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The Serengeti Rules and the Untold Value of Fellow Earthlings: Wildlife Law in an Era of Ecological Emergency, Eye-Opening Science, and Maturing Morality

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1. Introduction

‘What do the coyotes mean when they yodel at the moon?’ asked Edward Abbey in his classic *Desert Solitaire*.¹ Does a marabou stork feel happy as it digs into a hippo carcass along an African riverbed? What is crossing the mind of the sleepy hedgehog shuffling out of its burrow in a Dutch back yard, as it stretches its legs and greets the night? What, if anything, does a willow sapling experience when caterpillars lunch on its leaves, when it is thrashed about by a stag in heat, or when a beaver gnaws away at its base? And why, when European winter is about to turn to spring, does the mistle thrush begin to sing? Over time, the suspected answers to such questions have changed.²

To go with the latter question, many people thoroughly appreciate the slightly melancholic sound of a mistle thrush (*Turdus viscivorus*) announcing a still faraway spring from a high treetop.³ But that may not be why the bird sings. Saint Francis of Assisi would surely have said the thrush

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¹E Abbey, *Desert Solitaire: A Season in the Wilderness* (Ballantine Books 1968) 25.

²This article is a modified and extended version of the author's inaugural address as Professor of Nature Conservation Law at Tilburg University, on 26 January 2024. It also incorporates elements from a keynote address titled ‘The Growing (Recognition of the) Intrinsic Value of Wild Animals and What it Means for Law and Policy on Human-Wildlife Coexistence—A Global Perspective’, delivered by the author at the International Symposium on Animal Welfare, Human Rights, Rights of Nature, and Human-Wildlife Coexistence, hosted by North-West University in Potchefstroom (South Africa), 18–20 September 2023.

³See, for example, these reflections on the mistle thrush by Maarten Graat (a regular birding companion of the author), on his website with bird photos and stories (in Dutch, but easily translatable): <https://www.mijnvogelverhalen.nl/index.php/1901/01/01/grote-lijster-turdus-viscivorus>.

is singing to glorify its Creator. Then again, this is hard to prove, or disprove, on the basis of current scientific evidence. There is a growing body of research, however, that suggests birds *enjoy* singing. For example, when starlings (*Sturnus vulgaris*) sing together, their brains release the same opioid that makes humans feel good when they sing.⁴ That is not surprising, really, because we are kin under the skin, as ecologist Carl Safina puts it.⁵ Humans share the basic structure of their brains, as well as their hormones, with many other species. Indeed, there is now mounting scientific evidence concerning the sentience and intelligence of non-human animals, and even plants, which indicates that many differences between us and them are differences of degree, not of kind.⁶

One of the questions raised in this article is what these insights might mean for the application and further development of nature conservation law, also known as biodiversity law, or wildlife law.⁷ Moreover, the article explores the implications of another key insight from biological science that is illustrated by the mistle thrush, concerning the rules that have been governing the ebb and flow of plants and animals and the ecosystems they compose since ancient times.

Section 2 of the article introduces these ‘Serengeti Rules,’ takes stock of the dire state of the biosphere, and highlights the fundamental role reserved for law in turning things around. Against this backdrop, Section 3 explores the *raison d'être* of wildlife law in greater depth, revisiting the old question why one would want to be unselfish and generously share the planet with other species and ecosystems, and coming up with self-preservation and wildlife’s intrinsic value as key answers. Section 4 reflects on the *future* of wildlife law and the need for it to shift from anthropocentric to more holistic approaches, touching on rights of nature, rewilding, and fresh perspectives on sovereignty and decolonization. Section 5 then addresses the vital question what all of this means for the *practice* of wildlife law, that is, its day-to-day application to complex and controversial conservation issues such as invasive species control, trophy hunting, and the management of ‘problem’ animals. Concluding observations are offered up in Section 6.

⁴SA Stevenson et al, ‘Endogenous Opioids Facilitate Intrinsically-Rewarded Birdsong’ (2020) 10 *Scientific Reports* 11083.

⁵C Safina, *Beyond Words: What Animals Think and Feel* (Picador 2016).

⁶See below.

⁷These terms are understood here to be roughly synonymous, and as referring to legal instruments, at levels from local to global, aimed at the conservation, restoration, and/or sustainable use of biodiversity, ecosystems, natural areas, species, and populations of wild fauna and flora. On the continued relevance of the term ‘wildlife’ in the Anthropocene, see J Lorimer, *Wildlife in the Anthropocene: Conservation After Nature* (University of Minnesota Press 2015).

2. The Serengeti Rules

2.1. A Rule-Based World

Returning to the mistle thrush, ecologically literate readers may by now be getting impatient to see the article mention the key functions of bird-song in terms of the social organization and reproduction of the species involved. Indeed, it is scientifically quite well established that birds sing to attract mates and, very importantly, to claim, mark, and defend territories.⁸ Although poets may be sorry to hear this, most ornithologists would translate the song of the mistle thrush as something like this: 'I'm a cool and capable bird. All of this area is mine. Pretty girls are welcome. But blokes, stay well away, or else ...'⁹

Many other species are likewise territorial. This way, they divide space among them, ensuring sufficiency of resources and avoiding overpopulation. Crucially, such territorial competitive behaviour is generally aimed at conspecifics only. The mistle thrush will chase other male thrushes from its turf, but not starlings, goldfinches, mice, or bats. In other words, it coexists—happily, so it seems—with other species. Such territoriality is but one example of the many intricate mechanisms laid bare by ecological science that ensure that, wherever one goes, if nature is allowed to run its course this almost invariably results in rich ecosystems, where a multitude of organisms from many different species are all flourishing in the same area of land or sea.¹⁰

It is intriguing, especially for lawyers, to realize that we live in a fundamentally rule-based world. Not just the laws of physics and chemistry, but also remarkable rules that govern life at all levels. 'Every cell contains a society of molecules, every organ a society of cells, every body a society of organs, every habitat a society of organisms.'¹¹ And the numbers, diversity, and behaviour of all of these molecules, cells, organs, and organisms are mysteriously and wonderfully regulated by sets of rules.¹² 'Everything is regulated.'¹³

⁸For example, S Collins, 'Vocal Fighting and Flirting: The Functions of Birdsong', in PR Marler and H Slabbekoorn (eds), *Nature's Music: The Science of Birdsong* (Academic Press 2004) 39.

⁹For Dutch readers, a more elaborate interpretation of a blackbird's song is rendered in G Nouws, 'Vogeltje, Wat Zing Je Vroeg', *Metro*, 21 June 2002; reproduced in D de Vos and L de Meersman, *Wat Zingt Daar?* (KNNV Uitgeverij 2005) 10.

¹⁰For example, R Smith and T Smith, *Elements of Ecology* (9th ed, Pearson Education Limited 2015).

¹¹SB Carroll, *The Serengeti Rules: The Quest to Discover How Life Works and Why It Matters* (Princeton University Press 2016) 268.

¹²For a good introduction and further sources see Carroll, *ibid.*

¹³*Ibid* 13.

At the level of ecosystems, the regulatory framework that determines the kinds and numbers of different plants and animals in a given place includes territoriality and other forms of competition, plant food supply, predation, disease, and migration. It involves positive, negative, and double-negative regulation, as well as feedback mechanisms. Some of it is bottom-up, some of it top-down, and some of it density dependent. Body size also matters, with smaller animals regulated more strongly by predators, and larger animals by food supply. Some species, so-called keystone species, are more influential than others, and their disappearance or return can cause ripple effects—'trophic cascades'—influencing the ecosystem at multiple levels.¹⁴ In a celebrated book, biologist Sean Carroll has presented the current state of the science on these regulatory mechanisms, calling them the 'Serengeti Rules'.¹⁵ These are the rules responsible for the diversity and abundance of life that have been the norm on Earth for eons. From the tropics to the poles, for millions upon millions of years, ever-changing casts have been performing in a continuous play based on the same enduring ecological principles.¹⁶

2.2. Heading for the Eremocene

Enter humans. Humans are also territorial, and law of course has a central role there. Human use of space is organized through notions such as sovereignty, jurisdiction, private land ownership, and land use rights. However, a fundamental difference from other species like the mistle thrush is that human territoriality is not just aimed at other humans and does not just affect them. Instead, it is quite typically human to stake exclusive claims to land and sea; to be highly intolerant of other species that are considered harmful; and not to care very much about the fate of creatures that are simply incompatible with human plans.

In fact, using its above-average intellectual and technological capacities, *Homo sapiens* has managed to evade, escape, or ignore—for the time being—many of the Serengeti Rules. For instance, those rules say that predators do not normally wipe out their prey, but humans did, time and again. Our species, with its superior hunting skills, control of fire, agriculture, and other technologies, has come to dominate, modify, simplify,

¹⁴B Macdonald, *Cornerstones: Wild Forces That Can Change Our World* (Bloomsbury 2022).

¹⁵Ibid; for lively illustrations see also, for example, M Reardon, *Shaping Kruger: Animal Behaviour, Ecology and Management in Africa's Premier Game Park* (Struik Nature 2012).

¹⁶For a fascinating rendering of this play, see T Halliday, *Otherlands: A World in the Making* (Penguin 2022).

decimate, and outright erase many pre-existing ecosystems.¹⁷ Breaking with a pattern and a set of rules that have been in place for many millions of years appears to be something that should make anyone at least a little nervous, but this is exactly what humanity has been doing.

To realize how truly extraordinary the situation has by now become, it helps to imagine all terrestrial mammals, including humans, placed together on a giant set of scales. According to a recent estimate, humans and their livestock now account for a massive 96% of this total weight.¹⁸ Wild mammals, including all the world's deer, boar, antelope, buffaloes, bears, giraffes, rhinos, hippos, and elephants, have dwindled to just 4% of the total biomass.¹⁹

It may also help to imagine what Europe would have looked like if the continent's early, later, and modern human inhabitants had behaved differently, paying a little more respect to the spirit if not the letter of the Serengeti Rules, and if instead of the winner-takes-all approach they had employed a model of coexistence. Then, the delta area that today is called the Netherlands would have been teeming with life. First of all, one would be able to see many animals and plants that can still—or again—be observed in parts of the country today, like lapwings (*Vanellus vanellus*), beavers, and wolves, and eider ducks and seals in the sea. But in the North Sea one would also find extensive oyster reefs, sharks, and huge rays, and astoundingly large shoals of fish. The rivers would be home to pelicans and giant sturgeons. One would run into bison all over the place. There would be big herds of aurochs and wild horses roaming the floodplains, and moose and buffaloes in the marshes. Besides wolves there would be lynx and bears, but also leopards and lions. There would even be rhinoceros and elephants. And at dawn and dusk, the voices of mistle thrushes would every so often have mingled with the song of hyenas.²⁰

In fact, to get a picture of a non-degraded European ecosystem, imagine a Serengeti with a European touch, with wild horses, wild boar, and moose instead of zebras, warthogs, and giraffes, and with wolves and several bear

¹⁷See, for example, R Leakey and R Lewin, *The Sixth Extinction: Patterns of Life and the Future of Humankind* (Anchor Books 1996).

¹⁸YM Bar-On et al, 'The Biomass Distribution on Earth' (2018) 115(25) *Proceedings of the National Academy of Sciences* 6506.

