solely on the DGR anchor hub. In recording DGR's protracted development story, its *longue durée*, it was appropriate to incorporate the narrative into an environmental history and boundary studies paradigm. The development of DGR was based on the National Development Plan and the Provincial Transformation, Modernisation, Re-industrialisation, and Township Economic Revitalisation strategies.²

A discussion of environmental history and boundary studies was continued in Chapter Two to establish how those disciplines could assist in revealing economic and conservation opportunities in an economically depressed space. The area was contested from the start, never violently, and as a post-apartheid model, no forced removals were incurred. Throughout the thesis the evidence provided appears to show that within the mildly contested DGR space, the local populace, landowners, conservation, and economic regeneration have all benefited at least to some degree.

What DGR has taught about boundary studies is that the boundaries of the reserve are relatively fluid. Should protected area status be granted to DGR, the boundaries would likely stabilise as greater individual responsibility would be placed on landowners to conserve biodiversity. An interesting feature of DGR is that although it has boundary fences, it still allows for the public to

² Republic of South Africa (RSA), Gauteng Provincial Government (GPG), Cradle of Humankind World Heritage Site and Dinokeng Projects, Annual Report, 2020/2021, p. 62, [https://provincialgovernment.co.za/entity_annual/696/2021-gauteng-cradle-of-humankind-world-heritage-site-\(cohwhs\)-annual-report.pdf](https://provincialgovernment.co.za/entity_annual/696/2021-gauteng-cradle-of-humankind-world-heritage-site-(cohwhs)-annual-report.pdf), accessed 2023-09-29.

pass through on the tarred D48 Rust de Winter Road, as well as on several gravel roads. This access allows the public the opportunity to traverse the reserve uninterrupted to conduct their commercial or personal business, so demonstrating that public roads need not be an obstacle to game reserve development. It also illustrates a positive move away from the colonial approach known as fortress conservation.

The Dinokeng Game Reserve management is well aware that poorer community members cannot afford to cross the reserve's boundaries for leisure purposes (See Chapter Eight). Much is therefore done to arrange free game drives and environmental education programmes for community members. Such initiatives help soften the symbolic and social boundaries between the reserve and the local communities. Chapter Eight gave many more examples of how these symbolic and social boundaries are softened through community engagement projects.

There is still much to learn about boundary studies. Research "... focusing on boundaries themselves may generate new theoretical insights about a whole range of general social processes present across a wide variety of apparently unrelated phenomena – processes such as boundary-work, boundary crossing, boundaries shifting, and the territorialization, politicization, relocation, and institutionalization of boundaries".³ In this thesis, boundary crossing and boundary shifting were explored.

Having examined how this DGR research can contribute to boundary studies, one can equally ask what its value has been to environmental history. The thesis constitutes an attempt to see environmental history in a role that Sverker Sörlin referred to "... as bridge-builder between the humanities and other disciplines", and a role, he added, that was crucial in "... communicating with the natural sciences". Environmental history, he argued, is, as a historical subdiscipline, well placed to bring facts together from a broad church of specialties and to provide "... social relevance in a time of environmental crisis", and to do this in a convincing narrative. How one should do this is a question, he says, that elicits many "options".⁴

As this is an environmental historical study it has explored the relationship between humans and animals in a portion of rural Gauteng that is undergoing environmental renewal, aided in part by the re-introduction of endemic species. The need to revitalise the land has much to do with historical human interventions, including hunting, agriculture, and mining that caused

³ M. Lamont & V. Molnár, "The Study of Boundaries in the Social Sciences", *Annual Review of Sociology*, 28, 2002, p. 168, <https://doi.org.10.1146/annurev.soc.28.110601.141107>.

⁴ S. Sörlin, "The Contemporaneity of Environmental History: Negotiating Scholarship, Useful History, and the New Human Condition", *Journal of Contemporary History*, 46(3), 2011, pp. 625 & 627.

considerable environmental damage to the study area. Human interventions are now required to restore the integrity of the land. The DGR management has encouraged research (including being supportive of this thesis) and has instituted programmes to improve ecosystems. These have included soil improvement programmes and projects to remove alien and troublesome botanical species, particularly pompom weed (*Campuloclinium macrocephalum*) and sickle bush (*Dichrostachys cinerea*).