¹⁹Ibid.

²⁰For a more complete picture, see, for example, T Flannery, *Europe: A Natural History* (Atlantic Monthly Press 2019); R Barnett, *The Missing Lynx: The Past and Future of Britain's Lost Mammals* (Bloomsbury Wildlife 2019); and A Trouwborst and J-C Svenning, 'Megafauna Restoration as a Legal Obligation: International Biodiversity Law and the Rehabilitation of Large Mammals in Europe' (2022) 31 *Review of European, Comparative & International Environmental Law* 182.

species²¹ added to the carnivore mix. Current nature is really ‘a shadow-land, a dim, flattened relic of what there once was,’ as one author put it.²² Another likens it to a ruin: ‘A beautiful ruin, but a ruin all the same.’²³ For during the last 50,000 years—which is the blink of an eye in geological and evolutionary terms—the European Serengetis have been largely erased, little by little, through human action.²⁴ First this was done through hunting only, later also through habitat loss due to agriculture, and then on top of that the pollution and infrastructure that came with the industrial revolution, the invasive alien species that spread as a result of increased human mobility, and finally also climate change.²⁵

The result is today’s unprecedented global biodiversity crisis, with its familiar but not therefore any less staggering headlines. Of the currently surviving species, about a million face extinction unless urgent action is taken.²⁶ Indeed, the scientific evidence indicates that the earth is on the verge of a mass extinction event, on a scale that has not been seen since the dinosaurs went extinct 65 million years ago. This time, humans are the meteorite.²⁷ The situation is captured increasingly well by the alternative name for the Anthropocene coined by the late American biologist Edward O. Wilson. To describe what he glumly called this ‘biologically final age in which the planet exists almost exclusively by, for, and of ourselves,’ he chose the term *Eremocene*.²⁸ The ‘Age of Loneliness,’ where all that is left is ‘people, our domesticated plants and animals, and our croplands all around the world as far as the eye can see.’²⁹

²¹Brown bear, cave bear, and moon bear.

²²G Monbiot, *Feral: Rewilding the Land, Sea and Human Life* (Penguin 2014) 89.

²³JB MacKinnon, *The Once and Future World: Nature as It Was, as It Could Be* (Vintage Canada 2014) 101.

²⁴For example, RT Lemoine et al, ‘Megafauna Extinctions in the Late-Quaternary are Linked to Human Range Expansion, Not Climate Change’ (2023) 44 *Anthropocene* 100403.

²⁵See, for example, E Kolbert, *The Sixth Extinction: An Unnatural History* (Bloomsbury 2015).

²⁶IPBES, *Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, IPBES/7/10/Add.1, 2019, 4.

²⁷See, for example, R Dirzo et al, ‘Defaunation in the Anthropocene’ (2014) 345(6195) *Science* 401; G Ceballos et al, ‘Biological Annihilation via the Ongoing Sixth Mass Extinction Signaled by Vertebrate Population Losses and Declines’ (2017) 114(30) *Proceedings of the National Academy of Sciences* E6089; Leakey and Lewin (n17); and Kolbert (n25).

²⁸EO Wilson, *Half-Earth: Our Planet’s Fight for Life* (Liveright Publishing 2016) 20.

²⁹*Ibid.*

2.3. Self-Control

Sean Carroll gives things yet another spin by saying that ‘we have taken control of biology, but not of ourselves.’³⁰ But to prevent the Sixth Extinction, and move away from the prospect of the Eremocene, self-control is precisely what is needed. According to the scientific consensus as crystallized in the authoritative reports of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES), the issue is not merely human population overshoot as such—to stick with ecological science terminology—but especially also the oversized ecological footprint of the average human being.³¹

To change the tide, further losses of biodiversity must be avoided to the fullest extent, and ambitious efforts undertaken to restore the damage done as much as possible. This will require, as the IPBES reports put it, ‘transformative change’ in social, economic, and technological structures worldwide, so as to make agriculture, forestry, fisheries, and other human activities truly sustainable.³² As the heads of government of 96 countries put it in the Leaders Pledge for Nature: ‘We are in a state of planetary emergency. ... A transformative change is needed: we cannot simply carry on as before.’³³

Two essential components of any strategy to stem the crisis are (1) ‘simply’ to reserve and re-create sufficient space for wild ecosystems to flourish, and (2) to ensure that any exploitation of natural resources or other human activity happens ‘in a way and at a rate that does not lead to the long-term decline of biological diversity,’ as the Convention on Biological Diversity puts it.³⁴ To illustrate the dimensions of the first challenge, various studies indicate that in order to safeguard most species and ecosystems in the long term, at least 40–50% of the planet’s surface ought to be designated, in a representative way, as areas where nature conservation and restoration have priority.³⁵ Currently, just about 17% of the land and 8% of the sea has a protected status, and only a fraction of these areas actually receives *effective* protection.³⁶

³⁰Carroll (n11) 9.

³¹IPBES (n26).

³²Ibid 27.

³³2020 Leaders Pledge for Nature, <https://leaderspledgefornature.org>.

³⁴1992 Convention on Biological Diversity (CBD), Art. 1.

³⁵For example, E Dinerstein et al, ‘An Ecoregion-Based Approach to Protecting Half the Terrestrial Realm’ (2017) 67 *BioScience* 67; JR Allan et al, ‘The Minimum Land Area Requiring Conservation Attention to Safeguard Biodiversity’ (2022) 376(6597) *Science* 1094; also Wilson (n28)

³⁶World Database of Protected Areas, <http://www.protectedplanet.net>.

Of the various regulatory mechanisms available to achieve the required self-control, a role is evidently reserved for law. Ecological rules, and the physical reality of a finite planet, can be translated into binding and enforceable legislation delimiting human activities to sustainable levels.³⁷ An area of law with a special significance in this regard is, of course, wildlife law, consisting as it does of legal instruments, at international, regional, national, and local levels, that are expressly aimed at the conservation, restoration, and/or sustainable use of ecosystems, species, or populations of wild fauna and flora.³⁸ Like law in general, wildlife law can require, condition, and outlaw certain human actions. Typical examples are (i) requirements to designate and safeguard protected areas, to take habitat restoration measures, or to reintroduce missing species; (ii) regulations to ensure that hunting, fishing, and trading of wildlife is done sustainably; and (iii) prohibitions of harmful projects such as road building in sensitive areas, and of the killing, capturing, and disturbing of protected species, such as wolves or mistle thrushes.³⁹

3. The Reasons for Wildlife Law

3.1. An Old Question

Thus, limiting humanity's ecological footprint by imposing and enforcing legal boundaries is an obvious strategy to address the biodiversity crisis, and considerable experience has already been gained with it. But why indeed would people want to, or why should they, keep going down this road of self-control? This is a question often asked these days, also in the Global North. Why worry about the nitrogen overload from cattle farms and industry that is squeezing the life out of ecosystems in Natura 2000 sites across the Netherlands?⁴⁰ Why tolerate troublesome beavers, badgers, and wolves? Why care about the handful of bats that may be dislodged or killed when insulating the cavity walls of one's house? Why have all this cumbersome and limiting wildlife legislation? Why indeed not every species for itself and the devil take the hindmost?

³⁷G Chapron et al, 'Bolster Legal Boundaries to Stay Within Planetary Boundaries' (2017) 1 *Nature Ecology & Evolution* 0086, 1.

³⁸On international wildlife law in general see, for example, this journal; M Bowman et al, *Lyster's International Wildlife Law*, (2nd ed, Cambridge University Press 2010); and A Trouwborst et al, 'International Wildlife Law: Understanding and Enhancing its Role in Conservation' (2017) 67 *BioScience* 784.

³⁹Wolves and mistle thrushes are strictly protected in most of Europe.

⁴⁰Natura 2000 sites are the 'special areas of conservation' and 'special protection areas' designated by EU member states under, respectively, the 1992 Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Fauna and Flora [1992] *Official Journal* L 206/7 (Habitats Directive) and the 1979/2009 Directive 2009/147/EC on the Conservation of Wild Birds [2010] *Official Journal* L 20/7 (Birds Directive).

Some readers may think this is an old question, with predictable answers, and they may be right. But the question is being asked too often to ignore it, certainly for a professor of nature conservation law. And that might be enough to put it at center stage in this article. Indeed, Kees Bastmeijer, the previous professor of nature conservation law at Tilburg University, addressed the same question during his inauguration in 2010, in a lecture titled ‘Every Man for Himself and Nature for Us All.’⁴¹ In addition, the answer to this question seems to have dimensions that are not yet receiving the attention they deserve.

3.2. Nature Restoration for Self-Preservation

A good place to start looking for the answer(s) is in the legal instruments themselves. What motivated the drafters of wildlife legislation? A representative example is the global Biodiversity Convention of 1992. Right at the outset, the Convention’s parties acknowledge that they are ‘[c]onscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components,’ and also of ‘the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere.’⁴² Most of the values listed here—economic, recreational, aesthetic, and so forth—express the many values that biodiversity can have for humans. How great these values are is hard to say with precision, but scientific estimates are getting better and indicate that the direct and indirect value of wildlife and ecosystems to humans—whether expressed qualitatively or in dollars, euros, or rand—is inconceivably big.⁴³ The late Peter van Wijmen, who was the first professor of nature conservation law in Tilburg, spoke eloquently about the value of nature during his inauguration in 2001: ‘Nature as source and foundation; as buffer and as balance; as reservoir and refugium; she is the condition for human existence and is, as such, the most basic value.’⁴⁴

Yet, when hearing about all the disappearing wildlife, some might say:

“So what? We win, they lose. That is how nature works.” But that is not how nature works. Just as human health suffers when the level of some critical component is too

⁴¹CJ Bastmeijer, *Ieder voor Zich en de Natuur voor Ons Allen: Over de Relatie Tussen Mens en Natuur en de Toekomst van het Natuurbeschermingsrecht* (Boom Juridische Uitgevers 2011).

⁴²CBD, Preamble.

⁴³IPBES, *Methodological Assessment Report on the Diverse Values and Valuation of Nature of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, IPBES 2022.

⁴⁴P van Wijmen, *Recht Doen aan de Natuur* (Katholieke Universiteit Brabant 2001) (translation from Dutch by present author).

low or too high, we now understand from the Serengeti Rules how and why entire ecosystems can get “sick” when the populations of certain members are too low or too high.⁴⁵

And there is mounting evidence that ‘global ecosystems are sick, or at least very tired,’⁴⁶ because populations of *Homo sapiens* are too high and populations of just about everything else too low. However, as indicated in the last part of the Biodiversity Convention’s statement, the value of those ecosystems for people is literally existential. Ecology is the basis of everything else, and the most cardinal Serengeti Rule of them all says that there is only one planet Earth. To maintain stable and safe living conditions for human societies, there are ‘planetary boundaries’ in terms of ecosystem degradation and biodiversity loss, that simply should not be crossed.⁴⁷ But the evidence strongly suggests that humanity is no longer on the safe side of those boundaries.⁴⁸

One of the most ‘simple but telling’⁴⁹ stats, as Carroll puts it, tracks the ecological overshoot of the global human economy.⁵⁰

One measure that ecologists have developed is the total ecological footprint of human activity from growing crops for food and materials, grazing animals, harvesting timber, fishing, infrastructure for housing and power, and burning fuels. Those figures can then be compared with the total production capacity of the planet. Fifty years ago, when the human population was about 3 billion, we were using about 70 percent of the Earth’s annual capacity each year. That broke 100 percent by 1980.⁵¹

In 2023, Earth Overshoot Day dawned on 2 August, meaning that humans now need about 1.7 Earths to regenerate what they use in a year. ‘Every ecologically knowledgeable biologist I know,’ says Carroll, ‘is deeply concerned about the declining health of the planet and its ability to continue to provide what we need, let alone to support other creatures.’⁵² For without the services provided by ecosystems, there are no functioning soils, no food, no clean water, no livable climate, no breathable air. People

⁴⁵Carroll (n11) 8.