Environmental history and scientific research addressing issues of concern between humans and the natural world necessitated a whole chapter on scientific knowledge related to DGR. This thesis has explored other case studies of developing game reserves, particularly across Africa. It has shown progressive approaches to reducing human wildlife conflict, including the predictability value of artificial intelligence to foresee and, therefore, limit harmful incidents. In its goal of improving the biodiversity of the region, DGR management continues to negotiate for more land to expand its boundaries. It does this in partnership with the Gauteng Provincial government to assist the national government's obligation to conserve biodiversity in accordance with its recently updated National Biodiversity Economy Strategy of 2024.

The updated policy, not discussed within the timeframe of this thesis, has its critics, most of whom point to the danger of monetising and exploiting biodiversity. Having set my research within the framework of environmental history, I have explained how the landscape of the study area came about through human agricultural activities, and in so doing, I have explored the problems it faces, such as poaching. I have also looked at exciting possibilities for future expansion. Environmental history requires the historian to get out into the field and engage physically with nature to better understand the environmental issues at play.

A picture is painted in Chapter Three of a space transformed during the 19th and 20th centuries, firstly by hunters and then by farmers and miners. In spite of these human modifications, I demonstrate how through careful conservation and rewilding, the landscape is being redeemed by a transition to wildlife ecotourism. The history of land use is a focal point of the chapter where I have gathered evidence to show how changes in both land ownership and land use in DGR have evolved since the mid-19th century, and how these have influenced local communities and DGR's boundaries. The land chosen for the proposed game reserve was fragmented and consisted, mainly in the south, of many small 20 ha plots which were not viable for lucrative farming. Larger parcels of land make up most of the northern section of DGR.

From other research I have been exposed to it is clear that the process of rehabilitating marginal land in DGR cannot happen overnight. It was necessary to drive extensively across DGR both on

self-drives in the south and private game drives in the north to get a feel for the landscape. One got to see, for example, the poor condition of the soil in parts of northern DGR where soil crusting has occurred. In Chapter Seven, the work of UNISA's Dr G. Nortjé on methods of rehabilitating land already damaged by soil crusting, reinforces the reality that degraded land can take a long time to recover. Alex Saturday's work on the restoration of degraded land has identified four key aspects to a land restoration project: recognising cause and effect and targeting the cause, stabilising the identified site (the minimum level of restoration), environmental reconstruction, and monitoring.⁵ Much evidence has been provided in this thesis to illustrate DGR management's commitment to meet these key aspects of restoration. A reading of Nortje's work, as examined in Chapter Seven, shows a close correlation, for example, with Saturday's emphasis on the need for good land and soil management techniques:

Soil conditions are often changed by the inappropriate land use practices which ultimately result in soil erosion. Optimum soil management aims to provide favorable conditions for plant growth through improved soil nutrient availability and aggregation. Optimum soil management practices improve infiltration of water and improve soil capacity to hold water and in result reduce runoff and erosion.

The work done in DGR, and that which is underway, regarding land rehabilitation, is important for the eco-health of the land; however, it also provides an example to other rural communities of how to enhance land use in marginal areas. It does this by its ongoing eradication of invasive species, its commitment to supporting scientific research, its reintroduction of endemic species, its removal of fences and other vestiges of previous land use, its determination to ensure a healthy animal gene pool, and its commitment to socio-economic upliftment of local communities.

When embarking on this history of DGR, I was only aware of one initiative that had a bearing on DGR's future. That was Amakulu, a private, collaborative effort between farmers north of the Moloto Road. Amakulu is the main focus of Chapter Four. As my reading and questioning progressed, I discovered there were in fact, several other "start-up" areas that were all loosely seen by the Gauteng Provincial Government (GPG) as potential nodes for a large Big 5 game reserve. The GPG's conservationists and ecologists walked many miles literally and figuratively to convince landowners and community members to put down their fences and join the proposed game reserve. The somewhat ingenuous expectation was that the various "start-ups" or nodes would soon be joined together as corridors of land were opened up by landowners obligingly

⁵ A. Saturday, "Restoration of Degraded Agricultural Land: A Review", *Journal of Environment and Health Science*, 4(2), 2018, p. 45, <https://doi.org/10.15436/2378-6841.18.1928>.

putting down their fences to form one large reserve. History has shown this not to have been so easy.

The other “start-up” nodes identified by the GPG for inclusion included Rust de Winter Dam and Nature Reserve and Leeuwfontein Collaborative Nature Reserve (LCNR). The latter was anticipated to constitute a central administrative area of the DGR, to the extent that the GPG constructed an array of buildings for this purpose. Some interviewees likened the government structures at LCNR to a mini-Skukuza, the administrative centre in Kruger National Park. Ultimately, however, for the various reasons discussed in this thesis, the GPG’s focus shifted west. This was due to the non-availability of big enough portions of land in the area surrounding LCNR to form a Big 5 game reserve sufficiently large to be viable.

Therefore, the new core area, described at times as Phase 1 or Phase A, started up in the north-west of the current DGR – parallel to the N1 freeway and across the freeway from Hammanskraal. Here, several major pieces of land that were consolidated, namely the already established and proclaimed Ditholo Nature Reserve (military state land), and the adjacent Mongena and Kwalata Game Lodges, among others, together with numerous smaller portions in between these major portions were to make up a large enough continuous landscape to support the Big 5.⁶

I later discovered other potential areas that had been eyed for inclusion; however, they too have neither joined the DGR nor made it into this thesis. This thesis included consideration of the more high-profile potential expansion areas such as Amakulu, Leeuwfontein, Rust de Winter, and military land. Unfortunately, time and space did not allow for an examination of the many smaller conservancies loosely organised in the vicinity of DGR. One thinks, for example, of the possible incorporation in years to come of Bobbejaansberg Conservancy south of DGR, whose incorporation would add a much needed attractive, rugged, and hilly topography to DGR. Discussions do take place periodically between DGR management and Bobbejaansberg’s representatives.

Chapters Four and Five composed a record of the protracted process of consultation and negotiation. It is argued with substantial primary source evidence that these consultations were broad and as inclusive as possible under difficult circumstances and at a transitional stage in South Africa’s political history. They demonstrate South Africa’s well-intentioned implementation of developmental structures and plans, which were perhaps overly ambitious. One thinks of the original game reserve plan for northeastern Gauteng where it was assumed that landowners and

⁶ Laurence Shee Personal Collection (LSPC), N. Grobler, Email, Ecologist, Deputy Director: Dinokeng Projects, GPG, GDED/L Shee, 2020-01-14.

communities would readily fall in with the GPG's plans to create a 200 000 ha trans-provincial game reserve. Mutual suspicions remained, based on South Africa's apartheid history. White landowners feared expropriation of their land by stealth, and communities were not persuaded that their land would be better used for ecotourism rather than subsistence cattle farming. This was particularly so regarding the ga Mashung Matlala community and small-scale farmers in the Rust de Winter area.

In Chapter Five a range of previous initiatives in other localities with similar goals of economic upliftment were discussed. They too had their own negotiation processes that are compared with those of DGR. The latter is shown, hopefully convincingly, in this thesis, to have placed economic development in the form of ecotourism as a priority, ahead of, but based on, conservation. What was also established was that no game reserve can be successful without consulting with local communities who must be persuaded of its benefits to them. They must be essential participants in the developmental dialogue.

The questions posed in Chapter Six ask whether the architectural planning of DGR came to fruition amidst possible contestation, and to what extent the DGR model represents the combined input of role-players. These include local communities, game reserve architects, ecologists, conservationists, and landowners. The extent to which consensus was reached by all role-players in the face of contestation from, for example, island landowners and land claimants was analysed. Having tracked the consultation process, I provide extensive evidence to show the consultation process to have been fair and broadly inclusive.

Various comparisons were made in Chapter Six with both similar and different models of game reserve architecture, to that of DGR, for example, those of Madikwe and Pilanesberg game reserves. It was exciting to discover that Vhembe Game Reserve, today the Vhembe Biosphere Reserve (VBR), influenced the foundations of DGR. The relevance of Vhembe in this regard is to be understood in the context of DGR originally being envisaged as a possible biosphere reserve stretching east into Mpumalanga province. The VBR model has grown inexorably outward from small beginnings to include a range of local, national, and international partners and conservation programmes, many of which are listed on its website. The VBR's "Vision" is one that bears testimony to the idea of the *longue durée*, a vision that could be adopted in future by DGR should its current and potential partners become increasingly inventive and imaginative in persuading island landowners to sacrifice some individual interests and to join DGR. There is something very anti-declensionist and optimistic in Vhembe's vision:⁷

⁷ Vhembe Biosphere Reserve (VBR), <https://www.vhembebiosphere.org/about-us>, accessed 2024-02-29.

Our vision is to create a biosphere region where the voices of our diverse stakeholders are heard, where we give voice to the voiceless; our sacred lands, living cultural heritage, flora and fauna. The VBR visualises a region of balance between Man and Biosphere, between human needs and the needs of our unique and diverse environment. The VBR is here to partner, facilitate and foster longevity with all to make sure continuity, sustainability and regeneration occurs.