⁴⁶Ibid.

⁴⁷J Rockström et al, ‘A Safe Operating Space for Humanity’ (2009) 461 *Nature* 472.

⁴⁸J Richardson et al, ‘Earth Beyond Six of Nine Planetary Boundaries’ (2023) 9 *Science Advances* 37.

⁴⁹Carroll (n11) 8.

⁵⁰M Wackernagel et al, ‘Tracking the Ecological Overshoot of the Human Economy’ (2002) 99 *Proceedings of the National Academy of Sciences* 9266.

⁵¹Carroll (n11) 8.

⁵²Ibid, 10.

definitely need nature, but the converse is wide off the mark.⁵³ In short, a failure to take swift and effective biodiversity conservation and restoration measures could ultimately send humanity back to the caves,⁵⁴ or worse. The Serengeti Rules will have their way, whether humans respect them or not. To put it slightly more bluntly, as Benjamin Hale does, ecology functions ‘according to laws entirely indifferent to the concerns of humans. When we let our guard down with nature, we die.’⁵⁵

3.3. The Necessity of Unyielding Legal Limits

The deterioration of ecosystems is, however, a gradual process. Each new generation of humans tends not to realize that the nature they grow up with is in a worse state than when their parents were young. And then they witness, and ultimately accept, a creeping further deterioration of nature in their lifetime. Or in their political career. Due to this so-called ‘shifting baseline syndrome,’⁵⁶ most people have completely forgotten that ‘the state of nature is a state of almost inconceivable abundance.’⁵⁷ For instance, how many Europeans still know that having ‘clouds of butterflies’ is the normal state of a woodland edge on a summer’s day;⁵⁸ that European rivers should literally be running thick with salmon and other migratory fish; let alone, that there should have been Natura 2000 and Emerald Network⁵⁹ sites designated for giant deer and rhinoceros? ‘We subconsciously adjust our expectations to what we have left, rather than mourning what has been lost,’⁶⁰ is how Ian Carter puts it. ‘Our brains are extremely good at adapting to situations as they are, rather than as they might have been.’⁶¹ He illustrates this from a British vantage point:

⁵³For various cinematic illustrations of this point, see <https://www.conservation.org/nature-is-speaking>.

⁵⁴J. Bridle, *Ways of Being—Animals, Plants, Machines: The Search for a Planetary Intelligence* (Penguin 2022) 15.

⁵⁵B. Hale, *The Wild and the Wicked: On Nature and Human Nature* (MIT Press, 2016) 94.

⁵⁶For example, F. Vera, ‘The Shifting Baseline Syndrome in Restoration Ecology’, in M. Hall (ed.), *Restoration and History* (Routledge 2010) 98; M. Soga and K.J. Gaston, ‘Shifting Baseline Syndrome: Causes, Consequences, and Implications’ (2018) 16 *Frontiers in Ecology and the Environment* 222; M. Argeloo, *Natuuramnesie* (Atlas Contact 2022).

⁵⁷Monbiot (n22) 231.

⁵⁸B. Macdonald, *Rebirding: Restoring Britain's Wildlife* (Pelagic Publishing 2019) 77.

⁵⁹The Emerald Network was set up under the 1979 Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), as the counterpart of the Natura 2000 protected area network in non-EU contracting parties.

⁶⁰I. Carter, *Human, Nature: A Naturalist's Thoughts on Wildlife and Wild Places* (Pelagic Publishing 2021) 3.

⁶¹*Ibid.*, 105.

If we still had Brown Bears, Dalmatian Pelicans or Great Auks in Britain then a sighting of any one of them would enhance a day in the field. As it is, a glimpse of a Stoat, Water Vole or Turtle Dove is enough to lift the spirits—because that is all we can expect to find these days. ... It would be a great shame if, years from now, all it took to set the pulse racing was a Rabbit, a Rook or two, or a few Starlings, hanging on in one of the last pockets of undeveloped land. We are heading in that direction, though at a pace slow enough that most of us haven't really noticed.⁶²

This 'in-built homeostasis' poses a significant obstacle to biodiversity conservation.⁶³ 'It makes it difficult to generate the anger and the passion that would help stem further losses.'⁶⁴

Thus, over countless human generations, the biodiversity crisis has grown to the astonishing proportions that it has, while many people, including decision-makers, still fail to grasp its dimensions and implications. Humanity is witnessing the biggest catastrophe to unfold on Earth in many millions of years, but only few realize it, because from our limited individual vantage points it is unfolding in slow-motion. This perhaps helps to explain statements like the following by former British prime minister Margaret Thatcher. When the Falklands War broke out, she said: 'It's exciting to have a real crisis on your hands, when you have spent half your political life dealing with humdrum things like the environment.'⁶⁵ The following comparison by Carroll seems unfortunately accurate: 'No doubt most passengers on the Titanic were also more concerned about the dinner menu than the speed and latitude at which they were steaming.'⁶⁶ An especially telling comparison is between approval regulations for new medicines versus those for new activities that may affect biodiversity—revealing very different levels of concern for human versus ecosystem health:

In contrast to the considerable care and expense we undertake in applying the molecular rules of human biology to medicine, we have done a very poor job in considering and applying these Serengeti Rules in human affairs. Before any drug is

⁶²Ibid.

⁶³Ibid.

⁶⁴Ibid: 'It's now more than a hundred years since the last surviving Passenger Pigeon died in Cincinnati Zoo. This was once the world's most abundant bird, with flocks of millions darkening the skies of North America. On this side of the Atlantic we've been without the spectacular Great Auk for a few decades longer. Try to imagine being able to visit the densely packed breeding colonies of this huge, flightless species—the 'penguin' of the northern hemisphere. I certainly find it tricky to picture the scene and, for that reason, it's difficult to care very much about it. ... If future generations of British have to make do without Turtle Doves, Cuckoos and Nightingales, they will adjust their expectations in the same way. Only from our perspective, now, being able to see these birds for ourselves, can we appreciate what we would be missing'. Ibid 3–4.

⁶⁵Cited in S Barnes, *How to Be a Bad Birdwatcher* (Short Books 2004) 189.

⁶⁶Carroll (n11) 10.

approved for human use, it must go through a series of rigorous clinical tests of its efficacy and safety. In addition to measuring a drug's ability to treat a medical condition, these studies monitor whether a drug may cause problematic side effects by interfering with other substances in the body or the regulation of other processes. The criteria for approval pose a high barrier; about 85 percent of candidate medicines fail clinical testing. That high rejection rate reflects, in part, a low tolerance on the part of doctors, patients, companies, and regulatory agencies for side effects that often accompany drugs. But for most of the twentieth century and across much of the planet, humans have hunted, fished, farmed, forested, and burned whatever and settled wherever we pleased, with no or very little understanding or consideration of the side effects of altering the populations of various species or disturbing their habitats.⁶⁷

Given these dynamics and the strong drive in human societies to continue business as usual, there is an apparent need for clear, unyielding, and enforceable legal limits and obligations to conserve and restore biodiversity.⁶⁸ That is to say, there is seemingly every reason to prioritize wildlife law and its effective implementation, and to recognize it as the core of our own human version of the Serengeti Rules.

In addition to improved implementation of existing nature conservation law, it may also be time for transformative changes in the law and indeed in legal orders. Scholarly work is taking place in Tilburg and elsewhere on ways to better incorporate what is now known about the biosphere and the consequences of its degradation, into the constitutional architecture of human societies.⁶⁹ A good example is Han Somsen's thinking on a geo-constitutional legal order giving avoidance of ecological Armageddon the priority that it would seem to deserve.⁷⁰ This would be a legal order reflecting the ultimate supremacy of the planetary Serengeti Rules over any human-made rules, and employing regulatory mechanisms that simply do not allow for non-compliance with essential tenets of biodiversity law.⁷¹

⁶⁷Ibid 7–8.

⁶⁸Bastmeijer (n41) 80.

⁶⁹See, for example, L Kotzé, *Global Environmental Constitutionalism in the Anthropocene* (Hart Publishing 2016); M. Petersmann, 'Response-abilities of Care in More-than-Human Worlds' (2021) 12 *Journal of Human Rights and the Environment* 102; and Tilburg Law School's collaborative research project 'Constitutionalizing in the Anthropocene' (CitA), <https://constitutionalizing-anthropocene.org>.

⁷⁰J Somsen, 'De Geo-Constitutionele Rechtsstaat: Een Hervormingsagenda' (2023) *Tijdschrift voor Omgevingsrecht* 33.

⁷¹Ibid.

3.4. A Higher Right to Exist

Averting the Eremocene for humanity's own sake, however, is only part of what makes wildlife conservation and wildlife law important. There is a very different type of reason for nature conservation, which is indeed the first one mentioned by the drafters of the Biodiversity Convention, namely, the 'intrinsic value' of biodiversity.⁷² This refers to the inherent or ultimate value that wildlife is deemed to have, in and of itself, regardless whether humans find it useful, harmful, or even repulsive.⁷³ This intrinsic value can, by definition, not be expressed in dollars. The Convention's parties recently re-emphasized that biodiversity loss must be reversed 'for the benefit of all living beings.'⁷⁴

The intrinsic value of nature has been recognized on many other occasions. The Bern Convention on European Wildlife Conservation acknowledges the intrinsic value of 'wild flora and fauna';⁷⁵ the new Agreement on Biodiversity in the High Seas also highlights the 'inherent value' of biodiversity;⁷⁶ and the Antarctic Environment Protocol recognizes the 'intrinsic value of Antarctica.'⁷⁷ Wildlife's intrinsic value is furthermore recognized in many national laws.⁷⁸ An especially striking formulation of intrinsic value can be found in the World Charter for Nature, adopted by the UN General Assembly in 1982.⁷⁹ It states that 'Every form of life is unique, warranting respect regardless of its worth to man.'⁸⁰ The ultimate *source* of this intrinsic value remains something of a mystery and is not named in the various instruments. The same goes for the Universal Declaration of Human Rights and other human rights instruments when they assert that all humans have '*inalienable* rights' which derive from the '*inherent* dignity of the human person.'⁸¹ In his day, US president Nixon

⁷²CBD, Preamble.

⁷³M Fosci and T West, 'In Whose Interest? Instrumental and Intrinsic Value in Biodiversity Law', in M Bowman et al (eds), *Research Handbook on Biodiversity and Law* (Edward Elgar 2016) 55; C Batavia and MP Nelson, 'For Goodness Sake! What Is Intrinsic Value and Why Should We Care?' (2017) 209 *Biological Conservation* 366.