This is not to say that the VBR model is perfect. In fact, as shown in this thesis, it is currently a highly contested space as the Musina Makhado Special Economic Zone (MMSEZ) in the Vhembe district is being opposed legally by alert conservation groups concerned about the environmental consequences of MMSEZ's mining plans.

John Pringle's *The Conservationists and the Killers* records the gritty South African history of conservationists' and scientists' efforts to secure land for threatened species, often in the face of ignorant politicians, avaricious hunters, misguided farmers, and anti-scientists. Whether it was for the plains zebra (*Equus quagga*, formerly *Equus burchellii*) or the bontebok (*Damaliscus pygargus*), trying to find safe spaces for endangered animals was, according to Pringle, a constant struggle within a time of misinformation.⁸ If the history of conservation and game reserve development in South Africa is one that reveals numerous complex challenges, then it is not surprising that the road to DGR's development was, and continues to be, hindered by metaphorical potholes. The wonder is that out of numerous, often heated discussions, reports, and feasibility studies, a viable, functioning DGR is in place today at all. That it is, is a victory for conservation and economic development.

DGR There is with DGR, as with other game reserve developments, a sense of the Annales School's *longue durée*. Not necessarily in the classical case of very long-term social history, but rather in the sense of prolonged stop-start negotiations and consultation processes. This appeared interminable as hopes were raised and dashed and raised again. There are undoubtedly many challenges to come in DGR's unfolding mini drama. Its story is not static and just as DGR can provide lessons worthy of consideration, so too can DGR learn from other narratives concerning the evolving histories of game reserves.

The DGR model has raised, in my view, two areas of research with enormous possibilities for ongoing critical investigation. Chapter Seven delves into the scientific achievements already reached in DGR. Chapter Eight, the final content chapter, reveals an area ripe for humanities

⁸ J.A. Pringle, *The Conservationists and the Killers* (T.V. Bulpin and Books of Africa (Pty) Ltd, 1982).

research. Keeping in mind that socio-economic development remains the primary reason for DGR's development, my thesis ends with a thorough assessment of the extent to which DGR has achieved its goal.

In Chapter Seven, the extent to which the DGR project encouraged local and international research is highlighted. Ways in which the resulting knowledge should be disseminated is also given attention. An examination of the wealth of scientific research already carried out in DGR's short history convinced me of the eminent suitability of DGR as a field laboratory for curious scientists from both of Gauteng's eminent universities, and from further afield. A historical record is presented of ground-breaking research conducted in DGR, one that reveals the generosity and willingness of both DGR landowners and management to facilitate responsible research.

Geographical historian, Capel Sáez, acknowledging that it is not a novel idea, yet still a valid one, has remarked that "... the study of history reflects contemporary issues" and that historians seek origins, precedents, and foundations. Beginning "... from current issues, one approaches the past in order to understand the present better, and this always leads to the definition of new topics and new viewpoints in historical studies".⁹ With that consideration, it is hoped that Chapter Seven on the scientific work conducted in DGR might provide a starting point for future historians interested in scientific research topics that were relevant in DGR during the first quarter of the 21st century.

The approach taken in Chapter Seven was to record scientific achievements in DGR, examine their value to conservation, and explore ways in which the new knowledge was disseminated nationally and internationally. There is massive potential for scientific research in DGR as a field laboratory, and it is apparent that DGR will continue to offer convenient research opportunities for both local and international researchers. I felt compelled to record as much of the work done as was possible. It was illuminating to discover that not only serious academic research has been conducted in zoology, ecology, and conservation, but also research in the humanities, to which this thesis, it is hoped, will make a historical contribution. Regarding various research disciplines, Sáez observed that "... the history of a discipline, like the history of science in general, is also an area of history proper; it has a value of its own irrespective of the benefits it brings to the work of scientists today". One is never sure, he argued, how "... the effects of these historical studies on current practice" will turn out. He added, however, that the effects may have unpredictably useful

⁹ H. Capel Sáez, "Historia de la ciencia e historia de las disciplinas científicas" (The history of science and the history of the scientific disciplines), *Geo Crítica*, Cuadernos críticos de geografía humana (Critical GEO, Critical notebooks of human geography), No. 84, 1989, <http://www.ub.edu/geocrit/geo84.htm>, accessed 2022-09-20.

results since, viewed from the past, the present is seen from new perspectives with the possibility of influencing current scientific practice.¹⁰