⁷⁴CBD COP Decision 15/4, 2022, para. 7(k).

⁷⁵Bern Convention, Preamble.

⁷⁶2023 Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (not yet in force), Preamble.

⁷⁷1991 Protocol on Environmental Protection to the Antarctic Treaty, Art. 3(1).

⁷⁸One example is the Dutch 2016 Environment and Planning Act (*Omgevingswet*), Art. 1.3.

⁷⁹UNGA Resolution 37/7, 1982.

⁸⁰*Ibid*, Preamble (emphasis added).

⁸¹1948 Universal Declaration of Human Rights, Preamble (emphasis added).

also grappled with the intrinsic value of wildlife, and its source, when in 1972 he stated his intuition that ‘wild places and wild things’ have ‘a higher right to exist—not granted to them by man, and not his to take away.’⁸²

The intrinsic value of wildlife as such has thus been acknowledged in policy and law for quite some time. Notably, however, over the years there appears to have been a significant increase in the *dimensions*, the *depth*, the *weight*, of this intrinsic value—or at least in our understanding thereof. A major cause of this is the growing scientific understanding of intelligence, sentience, and agency in non-human creatures—of their ways of being.

3.5. *Everything is really everyone*

For a long time, the dominant paradigm was that animals (a word used here as a shorthand for non-human animals) lack conscious thought, and lack the awareness of sensations and feelings. In other words, animals can *be* hungry, but not *feel* hungry; they can *find* themselves in desperate situations, but not actually *feel* desperate. They do not think, they do not remember, they do not plan, they certainly do not love. All these capacities, and many others, were thought of as exclusively human. Animals were essentially considered mindless biological machines, responding to internal and external impulses in a fundamentally automatic and pre-programmed way.⁸³

That has changed under influence of a steady flow of scientific research, and current understanding is far removed from this mechanistic paradigm. Many readers will know this, thanks perhaps to popular science books by the late Frans de Waal and others.⁸⁴ According to mainstream science nowadays, animals and humans have quite a lot in common. It turns out that birds, bats, and badgers *can* love, hate, and suffer; play and argue; scheme, choose, and remember (and in some cases take revenge⁸⁵); and have individual personalities.⁸⁶ Emma Marris captures much of this nicely in her book *Wild Souls*:

⁸²R Nixon, Special message to the Congress outlining the 1972 Environmental Program, 8 February 1972.

⁸³See, for example, C. Safina (n5); F. de Waal, *Are We Smart Enough to Know How Smart Animals Are?* (Granta 2017); F. de Waal, *Mama's Last Hug: Animal Emotions and What They Teach Us About Ourselves* (Granta 2020).

⁸⁴Ibid.

⁸⁵J. Vaillant, *The Tiger: A True Story of Vengeance and Survival* (Vintage Canada 2011); E. Marris, *Wild Souls: Freedom and Flourishing in the Non-Human World* (Bloomsbury 2021) 96–98.

⁸⁶Safina (n5); De Waal (2017, n83); De Waal (2020, n83).

Far from being creatures of pure instinct, carrying out a limited number of behavioral routines like a non-player character in a video game, individual animals live in a massively complex interspecific social world, constantly observing the goings-on around them, making choices, solving problems, finding food, raising young—and even pursuing joy. When you see a bat briefly illuminated in the moonlight, it isn't just 'a bat,' it is a particular bat, with particular personality traits, memories of its life, a family it cares about, and a plan for at least the immediate future.⁸⁷

In reference to Thomas Nagel's famous philosophical essay 'What is it like to be a bat?',⁸⁸ Marris continues: 'We cannot know what it is like to be a bat, but we can be sure that bats know what it is like to be a bat.'⁸⁹ Furthermore, a recent study added proof to the long-standing hunch that at least some animals can *imagine* things that are not in the here and now.⁹⁰ And creatures as diverse as buffaloes and honeybees engage in democratic decision-making.⁹¹

Animals have moods, too. They can be surprisingly tolerant when feeling good, but it is advisable not to get too close when they are stressed and cranky; that goes for anything from wild boar to wasps. Indeed, it is not hard for humans to recognize in other beings the bonds of family connections and friendships, affectionate and aggressive behaviour, curiosity, and so on. Whether it is humans, wolves, orcas or albatrosses, play is play, envy is envy, courtship is courtship.⁹² And mischief is mischief. For instance, those who think that ambushing or creeping up on others in order to scare them is a typical human thing to do, one of those things that sets us apart from other species, may need to think again. The Internet has quite a few videos showing that people with this propensity⁹³ are not alone in the animal kingdom.⁹⁴ A clear example is the recording of a large male lion silently sneaking up on a sleeping lioness somewhere in South Africa's Kruger National Park, patiently and ever so carefully placing one

⁸⁷Marris (n85), 27.

⁸⁸T. Nagel, 'What Is It Like to Be a Bat?' (1974) 83 *The Philosophical Review* 435.

⁸⁹Marris (n85) 27.

⁹⁰C. Lai et al, 'Volitional Activation of Remote Place Representations with a Hippocampal Brain-Machine Interface' (2023) 382 *Science* 566.

⁹¹For example, HHT Prins, *Ecology and Behaviour of the African Buffalo: Social Inequality and Decision Making* (Chapman & Hall 1996) 218–236.

⁹²Based on Safina (n5).

⁹³It needs to be said the present author is one of them, although hardly proud of it.

⁹⁴For example, <https://www.youtube.com/watch?v=8-r0aoLFItg> (black-backed jackal biting tail of sleeping lion); <https://www.youtube.com/shorts/Ttqs25IMNdg> (raven scaring wolf); a notable book on raven intelligence and playfulness is B. Heinrich, *Mind of the Raven: Investigations and Adventures with Wolf-Birds* (Ecco 2002).

big paw in front of the other, and eventually succeeding, spectacularly, in scaring the daylights out of his companion.⁹⁵

Moreover, research is revealing much about the unique ways of being and experiencing the world of many creatures that do not resemble humans at all. It appears that even plants are conscious in their own ways, and can communicate, cooperate, recall past events, and plan for the future.⁹⁶ In any case, in light of current scientific understanding, it appears quite accurate when indigenous peoples speak of the Beaver people, the Raven people, and even the Birch or Willow people.⁹⁷ ‘Everything is really everyone,’ is how James Bridle puts it in a recent book on intelligence.⁹⁸ He calls the developing scientific insights in this area a ‘trick of the light.’⁹⁹ Because ‘these other minds have always been here, all around us, but Western science and popular imagination, after centuries of inattention and denial, are only just starting to take them seriously.’¹⁰⁰

Rather inevitably, these insights give new meaning, and further weight, to law and policy commitments in the area of biodiversity conservation, which are meant to ensure that the ecosystems composed of all these sentient creatures are given the space to thrive.

4. The Future of Wildlife Law

4.1. Shedding Anthropocentrism

The first part of this article reflected on the intricacy and complexity of ecological dynamics and relationships as regulated by the Serengeti Rules, and faced the fact that humanity’s attempts to escape these rules are ultimately doomed to fail. Employing an anthropocentric approach, whereby human interests are considered to trump those of ecosystems, just will not produce a happy end. A more holistic approach is called for, aimed at large-scale human–wildlife coexistence. This requires human

⁹⁵<https://www.youtube.com/watch?v=kyJUQuaECrg>. The female’s vicious, absolutely enraged reaction suggests this may not have been the first time the male pulled this stunt.

⁹⁶See, for example, P Calvo and N Lawrence, *Planta Sapiens: Unmasking Plant Intelligence* (Little, Brown 2022); on legal implications of this knowledge, see, for example, J van Laarhoven and R Claerhoudt, ‘A New Leaf: Is It Time To De-Objectify Plants in Private Law?’ (2024) 13 *Transnational Environmental Law* 286.

⁹⁷For example, RW Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants* (Penguin 2020) 58.

⁹⁸Bridle (n54) 18.

⁹⁹Ibid 10–11.

¹⁰⁰Ibid; Australian field biologist Eamonn Wooster, quoted in Marris (n85) 212, put it like this: ‘It is actually a profound thing to realize that ecology is a bunch of sentient beings interacting in a landscape. They are not just eating and [reproduc]ing machines.’

self-restraint, and wildlife law appears to have a crucial role in this regard.¹⁰¹

These conclusions seem to be reinforced by the insights just considered, regarding the ways of being and inner lives of animals and plants,¹⁰² that is, in Jane Goodall's words, 'our ever-expanding understanding of the true nature of the beings with whom we share—or should share—our planet.'¹⁰³ Those insights underline that anthropocentrism, as in the belief that only humans have intrinsic value, is an immature worldview, as Sander Turnhout put it.¹⁰⁴ Only infants and toddlers believe themselves to be the center of the universe. But then they grow up, and realize—in most cases, that is—that they are not alone. There are others, and their interests matter too. In the past, maturing insights about fellow humans compelled societies to mark Eurocentrism, androcentrism, and racism as morally unacceptable. In the same way, to do justice to what we now know about *non*-human fellow creatures, it seems that anthropocentrism too must be left behind for moral reasons. We are not alone as a person, as a community, or as a country, but we are also not alone as a species.

This appears to call for a matching moral compass, and perhaps dusting off one or two old ethical proposals, such as Albert Schweitzer's all-inclusive 'reverence for life',¹⁰⁵ or Aldo Leopold's 'land ethic', according to which 'a thing is right when it tends to preserve the integrity, stability and beauty of the biotic community,' and 'wrong when it tends otherwise.'¹⁰⁶ More recently, Emma Marris suggested 'we owe non-human animals respect and compassion, plenty of space, a climate that is not changing too quickly, and—in some cases—intervention to help them deal with environmental challenges caused by humanity.'¹⁰⁷ Because 'human needs and desires should not swamp those of other species.'¹⁰⁸

Few will contend that incorporating such ethical principles into the fabric of human societies is easy, just as past moral transitions have not

¹⁰¹See parts 2.1–3.3.

¹⁰²See parts 3.4 and especially 3.5.

¹⁰³J Goodall, 'Foreword: Memories of Greybeard', in M Challenger (ed), *Animal Dignity: Philosophical Reflections on Non-Human Existence* (Bloomsbury 2023) xiv, xvi.

¹⁰⁴S Turnhout, *Dan Staat het Gras als Liefde: Een Toekomst voor Natuur in Nederland* (Noordboek 2023) 84.

¹⁰⁵A Schweitzer (HE Robles, ed), *Reverence for Life: The Words of Albert Schweitzer* (Maurice Bassett 2017).

¹⁰⁶A Leopold, *A Sand County Almanac: With Essays on Conservation from Round River* (Ballantine Books 1970) 262.

¹⁰⁷Marris (n85) 258.