In consideration of GPG's emphasis on DGR being primarily a means of improving the lives of local DGR communities, Chapter Eight focuses on DGR's social responsibility programmes. How are they organised, what has been their impact, and how have they been received are questions responded to in this chapter. One has to understand that DGR was intended primarily as a GPG socio-economic development project to assist poor communities in northeastern Gauteng. This was based on expected benefits to flow to communities through conservation and ecotourism. I examined the influence DGR has had on the lives of local communities by engaging with two socio-economic reports. Parts of these I contested as not having considered the history of the substantial benevolent, voluntary work in the project area both before and after the opening of DGR in 2011. An attempt was made to assess DGR's socio-economic successes fairly. Success is difficult to measure considering that by 2018, the end point of this thesis, the game reserve had only been functioning for seven years. In addition, there were no previous statistics with which to make a comparative study to measure success. I needed to present, counter to the hardly exuberant findings of the two commissioned assessments of DGR's success, a more objective picture of the DGR's contributions to local communities. These contributions were set out in some detail in Chapter Eight. It does take time for benefits to accrue, so it was satisfying to read that in 2021, despite the Covid-19 pandemic, there was good news from the Gauteng MEC for Economic Development, Environment, Agriculture and Rural Development, Parks Tau.

Tau was able to report that between 2020 and 2021, despite the pandemic, the functioning DGR sustained 639 jobs while 60 additional jobs were created for employees of the DGR Management Association (DGRMA) due to increased operational demands. Regarding the DGRMA workforce composition at the time, 82% were African people, 50% were youth and 19% were women. Adhering to the state's obligation to manage fire and alien vegetation in accordance with the National Veld and Forest Fire Act, 101 of 1998, and the Conservation of Agricultural Resource Act, the Dinokeng Project kept to its service level agreement with the Working on Fire Project (WOF) as part of the Expanded Public Works Programme to implement natural resources management in DGR. The result of these obligations was that WOF managed to oversee the control of 4 200 ha of vegetation, and in so doing, created 60 job opportunities. The entire workforce was 100% Africans, 90% youth, and 20% women, and included two people with

¹⁰ H. Capel Sáez, "Historia de la ciencia e historia de las disciplinas científicas", *Geo Crítica*, Cuadernos críticos de geografía humana, No. 84, 1989.

disabilities.¹¹ In addition to making progress in its socio-economic endeavours, DGR has also proven itself as a suitable landscape for scientific research.

The issue of community trusts in DGR is sensitive. Supported by evidence in this thesis, community trusts, wherever they are, are difficult to manage. Early attempts to form one in DGR failed. The current configuration of the DGR Community Development Trust is more stable than its short-lived predecessor. However, community trusts can easily become areas of discontent. Nevertheless, game reserves must be community centred to be accepted and to be able to function. It is important to understand that community trusts raise differing expectations. Historian, Jacob Dlamini, superbly analysed the reaction of blacks to game reserve tourism during the apartheid era in his *Safari Nation*.¹² He recalled a 1935 editorial in *Bantu World*, a black newspaper, in which the editor wrote of the confiscation of African land to expand Kruger Park, pointing out that while government was involved in seeking more land for the preservation of animals, authorities were neglecting the more important issue of caring for the poor, the landless, and homeless. While not begrudging animals their place, the editorial stated: “The preservation of animals ... is a noble thing, but nobler still is the preservation of human life, be it white or black”.¹³

By 2018, the end point of this thesis, DGR role-players had identified and stated the three challenges facing the reserve at that point, and which appear to continue to the present (2024). The three challenges identified were to obtain the support, commitment, and eventual participation of non-participating landowners on island properties; to expand DGR into the eastern areas and ultimately grow DGR to at least 40 000 ha; and to provide high quality game experiences and facilities to secure Gauteng’s share of domestic and international tourists, especially in the nature-based tourism industry.¹⁴

The future expansion of DGR ties in closely with boundary studies, a continual focus of this thesis. Unfortunately, research for this thesis yielded very few sources that could shed light on inter-provincial boundary negotiations. What was established is that DGR is an inter-provincial game reserve, which already includes a portion of Limpopo Province and could in future, include

¹¹ RSA, GPG, Cradle of Humankind World Heritage Site and Dinokeng Projects, Annual Report, 2020/2021, p. 15, [https://provincialgovernment.co.za/entity_annual/696/2021-gauteng-cradle-of-humankind-world-heritage-site-\(cohwhs\)-annual-report.pdf](https://provincialgovernment.co.za/entity_annual/696/2021-gauteng-cradle-of-humankind-world-heritage-site-(cohwhs)-annual-report.pdf), accessed 2023-09-29.