¹⁰⁸*Ibid*, 67.

unfolded without struggle, and indeed continue to be challenged in practice. Some of this is captured in another *Desert Solitaire* reflection:

All men are brothers, we like to say, half-wishing sometimes in secret it were not true. But perhaps it is true. And is the evolutionary line from protozoan to Spinoza any less certain? That also may be true. We are obliged, therefore, to spread the news, painful and bitter though it may be for some to hear, that all living things on earth are kindred.¹⁰⁹

In other words, ethics and law now face the challenge of figuring out how to reflect that other species are not ‘underlings’ but ‘other nations’, as Henry Beston put it.¹¹⁰

Because it is not uncommon for people, individually or collectively, to relapse into toddler mode, one way or another a key role will be reserved for law to keep selfishness in check. ‘Of course,’ mused Christopher Stone in his seminal article on trees with standing, ‘the phase one looks toward is a time in which such sentiments need not be prescribed *by law*.’¹¹¹ Until then, it is for law, particularly wildlife law, to push back against overly anthropocentric urges when they arise, and to make sure the interests of voiceless non-human individuals and collectives are taken seriously. In this sense, when wildlife legislation *forces* a transition away from animal farming because of nitrogen emissions suffocating wildlife habitat, and *forces* humans to coexist with wolves, then it is doing precisely what it is supposed to do.

At bottom, such legally guaranteed human–wildlife coexistence is a matter of civilization. Coexistence with people is not always easy. But when neighbors quarrel, it is not the law of the jungle that is supposed to decide the outcome, but the Civil Code. Likewise, it can be difficult to have wolves or other animals for neighbors. Also here, however, it is no longer the survival of the fittest (or craftiest) which is supposed to rule supreme, but the notion, codified in nature conservation legislation, that wolves and other wildlife, like human neighbors, have a moral claim to existence and interests that count, and that we are called on to coexist with them one way or another.¹¹²

¹⁰⁹Abbey (n1) 25.

¹¹⁰H Beston, *The Outermost House* (Holt 2003) 25.

¹¹¹CD Stone, ‘Should Trees Have Standing? Towards Legal Rights for Natural Objects’ (1972) 45 *Southern California Law Review* 450, 497 (emphasis in original).

¹¹²As discussed later in this article in Section 5, this does not necessarily imply that no wolf or other non-human neighbour could ever be legally killed.

4.2. Implementing and Re-Interpreting Existing Wildlife Law and Policy

Indeed, one fitting way to take the interests of wildlife seriously, and to respect the Serengeti Rules, is the wholehearted implementation of existing nature conservation law and policy. Of special significance in this regard is the Global Biodiversity Framework (GBF) adopted in Montreal in 2022, with its long-term vision of ‘a world of living in harmony with nature.’¹¹³ Agreed actions include generously giving ecosystems the space they need to flourish, by meeting the 30% protected area target by 2030,¹¹⁴ and through biodiversity-inclusive spatial planning everywhere else;¹¹⁵ restoring degraded ecosystems, again with a 30×30 target;¹¹⁶ taking effective species conservation and restoration measures; and aiming for human–wildlife coexistence while minimizing human–wildlife conflict.¹¹⁷

Just as the internationally agreed 1.5 and 2 degree global warming thresholds¹¹⁸ guide climate law and policy at regional and national levels, so the Montreal biodiversity targets provide an authoritative benchmark for the application and development of wildlife law and policy around the world. And there is, in principle, nothing impossible about meeting these targets, especially in the Global North. As Andrew Balmford put it, ‘in well-fed countries, the fundamental constraints may not be money or space, but imagination and aspiration.’¹¹⁹

¹¹³CBD COP Decision 15/4, 2022, para. 10.

¹¹⁴Ibid, 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.’

¹¹⁵Ibid, Target 1: ‘Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.’

¹¹⁶Ibid, Target 2: ‘Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.’

¹¹⁷Ibid, Target 4: ‘Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.’

¹¹⁸2015 Paris Agreement, Art. 2(1)(a).

¹¹⁹A Balmford, *Wild Hope: On the Front Lines of Conservation Success* (University of Chicago Press 2012) 110.

Regarding one of these targets, namely human–wildlife coexistence, this refers to situations where ‘at some level and in some form a choice is being made by humans to share landscapes and natural resources with wildlife in sustainable ways,’ to use the words employed in recently adopted IUCN Guidelines on the topic.¹²⁰ Taking the GBF’s coexistence objective seriously appears to imply that in situations of human–wildlife conflict, human interests should not automatically, or systematically, be given priority over the interests of wildlife. Rather, the interests of all stakeholders involved, human and non-human, should be carefully considered in light of the specific circumstances of each case.¹²¹

These circumstances can vary considerably from one location to the next, due *inter alia* to differences in societies’ predominant worldviews and conservation traditions, with emphases in wildlife management varying from hands-off preservation to sustainable use. For example, a ‘problem’ leopard consuming livestock or pets or even attacking people is less likely to be culled in India than in southern African countries.¹²² Equally, whereas the first brown bear to return to Germany in over 170 years was quickly killed by the authorities after it targeted goats and beehives, a 2023 decision to kill a (related) bear that had fatally attacked a human jogger in Italy was reversed in court when challenged by non-governmental organizations (NGOs).¹²³ Incidentally, both bear decisions have been criticized, in the sense that neither appears to be conducive to long-term human–wildlife coexistence—by exemplifying approaches to ‘problem’ bears that appear too severe, respectively too lenient, to achieve this purpose.¹²⁴

Zooming out to the bigger picture, not just in space but also in time, is instructive in most contexts, the current one being no exception. Upon doing so, it becomes apparent that the underlying visions and worldviews of the drafters of wildlife legislation have already evolved significantly. Early wildlife treaties reflected an unequivocally anthropocentric and utilitarian outlook, as witnessed in the very title of the Convention on the Conservation of Birds Useful to Agriculture, adopted in 1902.¹²⁵ Around the same time, the Convention for the Preservation of Wild Animals,

¹²⁰IUCN, *IUCN SSC Guidelines on Human–Wildlife Conflict and Coexistence* (IUCN 2023) 5.

¹²¹Ibid.

¹²²For example, Ministry of Environment and Forests, *Guidelines for Human–Leopard Conflict Management*, (Government of India 2011); also A Hart, *The Deadly Balance: Predators And People* (Bloomsbury 2023).

¹²³Reuters, ‘Italy Court Suspends Death Order for Bear that Killed Runner’, 26 May 2023, <https://www.reuters.com/world/europe/italy-court-suspends-death-order-bear-that-killed-runner-2023-05-26/>; C Groff, ‘Bear-Human Coexistence at Risk in Trentino, Italy’ (2023) 27 *Carnivore Damage Prevention News* 16.

¹²⁴See also part 5.4 in the following.

¹²⁵1902 Convention on the Conservation of Birds Useful to Agriculture.

Birds, and Fish in Africa designated lions, leopards, hyenas, African wild dogs, otters, crocodiles, poisonous snakes, and several other (groups of) species as ‘harmful animals’ of which it is ‘desirable to reduce the numbers within sufficient limits.’¹²⁶ It has been quite a shift from there to the recognition of wildlife’s intrinsic value and the holistic ambitions codified in the GBF.

Besides giving extra reasons for an unreserved application of wildlife legislation as such, another way in which the recognition and current understanding of the intrinsic and other values of wildlife can influence the application of currently applicable law is through their impact on the interpretation of open-ended terms in the law. For instance, under Article 8 of the Biodiversity Convention, parties shall, ‘as far as possible and *as appropriate*’, take a number of actions, including to ‘promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species’ and to ‘rehabilitate and restore degraded ecosystems and promote the recovery of threatened species.’¹²⁷ Present insights into non-human sentience and intelligence, coupled with current knowledge about the dimensions of the biodiversity crisis, appear to create a very strong presumption that the ambitious pursuit of all of the actions mentioned in this provision is highly ‘appropriate’. In the same vein, parties to the Southern African Development Community (SADC) Protocol on Wildlife Conservation and Law Enforcement ‘shall take such policy, administrative and legal measures *as appropriate* to ensure the conservation and sustainable use of wildlife.’¹²⁸ Many more such examples exist.

4.3. Rights of Nature

In addition to implementing current wildlife law commitments, a potentially transformative change in the law is represented by the growing wave of recognitions of ‘rights of nature.’¹²⁹ If one believes that humans have inherent rights,¹³⁰ and knows that the differences between humans and the rest of nature are only gradual, and acknowledges the intrinsic value

¹²⁶1900 Convention for the Preservation of Wild Animals, Birds, and Fish in Africa, Art. II(13).

¹²⁷CBD, Art. 8 (emphasis added).

¹²⁸1999 SADC Protocol on Wildlife Conservation and Law Enforcement, Art. 3(2) (emphasis added).

¹²⁹See, for example, G Chapron et al, ‘A Rights Revolution for Nature’ (2019) 363 *Science* 1392; CM Kaufman, ‘Rights of Nature: Institutions, Law, and Policy for Sustainable Development’ in J Sowers et al (eds), *The Oxford Handbook of Comparative Environmental Politics* (Oxford University Press 2021); J den Outer, *Rechten voor de Natuur* (Lemniscaat 2023).

¹³⁰For example, the Preamble to the Universal Declaration of Human Rights speaks of the ‘inherent dignity’ and ‘inalienable rights of all members of the human family.’

of wildlife, then the question whether animals, plants, and their living communities also have, as Nixon put it, ‘a higher *right* to exist’¹³¹ is not a strange one at all.¹³²

In many jurisdictions around the globe, from New Zealand to India and from Colombia to Spain, governments or courts or both have already been declaring that forests, mountains, rivers, or nature as a whole are legal persons and possess certain rights.¹³³ They are no longer seen as mere legal objects but as subjects. Since 2019, for instance, national legislation in Uganda stipulates that ‘Nature has the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution.’¹³⁴ Ecuador was the first country to anchor rights of nature in its Constitution, in the following broad terms:

Nature, or Pacha Mama, where life is produced and occurs, has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes. All person, communities, peoples and nations can call upon public authorities to enforce the rights of nature.¹³⁵

And when damaged, nature indeed has ‘the right to be restored.’¹³⁶ This new constitutional approach rests on a paradigm of harmonious coexistence, committing the people of Ecuador to ‘a new form of public coexistence, in diversity and in harmony with nature.’¹³⁷

Depending on the legal frameworks involved, rights of nature can be invoked and defended on nature’s behalf by any person or by specially appointed bodies. Of course, such legal models come with questions: which rights to recognize and of what entities; how to resolve clashes with conflicting rights and interests; and how to align the rights of nature with existing legislation, including wildlife law?¹³⁸ All the same, rights of nature approaches pack a powerful symbolic message, and signal a shift from anthropocentric to more holistic perspectives. Moreover, they seem to have real potential to enhance the representation of wildlife and ecosystems in decisions affecting them, the weight given to their interests, and indeed

¹³¹Nixon (n82) (emphasis added).

¹³²See also, for example, Challenger (n103).

¹³³Chapron (n129); Kauffman (n129); Den Outer (n129).

¹³⁴2019 National Environment Act, Section 4.

¹³⁵2008 Constitution of Ecuador, Art. 71.

¹³⁶Ibid Art. 72.

¹³⁷Ibid Preamble.

¹³⁸For example, Stone (n111).

the more effective application of current wildlife law.¹³⁹ To illustrate, in 2021 Ecuador's Constitutional Court annulled two permits for mining projects which were considered to impinge on the rights of the protected Los Cedros cloud forest in the Andes.¹⁴⁰

Altogether, recognizing rights of nature, building on the realization that nature is not only of public interest but has private interests of its own,¹⁴¹ may well be another promising way to more firmly anchor the Serengeti Rules and the intrinsic value of wildlife in human legal frameworks.

4.4. Restoring What Is Broken

Given the degraded state of biodiversity around the world, the various scientific insights reviewed in this article call for ambitious and effective ecosystem restoration efforts. This is why the current decade was declared the UN Decade on Ecosystem Restoration,¹⁴² why there is a 2030 restoration target in the Global Biodiversity Framework,¹⁴³ why the European Union came up with a Nature Restoration Regulation,¹⁴⁴ and why various restoration obligations already exist under international and regional biodiversity law.¹⁴⁵ In fact, a joint analysis by macro-ecologist Jens-Christian Svenning and the current author found that existing international law, interpreted in light of the state of the science, requires efforts to recompose the lost European Serengetis, or modern versions thereof, as far as possible—which turns out to be quite far.¹⁴⁶

A strong additional reason for restoration is solidarity. First is solidarity with wildlife, given the harm inflicted upon it by humans. Second is solidarity with those in human societies who will need to make the biggest changes and sacrifices for ecosystem recovery to succeed, such as farmers.

¹³⁹Ibid; Chapron (n129); Den Outer (n129).

¹⁴⁰Corte Constitucional del Ecuador, case 1149-19-JP, 1 December 2021.

¹⁴¹L Burgers, 'Private Rights of Nature' (2022) 11 *Transnational Environmental Law* 463.

¹⁴²UN General Assembly Resolution 73/284 on the United Nations Decade on Ecosystem Restoration, A/RES/73/284, 2019; also <https://www.decadeonrestoration.org>.

¹⁴³CBD COP Decision 15/4, 2022, Target 2.

¹⁴⁴Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on Nature Restoration and Amending Regulation (EU) 2022/869 [2024] *Official Journal* 1991.

¹⁴⁵On international obligations to restore, see, for example, K Bastmeijer, 'Ecological Restoration in International Biodiversity Law: A Promising Strategy to Address our Failure to Prevent?' in Bowman (n73) 387; A Telesetsky et al, *Ecological Restoration in International Environmental Law* (Routledge 2017).

¹⁴⁶Trouwborst and Svenning (n20).

Third, there are momentous demands in terms of North–South solidarity, in line with the Rio Declaration’s commitment to ‘cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth’s ecosystem,’ and the associated principle of common but differentiated responsibilities.¹⁴⁷ That is to say, if rich northerners expect poorer people in the Global South to keep coexisting with species such as elephants, hippos, tigers, and lions—a coexistence that tends to come at a high price in terms of crop damage, livestock losses, and even human lives¹⁴⁸—then they must definitely do what they can to fix the extensive damage done to their own ecosystems in North America, Europe, and elsewhere in the Global North, including by restoring these places’ diminished megafaunas to the extent possible.¹⁴⁹

And what they can do is more than most people realize. Indeed, a genuinely positive note is in order here, for nature has a tremendous regenerative capacity, and when given new opportunities, it tends to grasp them with both hands. It turns out that whenever humans manage to take a step back and return space to nature, and perhaps give a little, or big, push in the right direction—for example, by removing a dam from a stream, or reintroducing a missing species—they can basically sit back, watch the rewilding of the landscape unfold, and reap the benefits.¹⁵⁰ Apart from rebounding biodiversity, those benefits include an improved quality of life for humans, and nature-based solutions for climate mitigation and adaptation, as the recovering ecosystems draw carbon out of the atmosphere and buffer the impacts of floods, droughts, and fires.¹⁵¹

With its rewilded floodplains, reintroduced otters, spontaneously returned white-tailed eagles, cranes, and wildcats, and a current tally of eleven wolf packs, the Netherlands is a notable testing ground in this regard.¹⁵² As Wageningen University’s rewilding ecology professor Liesbeth Bakker stressed in her inaugural address in 2022, when nature is given free rein,

¹⁴⁷1992 Declaration on Environment and Development, Principle 7.

¹⁴⁸A range of illustrations, including many gruesome ones, can be found in J Clarke, *Save Me From the Lion’s Mouth: Exposing Human–Wildlife Conflict in Africa* (Penguin 2013); and Hart (n122).

¹⁴⁹S Monsarrat and J-C Svenning, ‘Using Recent Baselines as Benchmarks For Megafauna Restoration Places an Unfair Burden on the Global South’ (2022) 4 *Ecography* e05795; Trouwborst and Svenning (n20) 198; Flannery (n20) 310: ‘I think the moral case is unassailable: it is unacceptable to ask the people of Africa, whose population may reach around four billion by 2100, to live alongside lions and elephants while Europeans refuse to do so.’

¹⁵⁰See, for example, P Jepson and C Blythe, *Rewilding: The Radical New Science of Ecological Recovery* (Icon Books 2020).

¹⁵¹*Ibid.*

¹⁵²See, for example (in Dutch), K Arts et al (eds), *Rewilding in Nederland: Essays over een Offensieve Natuurstrategie* (KNNV Uitgeverij 2022).

expect surprises.¹⁵³ To illustrate, the newly created islands of the Marker Wadden quickly attracted many species of breeding birds, including uncommon ones such as long-tailed ducks and little gulls (*Hydrocoloeus minutus*), and even a couple of rare gull-billed terns (*Gelochelidon nilotica*).¹⁵⁴ Previously straightened and impoverished brooks are meandering once more thanks to restorative engineering, and host reintroduced, dam-building beavers. The Netherlands is also home again to grazing and browsing bison, as well as horses, cattle, and water buffaloes in a process of de-domestication, replacing extinct wild horses, aurochs, and European water buffalo.

4.5. Out of the Box—Rethinking Sovereignty and (De)Colonization

How are we to integrate the Serengeti Rules into human frameworks, and how are we to do justice to the untold value of non-human Earthlings? Redoubled efforts to effectively implement and enforce existing obligations to conserve and restore biodiversity seem to be vital parts of the answer, as discussed in the preceding, and continued expansion and development of ‘rights of nature’ approaches may well be another part. This may not be enough, however.

The laws of ecology, and the realization that non-human species represent, in Beston’s words, ‘other nations’,¹⁵⁵ appear to call for further thinking about different models that could safeguard the autonomy and flourishing of human *and* ecological communities in ways that are meaningful but also workable. The dimensions of this coexistence challenge appear considerable, and may require combining the necessary pragmatism with substantial doses of imagination and creativity, as illustrated by the following statement from a book on ‘multispecies justice’:

Let’s take a moment to consider how the bounds of jurisdiction might shift in multispecies worldings, where differently situated lives grasp and articulate ‘laws of the land’ through wildly diverse ecosocial and sensorial dimensions. Such jurisdictions by nature must overflow the limits of legislative precedents and jurisprudence done by writs or citations. Outside domains of legal ledgers and binding promissory contracts, myriad interwoven forms of life feel, taste, smell, or otherwise perceive just or unjust

¹⁵³NIOO-KNAW, ‘Rewilding Professor Liesbeth Bakker: “Let Nature Surprise You”—Special Chair in Rewilding Ecology Inaugurated in Wageningen’, 5 October 2022, <https://nioo.knaw.nl/en/news/rewilding-professor-liesbeth-bakker-let-nature-surprise-you>.

¹⁵⁴Ibid.

¹⁵⁵Beston (n110) 25.

relations through shifting pulses and flows, chemical sensations, and cyclical exchanges.¹⁵⁶

Things that have long been taken as self-evident may need to be questioned, or even upended. An intriguing example is Somsen's proposed geo-constitutional legal order.¹⁵⁷

There are, in any event, apparent reasons to re-examine certain key legal notions. The currently familiar legal landscape centers around the state, territory, sovereignty, property, and human rights, and was built on an anthropocentric view of the world, largely ignoring the intrinsic value and legitimate interests of non-human beings. Recent insights, which (should) have removed the blinkers, would appear to justify rethinking how the legal landscape might be remolded to fit the newly (re)discovered reality. An example is the search for animal equivalents of human dignity,¹⁵⁸ envisaging the world as 'containing many different types of animal dignity, all of which deserve respect.'¹⁵⁹ Others have explored ways of extending the meaning of, or giving new meaning to, core public international law concepts like sovereignty, self-determination, conquest, and (de)-colonization.¹⁶⁰

A notable and thought-provoking attempt to do so has been undertaken by Sue Donaldson and Will Kymlicka, who advocate a sovereignty approach to human relations with non-human wildlife, essentially fusing said public international law concepts with a 'rights of nature' approach.¹⁶¹ Building on Beston's intuition, their proposal amplifies the meaning of 'international' to encompass relations with non-human communities. It understands wild animal sovereignty as 'the right of wild animal communities to lead autonomous, self-directed lives.'¹⁶² This approach to sovereignty anchors the right of individual animals to 'belong to a specific territory and autonomous community—a community which cannot be invaded, colonized, or robbed by others.'¹⁶³

¹⁵⁶K Bolender et al, 'Afterword: Fugitive Jurisdictions', in S Chao et al. (eds.), *The Promise of Multispecies Justice* (Duke University Press 2022) 229, 231.

¹⁵⁷Somsen N157); see also part 3.3 earlier in this article.

¹⁵⁸See, in particular, Challenger (n103).

¹⁵⁹M Nussbaum, *Frontiers of Justice: Disability, Nationality, Species Membership* (Belknap Press 2006) 159.

¹⁶⁰Ibid; S Donaldson and W Kymlicka, *Zoopolis: A Political Theory of Animal Rights* (Oxford University Press 2011); D Matthews, *Earthbound: The Aesthetics of Sovereignty in the Anthropocene* (Edinburgh University Press 2021).

¹⁶¹Donaldson and Kymlicka, *ibid*, 156–209.

¹⁶²Ibid, 205.

¹⁶³Ibid.

Given the nature of ecosystems, it may be more sensible to conceive of 'sovereign communities of multi-species animal ecologies' rather than single-species ones,¹⁶⁴ and also to accommodate the possibility of humans and non-humans exercising parallel sovereignty over the same areas.¹⁶⁵ In some cases there would be 'strict territorial separation'—as in wilderness reserves with restricted human access.¹⁶⁶ In others, sovereignty would be shared, or 'conceived multidimensionally in order to accommodate migration patterns and travel corridors or other kinds of shared use.'¹⁶⁷ Either way, the essential issue remains:

Whether we conceive of a particular territory as a single sovereign multi-species community, or a series of overlapping sovereign communities, the key point is that the territory is protected from external alien rule or depredations, and free internally to evolve along its own autonomous course.¹⁶⁸

At any rate, adopting and implementing such an approach to sovereignty would have far-reaching consequences. As Donaldson and Kymlicka put it themselves, doing so would in principle 'bring a halt to human destruction of wild animal habitat.'¹⁶⁹ Indeed, it would force the recognition that such areas are 'inhabited lands,' and that 'existing inhabitants have the right to maintain their forms of community life on that territory.'¹⁷⁰

Whatever the merits, workability, and feasibility of this approach, it does drive home the oft-forgotten fact that when the earliest humans arrived in Europe, Australia, the Americas, and so forth, they were in essence uninvited settlers themselves—uninvited by the local non-human inhabitants at the time, many of which were subsequently subdued, decimated, forcibly relocated, or utterly wiped out by the newly arrived big-brained bipeds.¹⁷¹ Although this is not yet widely acknowledged, 'the relationship between humans, or certain groups of them, and the more-than-human world might be aptly characterised as one of

¹⁶⁴Ibid 191.