¹² J. Dlamini, *Safari Nation: A Social History of Kruger National Park* (Jacana (Pty) Ltd, Auckland Park, 2020), p. 4.

¹³ Editorial, “More land for animals”, *Bantu World*, 1935-02-09.

¹⁴ RSA, GPG, Content Project Managers, Dinokeng Game Reserve, Comprehensive Environmental Management Plan (EMP) and Specific Species Management Plans for Dinokeng Game Reserve (DGR), updated by La Terra Earth Sciences (Pty) Ltd, March 2018, p. 49.

swathes of land in Mpumalanga that are eminently suitable for wildlife ecotourism. Exciting prospects for future boundary research lie in these possibilities for inter-provincial expansion. It is uncertain how the DGR's boundaries will change in the future; however, expansion is non-negotiable for DGR to sustain the wildlife it already harbours. Recent boundary developments to be watched in future are those of geographical divides within the DGR.

In 2023, there were talks on the development of sub-management structures for the predominantly large landowners north of Rust de Winter Road that bisects the reserve, and the predominantly smaller landowners to the south. Discussions have also taken place concerning a sub-managerial structure for eastern landowners. Much of the discord that has led to these discussions about increased geographical autonomy has resulted from differing opinions on traversing rights. Fortunately, so far, and relying only on unconfirmed hearsay, the north and south landowners, while wanting more managerial autonomy in their regions are opposed to fencing themselves off from each other. If that were to happen, it would have grave consequences for the conservation and biodiversity of DGR. The reserve needs to expand, not shrink. I am confident that DGR represents the best possible land use model considering its suitability for wildlife rather than livestock farming.

The philosophy of boundaries was discussed in the first two chapters leading to the realisation that the DGR's boundaries are flexible and subject to expansion and contraction depending on addition or withdrawal of land. This uncertainty could be reduced should DGR receive the anticipated Protected Area Status applied for in 2023.

Those Gauteng conservationists involved in identifying land in Gauteng for conservation in the mid-1990s were hugely optimistic. The possibility was that an area extending from Gauteng into Limpopo and Mpumalanga that included private land, various established private conservancies, and government land, including the Rust de Winter, Mdala, and Mkhombo Nature Reserves could potentially stretch to over 200 000 ha. Terrifically hard work, including consultation with both farming communities and poor peripheral communities by Gauteng's conservation officials, ultimately failed to achieve the desired large game reserve. Today (2024), as confirmed with David Boshoff, DGR General Manager, DGR stands at a mere 19 000 ha.¹⁵ This thesis credits many of the government officials who put so much time and effort into making DGR a reality against all odds, even if it is, today, yet a smaller version of what was originally envisaged.

¹⁵ LSPC, D. Boshoff, Email, General Manager of DGR/L. Shee, 2023-09-04.

With this shift in focus, the spirit of many conservation-minded role-players continued unabated, as testified to by the existence of the DGR today, albeit in a different form and size than originally planned. However, any expectations of a smooth path to the successful creation of a game reserve would be naïve. The history of conservation and the establishment of game reserves and their boundaries in South Africa has a chequered history. This is to be expected when dealing with the complex development of game reserves in South Africa, or, indeed, anywhere, particularly where multiple landowners are involved. The fact that the envisaged DGR game reserve model was to include multiple small to medium landowners, all with their own dreams and opinions, inevitably complicated discussions.

This thesis has traced the many vicissitudes encountered during DGR's history of development. These included the failure to get the Rust de Winter communities to transition from cattle to wildlife with opportunities to run their own tourist facilities within the anticipated larger DGR. The release of what is generally referred to as the DGR Master Plan in 2001 presented the opportunity to move forward in a more structured manner than before. Academics began to take note of the DGR development plan and M.W. Moeng produced one of the first studies on using the land in the area for ecotourism.

As Moeng's 2004 study of Dinokeng's ecotourism pilot project revealed, there had been a lack of progress made by the GPG since 1995, a period of nine years.¹⁶ Most of his points came down to poor planning, changes in plans, failure to win landowner support, and poor communication. However, landowners too, for various reasons, also thwarted progress. Part of the problem, according to Moeng, was that the state owned too few properties in the study area to contribute towards the hoped-for amalgamation of conservancies and other diverse properties whose owners held widely divergent views about how the project should develop. He noted that "... many plans had to be changed because of lack of agreements with some private property owners who occupy strategic areas within the project plan".