¹⁶⁵Ibid 190.

¹⁶⁶Ibid 191.

¹⁶⁷Ibid: 'To make room for such options, our conception of the boundaries of wild animal sovereignty must not be tied to an overly simplistic concept of territory—like the boundary of a national park. It needs to be a more multilayered conception of sovereignty which can account for (a) ecological viability, (b) the multidimensionality of territory, (c) the facts of human and animal mobility, and (d) the possibilities for sustainable and cooperative parallel co-habitations.'

¹⁶⁸Ibid.

¹⁶⁹Ibid 205.

¹⁷⁰Ibid 205–206.

¹⁷¹See also part 2.2 earlier in this article.

colonization.¹⁷² Notably, to date, the ‘justifications given for colonizing animal habitat are strikingly similar to the ‘terra nullius’ justifications for the colonizing of indigenous lands.’¹⁷³ The ultimate frontier in the process of decolonization, thus understood, would therefore involve the human recognition of the claims of (prior) non-human inhabitants to the land, the progressive retreat of *Homo sapiens* from (meaningful parts of) the colonized territories, and the return of surviving descendants of the ousted species. Rewilding, returning space to nature, ecosystem restoration, and species reintroductions thus also become matters of restorative justice. One sense in which such efforts may be more complicated when compared to human–human colonial contexts is that in many places human–wildlife colonization began tens of thousands of years ago.¹⁷⁴

As Donaldson and Kymlicka themselves admit, ‘invoking theories of sovereignty does not provide a magic formula for resolving some very thorny questions.’¹⁷⁵ Nonetheless, it does seem to provide a useful lens for looking at wildlife law and policy afresh.

5. Down-to-Earth Wildlife Law

5.1. Life, Death, and Flow

The main missions of wildlife policy, as they have been (re)emerging in the course of the above analysis, are to safeguard current wildlife habitats, to free up more space by rewilding previously human-dominated areas, particularly farmland, and to foster human–wildlife coexistence in the many mixed areas currently occupied by humans and remaining wildlife. In essence, these boil down to granting ecosystems and their constituents *space*, and in doing so wildlife law has a key role to play.

That said, the question still arises of what the various insights discussed in this article might mean for the attention to be paid in wildlife legislation and its application to the concrete interests of *individual* organisms.¹⁷⁶ These insights have undoubtedly increased (our current

¹⁷²V Plumwood, ‘Decolonising Relationships with Nature’ (2002) 2 *PAN: Philosophy Activism Nature* 8.

¹⁷³Donaldson and Kymlicka (n160) 168; according to Plumwood, *ibid* 9, the ‘ideology of colonisation ... involves a form of anthropocentrism that underlies and justifies the colonisation of nonhuman nature through the imposition of the colonisers’ land forms in just the same way that eurocentrism underlies and justifies modern forms of European colonisation, which understood indigenous cultures as ‘primitive’.

¹⁷⁴See, for example, A Trouwborst, ‘Megafauna Rewilding: Addressing Amnesia and Myopia in Biodiversity Law and Policy’ (2021) 33 *Journal of Environmental Law* 639.

¹⁷⁵Donaldson and Kymlicka (n160) 178.

¹⁷⁶For discussion of various perspectives see, for example, W Scholtz (ed), *Animal Welfare and International Environmental Law: From Conservation to Compassion* (Edward Elgar 2019).

understanding of) the weight to be accorded in law and policy to the interests of non-human beings as such. At the same time, there appear to be solid reasons to maintain the traditional primary focus of wildlife law and policy on ecological collectives such as ecosystems, species, and populations rather than individual animals or plants, and to continue prioritizing the flourishing of the former over the latter in cases of real or apparent conflict. Quite simply, overall, there would seem to be no better way to maximize the flourishing of the planet's myriad individual wild creatures than by maximizing the flourishing of the ecosystems they are part of.

Likewise, and importantly, none of the insights explored so far in this article necessarily imply that the *killing* of animals and plants by humans as such ought to be off limits. There are conceptual and pragmatic reasons for this. Although this article is not the place for an exhaustive treatment, it is important to dwell on some of said reasons, given the contentious and potentially confusing nature of this subject matter. Several reflections by Emma Marris in *Wild Souls* offer a helpful start.

Hunting, trapping, and fishing typically involve ending the lives of sentient creatures that, according to current scientific understanding, appear to strive for happiness, do not wish to die, and may be missed by conspecifics (offspring, mates, and other family or group members) remaining behind.¹⁷⁷ To turn 'a thinking thing, a dreaming thing' into a 'still packet of meat and fur' is 'no small thing,' is how Marris puts it.¹⁷⁸ Faced by this fact, one possible response would be to strive for a world in which as few animals are killed by humans as possible. The world may be imperfect, and compromises may sometimes be necessary for the greater good, but the *ideal* world, on this take, has no human hunting, trapping, or fishing. On this view, therefore, most current wildlife laws and policies are outdated, insofar as they do not reflect that killing of animals *as such* is ethically problematic. Another Marris quote is helpful to illustrate this line of thinking:

There is near unanimity that human flourishing, that human lives have objective final value—and since we are closely related to and cognitively and emotionally similar to animals, most of the arguments for human value also apply to animals.¹⁷⁹

¹⁷⁷Those inclined to think that fish are surely an exception from all this, may wish (or not) to read J Balcombe, *What a Fish Knows: The Inner Lives of our Underwater Cousins* (Scientific American 2017). The cephalopod equivalent would be S Montgomery, *The Soul of an Octopus: A Surprising Exploration into the Wonder of Consciousness* (Washington Square Press 2016).

¹⁷⁸Marris (n85) 152.

¹⁷⁹*Ibid* 256.

Still, Marris does not fundamentally disapprove of humans hunting, and has participated in a fair share of hunts herself.¹⁸⁰ Similarly, Aldo Leopold was a hunter throughout his life, also after famously witnessing a ‘fierce green fire dying’ in the eyes of a wolf he had helped bring down.¹⁸¹ This indicates the possibility of another response to the question at hand.

This second approach agrees with the first that it is a moral duty for humans to minimize their overall negative footprint on animal populations and ecosystems, but, at the same time, emphasizes that humans are part of nature. When it is said that numerous species harmoniously coexist in rich ecosystems, this evidently does not refer to individual animals, plants, and fungi respecting each other’s right to life. In fact, this harmonious coexistence under the Serengeti Rules includes not only cooperation and symbiosis, but also competition, predation, disease, and parasitism. It involves agony and death. Leopold defined ‘land’—the focus of his ‘land ethic’—as ‘a fountain of energy flowing through a circuit of soils, plants, and animals.’¹⁸² Marris also found a way to catch some of this in words:

This world is constructed and nourished by the flow of matter and energy from the atmosphere and the sun into one organism and then into another, transferred by death and eating and dying and rotting.¹⁸³

Somehow, this apparently amoral process ‘just happened to produce a world so beautiful that it can make you feel like your heart is exploding inside your chest.’¹⁸⁴ This *flow* itself, of which death (and suffering) are inevitable parts, ‘feels like a valuable thing.’¹⁸⁵ On this view, there is nothing inherently wrong about humans playing their own parts in this great ecological scheme of life and death, including with their own versions of predation—as indeed their ancestors have done for hundreds of millennia—just so long as this is done in careful, respectful, and sustainable ways. From this second perspective, the focus of wildlife law and policy ought to be on regulating hunting and fishing so that they are ecologically sustainable, and suffering is kept to a minimum.

Incidentally, this second approach seems to accommodate the recently emerging scientific evidence regarding the sentience and intelligence of

¹⁸⁰Ibid 152–168.

¹⁸¹Leopold (n106) 138; this episode changed Leopold’s outlook on predator control, but not on hunting per se.

¹⁸²Ibid 253.

¹⁸³Marris (n85) 252.

¹⁸⁴Ibid.

¹⁸⁵Ibid.

plants rather more easily than the first. As it appears, plants do not wish to be eaten, or to die, either. Thus, if the goal were to be to ‘do no harm’ to any beings with a subjective experience of the world, that would only leave fruits, nuts, grains, and other things that plants voluntarily offer up, as eligible human food sources. Uprooting of plants, picking of leaves, and cutting of branches or stems would in principle be barred. (Interestingly, that takes the train of thought all the way back to Genesis, where the originally prescribed diet of Adam and Eve in paradise was limited to seeds from plants and fruit from trees—except one, of course.¹⁸⁶)

In any event, it seems important to bear in mind that advocates of both of the approaches just sketched tend to find themselves on common ground more often than not. They all accept that humans have a moral duty to minimize their ecological footprints in ways that give all wild animal species and ecological communities the space they need to thrive. In other words, the common goal is to ensure that the essential needs of human societies are met in ways that allow non-human societies to prosper as well. Readers endorsing either the ‘ideally no killing’ or the ‘responsible killing’ approach probably all agree that nature should be given more space; that conversion, deterioration, and fragmentation of wildlife habitat should be minimized; that investing in human–wildlife coexistence is a good thing; that overexploitation of wildlife populations should be avoided; and that the same goes for harmful climate change and contamination of air, water, and soil.

5.2. Prioritizing Ecological Communities over Individuals

In wildlife law and policy around the world, the second approach has hitherto left rather clearer marks than the first. Numerous policies, laws, and practices reflect the notion that recognizing the intrinsic value of wildlife can and often does go hand in hand with the sustainable use of that same wildlife by humans, including through hunting.¹⁸⁷ For example, the drafters of the CBD saw no contradiction between recognizing the intrinsic value of biodiversity and adopting the sustainable use of biodiversity as one of the Convention’s ultimate objectives,¹⁸⁸ that is, the use of animals and plants ‘in a way and at a rate that does not lead to the

¹⁸⁶Genesis 1:29.

¹⁸⁷For example, HHT Prins et al (eds), *Wildlife Conservation by Sustainable Use* (Springer 2000); IPBES, *Thematic Assessment Report on the Sustainable Use of Wild Species* (IPBES Secretariat 2022).