Also problematic for stakeholders was the GPG's lack of finality on the exact location of where the core area should be. As Moeng put it, "... whereas DACEL [Gauteng Department of Agriculture, Conservation, Environment and Land Affairs of Gauteng Province, formerly known as DACE] seems resolute in its strides to launch the project, property owners on the other hand

¹⁶ M.W. Moeng, "The Impact of Eco-Tourism on Land-Use Patterns: The Case of Dinokeng-Tourism Pilot Project in Gauteng Province", M Inst Agrar (Rural Development Planning), University of Pretoria, 2004, pp. 73-75, <https://repository.up.ac.za/bitstream/handle/2263/24964/dissertation.pdf?sequence=1&isAllowed=y>, accessed 2018-01-21.

seem to be lost and do not know where they are placed within the unfolding jigsaw puzzle”. For these reasons, together with the emergence of the International Union for Conservation of Nature (IUCN) Master Plan in 2021, the focus of a core area began shifting towards the smaller plots and military land nearer to Hammanskraal. A change in strategy by all stakeholders began to emerge with the commissioning of the Master Plan. Discussions, consultations, and negotiations continued until DGR’s opening in 2011, and are ongoing.

Today, in 2024, DGR remains a unique game reserve model, worthy of consideration by other reserves close to major municipalities. Those involved in its development should not be forgotten. However, important as the expansion of DGR is, it must be remembered that its primary purpose is to raise the living standards of local communities through ecotourism. In this regard, prior to DGR’s development, every effort was made to return land to its rightful owners. Today the ga Mashung Matlala community, for example, have had thousands of hectares of land returned to them. Unlike Kruger and other parks, no forced removals took place to develop DGR, nor did it develop in the apartheid era when there were harsh restrictions on black tourists in game parks.

Any future expansion of the DGR’s borders is entirely reliant on the agreement of landowners to remove their boundary fences. There is no obligation upon them to participate in the game reserve should they be unwilling to do so. Landowners whose land generates a reliable income need to be convinced that by putting down their boundary fences they will be able to recoup lost income by benefiting equally through alternative tourism products. The same applies to the incorporation of state land, which continues to be tied into numerous land claims, ownership issues, and title deeds questions. There is little evidence to date that the state is ready, willing, or able to fulfil the expectations of those whose vision was to create an enormous 200 000 ha trans-provincial game reserve extending east of the northeastern quadrant of Gauteng.

Returning focus to the present, perhaps the communities surrounding the current boundaries of DGR, and those island landowners within DGR unwilling to join the reserve, should be less insular and more adventurous in their thinking and heed what could be a historical trailblazer development in Mpumalanga. Having much in common with the VBR model, Mpumalanga Tourism and Parks Agency (MTPA) together with the Aspinall Foundation and its South African subsidiary, *WeWild Africa*, announced in 2024, a groundbreaking partnership to establish what would become one of South Africa’s most sizeable Big 5 Game Reserves. The initiative would develop the 23 000 ha Loskop Nature Reserve, jointly owned by the MTPA and local communities, and then progress with outward expansion into adjoining areas. The project would herald “... a new era of conservation and ecotourism in the region”, and mark “... a significant milestone as it represents the first agreement of its kind in South Africa, wherein a Provincial Conservation

Agency collaborates with international NGOs to unlock investment into a provincial protected area”.¹⁷ From this researcher’s conversations with the DGRMA they are very receptive to, and even encourage, similar models and initiatives within and outside the DGR’s boundaries.

One returns now to the key reason for DGR’s development, which reflects a similar aspiration to that of the future Loskop model, being one of socio-economic development based on ecotourism. In the same 2021 report by Parks Tau mentioned earlier in this chapter, he highlighted the significant progress made in attracting both local and international visitors to Dinokeng as a preferred tourism destination. He emphasised the Dinokeng Community Trust’s role in community beneficiation through community-driven projects, while acknowledging that the Covid-19 pandemic had hit the tourism industry hard.¹⁸ It is particularly important for DGR’s landowners, managers, and communities to consider other innovative projects as they plot their own future expansion plans. As this thesis ends, I digress to a personal experience witnessed in DGR, one that gave considerable cause for optimism.

After a research meeting at Mongena Game Lodge, Lt Col Etienne van Blerk, an environmental management practitioner for the South African Air Force, and I, observed a group of lively African children setting off on a game drive. We had noticed how cheerful and polite they were at lunch, and had engaged with them in light-hearted banter. As they passed us, and having noticed Van Blerk’s air force uniform, a young girl shouted that she wanted to learn to fly. The others excitedly called out their determination to see lions as they headed off into the bushveld. Such moments, often unrecorded, exemplify the intangible benefits of wilderness experiences for young people.

It is appropriate that out of respect for Dr Trish Hanekom, former CEO of the Cradle of Humankind World Heritage Site and Dinokeng Projects, under whose guidance DGR eventually came into being, should be accorded the last word. Despite setbacks such as the economic turbulence in 2008 and the disastrous interruptions of the Covid pandemic, she optimistically said that the “Tourism Restart” had been pushed that could trigger new opportunities: “The lesson of the Dinokeng Game Reserve is that it is possible to achieve something no individual stakeholder or tourism attraction would have been able to achieve on their own. It was only the collective effort and will of all stakeholders, sometimes with very different primary objectives, that allowed the

¹⁷ D. Naidoo, “Groundbreaking partnership to establish one of SA’s largest Big Five game reserves”, *IOL*, 2024-02-23.

¹⁸ RSA, GPG, Cradle of Humankind World Heritage Site and Dinokeng Projects, Annual Report, 2020/2021, p. 11, [https://provincialgovernment.co.za/entity_annual/696/2021-gauteng-cradle-of-humankind-world-heritage-site-\(cohwhts\)-annual-report.pdf](https://provincialgovernment.co.za/entity_annual/696/2021-gauteng-cradle-of-humankind-world-heritage-site-(cohwhts)-annual-report.pdf), accessed 2023-09-29.

Dinokeng Game Reserve to emerge. In my view, the full potential of the reserve has yet to be achieved”.¹⁹

¹⁹ A. Paton (ed.). “Written for Dinokeng Game Reserve by Paton”, A., Cochran, D., Daymond, M., Helm, L., Pretorius, C., Prins, S., Ramcharan, A., Soate, K.V. and Van der Merwe, V., *Dinokeng Game Reserve, The First Decade* (HPH Publishing, Johannesburg, 2022), p. 14.

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LSPC, SOA25, LABUSCHAGNE, L., First Officer in Charge (OIC) of Leeuwfontein Provincial Nature Reserve, Google Meet, Pretoria/Howick, 2022-03-16.

LSPC, SOA27, BOSHOFF, D., DGR Reserve General Manager, Dinokeng Game Reserve, Tambuki Boardroom, Ndlovu Gate, 2022-11-23.

LSPC, SOA29, TOERIEN, E., Owner of Mongena Game Lodge, Boekenhoutkloof, Dinokeng Game Reserve, 2022-12-01.

LSPC, SOA30, PRETORIUS C., Owner of Kwalata Game Lodge, Dinokeng Game Reserve, 2022-12-01.

LSPC, SOA31, STREICHER, H., Dinokeng Game Reserve Management Association (DGRMA) Chairperson/L. Shee, 2023-04-24.

LSPC, SOA32, SWART, D.R., Retired Gauteng Nature Conservation landscape architect, Menlyn, Pretoria, 2023-09-07.

○ **WHATSAPPS, VOICE NOTES, AND EMAILS (PERSONAL)**

LSPC, SOA, RENS, S., WhatsApp, DGR landowner and businessman, DGR, Voice Notes: 1, 2, 3, 4, 6, 8/L. Shee, 2022-05-20.

LSPC, SOA, STREICHER, H., Email, Chairman DGRMA/L. Shee, 2022-12-02.

LSPC, SOA, SWART, D., WhatsApp, Retired GPG landscape architect/L. Shee, 2023-10-04.

LSPC, SOA, TSHILAMULELE, E., Email, Dinokeng Projects, Gauteng Department of Economic Development/L. Shee, 2023-04-13.

LSPC, SOA, TSHILAMULELE, E., Email, Dinokeng Projects, Gauteng Department of Economic Development/L. Shee, 2023-05-03.

LSPC, SOA, VAN BLERK, E., Lt. Col., WhatsApp, South African Air Force (SAAF), Military environmental management practitioner for the SANDF/L. Shee, 2023-05-21.

LSPC, SOA, VAN BLERK, E., Lt. Col., WhatsApp, South African Airforce (SAAF), Military environmental management practitioner for the SANDF/L. Shee, 2024-02-08.

LSPC, SOA, TSHILAMULELE, E., WhatsApp, GDED, Dinokeng Projects/L. Shee, 2024-03-05.

LSPC, SOA, SWART, D., WhatsApp, Retired GPG landscape architect/L. Shee, 2024-03-07.

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