¹⁸⁸CBD, Preamble and Art. 1.

long-term decline of biological diversity.¹⁸⁹ Likewise, the aforementioned World Charter for Nature, which professes that every life form is worthy of respect ‘regardless of its worth to man,’¹⁹⁰ readily condones the use of wildlife as long as it is sustainable in the long term, stating the following main rule in this regard: ‘Living resources shall not be utilized in excess of their natural capacity for regeneration.’¹⁹¹

In other words, according to these instruments, and many other treaties and national laws, birds and mammals may be hunted, fish may be caught and killed, and trees may be felled, as long as *populations* remain healthy and *ecosystems* continue to function properly.¹⁹² Where prohibitions on the taking of individual animals apply, as in the Convention on the Conservation of Migratory Species (CMS),¹⁹³ the EU Habitats Directive,¹⁹⁴ and many national laws, these generally serve higher purposes like population viability and species or biodiversity conservation, and exceptions tend to be possible for a variety of reasons. Exceptions to this pattern do exist, but are few and far between. Conspicuous examples are the trilateral 1990 Wadden Sea Seals Agreement (WSSA)¹⁹⁵ and the 2007 Gorilla Agreement.¹⁹⁶ The WSSA does not permit the killing of seals for any reason, except for scientific research for conservation purposes—and only ‘insofar as the information required for such research cannot be obtained in any other way’—and to permit euthanasia, by duly appointed persons, of seals ‘which are clearly suffering and cannot survive.’¹⁹⁷ The protection of individual wild gorillas under the Gorilla Agreement goes even further, as the treaty allows no exceptions whatsoever to the prohibitions on the deliberate killing, capturing, or harassing of gorillas that contracting parties are required to implement.¹⁹⁸ With this legal status of ‘untouchables’ the Agreement creates a remarkably level playing field in terms of human–

¹⁸⁹Ibid Art. 2.

¹⁹⁰World Charter for Nature, Preamble.

¹⁹¹Ibid para. 10(a).

¹⁹²See also Scholtz (n176).

¹⁹³1979 Convention on the Conservation of Migratory Species of Wild Animals, Art. III(5).

¹⁹⁴Habitats Directive (n40) Art. 12(1).

¹⁹⁵1990 Agreement on the Conservation of Seals in the Wadden Sea (WSSA); <https://www.waddensea-worldheritage.org/common-wadden-sea-secretariat>.

¹⁹⁶2007 Agreement on the Conservation of Gorillas and their Habitats (Gorilla Agreement); <https://www.cms.int/gorilla>.

¹⁹⁷WSSA, Art. IV.

¹⁹⁸Gorilla Agreement, Art. III(2)(a).

gorilla coexistence in the eight countries (out of the ten gorilla range states) that are contracting parties. This is reinforced by a specific provision on the prevention, through spatial planning, and mitigation of human–gorilla conflicts:

The Parties shall ... take all efforts to prevent conflicts between humans and gorillas through appropriate land-use planning. Where human-gorilla conflict occurs, parties must take measures to reduce the conflict, with expert advice. These measures must be humane, consistent with the terms of this Agreement and to the benefit of both humans and gorillas.¹⁹⁹

Parenthetically, the Agreement portrays no explicit evidence that these or other provisions were motivated by concern for the intrinsic value of individual gorillas, whereas the treaty text does express concern for the survival of gorilla populations and species.

Modern ‘rights of nature’ approaches also typically accord rights to ecological collectives such as rivers, rainforests, and nature in general, and only rarely to individual wild animals, with an example being the ‘Estrellita’ case in Ecuador.²⁰⁰ Even here, it was acknowledged by the Constitutional Court that sustainable hunting, as well as damage prevention and alien species control, can, in principle, justify encroaching on such individual rights.²⁰¹

Healthy ecosystems are what make the biosphere tick, and the global biodiversity crisis is worsening fast. Therefore, there is an undeniable logic in prioritizing the thriving of *collectives* like populations, species, and ecosystems in the long term, rather than fixating on the short-term interests of *individual* creatures. Of course, and crucially, when ecological communities flourish, this then automatically serves the interests of the countless individual animals, plants, and fungi composing them.

5.3. Avoiding Unintended Consequences: Invasive Species Control and Trophy Hunting

In practice, dilemmas can arise when hard choices indeed need to be made, and individual sacrifices may be required to serve the collective greater good.²⁰² In such scenarios, the sense of moral responsibility that

¹⁹⁹Ibid Art. III(2)(j).

²⁰⁰Corte Constitucional del Ecuador, case 253-20-JH, 27 January 2022, in which it was ruled that the capture, from the wild, of a common woolly monkey (*Lagothrix lagothricha*, called ‘Estrellita’ by her keepers), in order to be kept as a pet, was at odds with this animal’s right to a free and dignified life.

²⁰¹Ibid paras. 103–110.

²⁰²Marris (n85) discusses quite a few such dilemma scenarios.

can—and, perhaps, should—flow from the insights concerning the intrinsic value of wild animals can lead to rushed decisions that are not well thought out. IUCN guidelines therefore warn against the tunnel vision that can result from strongly felt emotions or a one-sided emphasis on certain values, as this can lead to decisions with unintended and even counter-productive consequences.²⁰³

A classic category is invasive alien species control, for instance, the scenario where securing the survival of a threatened, island-breeding seabird population is not possible without eradicating large numbers of introduced rats or cats—sentient creatures themselves—with poison or other crude methods. When, in such cases, the focus of public and political attention, no matter how well intentioned, centers on the specific interests of the individual animals marked to be sacrificed, this can have unintended negative consequences for the long-term perspectives of native species and ecosystems. Criticism of invasive species control efforts is especially likely when the aliens are cute, such as raccoons and free-ranging domestic cats.²⁰⁴ The latter provide one of the starkest examples of how a selective emphasis on emotions regarding the well-being of certain animals can have tremendous negative consequences for wildlife conservation at large. In particular, well-meant concern for the well-being of pet cats, which presumably take pleasure in roaming free, and for stray and feral cats not infrequently coincides with a blind spot for the resulting suffering and killing of birds, lizards, bats, and endless other wild animals.²⁰⁵

It is, furthermore, easy to see how attention for the fates of individual animals could interfere with successful sustainable use approaches, where hunting and other consumptive practices provide important economic incentives for biodiversity conservation and restoration.²⁰⁶ A case in point is national legislation banning the import of hunting trophies. Campaigns for such bans appear to be at least partly motivated by awareness of the intrinsic value of the wild animals targeted by hunters. However, such bans are likely to achieve the exact *opposite* of what they are intended to achieve, by losing sight of the bigger picture. This again seems related to the issue of priorities and emphasis. As Nicholaj Bichel and Adam Hart note in a recent book on trophy hunting:

²⁰³IUCN (n120) 171–172.

²⁰⁴See, for example, A Trouwborst et al, 'Domestic Cats and Their Impacts on Biodiversity: A Blind Spot in the Application of Nature Conservation Law' (2020) 2 *People & Nature* 235.

²⁰⁵Ibid; DW McDonald, 'Reconciling Actual and Perceived Rates of Predation by Domestic Cats' (2015) 5 *Ecology and Evolution* 2745.

²⁰⁶Prins (n187); IPBES (n187).

antihunters prefer discussing individual animals, their emotions, suffering, and rights, and the act of killing or the moral character of hunters; while hunters and conservationists prefer discussing species, habitats, populations, and the consequences of killing.²⁰⁷

As conservation scientists have emphasized over and over again, in huge parts of Africa and elsewhere, hunting is providing crucial economic incentives to preserve natural areas and to tolerate the presence of dangerous animals.²⁰⁸ Income from hunting is currently keeping many important wildlife habitats from being converted for agriculture and other uses, illustrating the adage ‘it if pays, it stays’.²⁰⁹ The same income is incentivizing local people to *not* exterminate (through typical welfare-unfriendly methods such as snaring and poisoning) neighboring lions, leopards, elephants, and other wild animals that pose threats to their lives and livelihoods.²¹⁰ Blanket trophy import bans eat away at these incentives, with as predictable consequences the loss of habitat, and an increase in the suffering and killing, of the very animals the bans were supposed to protect, and great collateral losses for wider biodiversity.²¹¹

The IUCN therefore strongly recommends that any decisions that could restrict or end trophy hunting programmes ‘are taken only after identification and implementation of feasible, fully funded and sustainable alternatives to hunting that respect indigenous and local community rights and livelihoods and deliver equal or greater incentives for conservation over the long term.’²¹² Such alternatives are hard to come by, however, and import bans are typically adopted without putting in place any Plan B to replace the lost financial conservation incentives.²¹³ Another aspect touched on in the IUCN’s recommendation is that Western campaigns and measures against trophy hunting are experienced as neo-colonial

²⁰⁷N Bichel and A Hart, *Trophy Hunting* (Springer 2023) 5.

²⁰⁸See, for example, IUCN, *Informing Decisions on Trophy Hunting: A Briefing Paper for European Union Decision-Makers Regarding Potential Plans for Restriction of Imports of Hunting Trophies* (IUCN 2016); A Dickman et al, ‘Trophy Hunting Bans Imperil Biodiversity’ (2019) 365 *Science* 874; Bichel and Hart *ibid*.

²⁰⁹*Ibid*.

²¹⁰*Ibid*.

²¹¹*Ibid*.; for illustrations of the suffering involved, see also A Dickman, ‘Science and Celebrity for Conservation—A Call for Partnership Based on Knowledge, Not Opposition Driven by Emotion’ (2021) III-2 *Frontline Dispatches*, <http://www.conservationfrontlines.org/2021/04/science-celebrity-for-conservation-a-call-for-partnership-based-on-knowledge-not-opposition-driven-by-emotion>.

²¹²IUCN (n208) 1.

²¹³In the great majority of the areas concerned, photo tourism is not an equivalent, or even viable, alternative; see, for example, Bichel and Hart (n207) 277–280.

interference by many in the African countries involved.²¹⁴ In brief, unless and until equivalent incentives are actually forthcoming, it seems preferable to work towards better regulation of trophy hunting where necessary, instead of working to curb the activity. Importantly, this conclusion is the *same* whether one is in the ‘ideally no killing’ or in the ‘responsible killing’ camp.

5.4. Dealing with ‘Problem’ Animals—To Cull or Not to Cull?

A less clear-cut issue also involving individual-versus-population trade-offs is how to deal with human–wildlife conflicts involving occasional human fatalities, especially the question whether to cull or not to cull (one, some, or all of) the dangerous animals involved. As always, context appears to matter. It can be argued, for instance, that it is of some relevance whether people inhabit, or enter, the haunts of dangerous wildlife by their own free choosing or by necessity.²¹⁵ Many poor, rural Tanzanians, for instance, have little choice as to whether or not to expose themselves to the risk of death by elephant, hippo, lion, leopard, crocodile, snake, or some other wild animal.²¹⁶ By contrast, bear victims in North America and Europe tend to involve people who consciously entered bear habitat for recreational purposes. In either setting, a natural first line of action is to reduce risks to a minimum by taking preventive measures—for example, by educating people not to walk from one village to the next alone after dark, to carry pepper spray, or to wildlife-proof waste management.²¹⁷

As regards the residual risks, one position would be to accept the possibility of incidental casualties, however tragic, as a fact of life, in parallel with other generically accepted hazards such as traffic accidents. After all, such risks are ‘inevitable so long as both humans and wild animals continue to share the planet.’²¹⁸ The crocodile is just being a crocodile, the bear just being a bear. Moreover, it may be argued that it makes some

²¹⁴See, for example, this statement by local community leaders from southern Africa: ‘Peoples who were colonised across the world have adopted many interventions, technologies and approaches to life from the colonial period. These include medicines, transportation and communications systems and tools, and likewise, conservation hunting [i.e., trophy hunting]. It is our right to decide what adopted interventions we retain or discard based on their tangible and intrinsic value. For Westerners to determine what it is suitable for Africans to retain is the epitome of the very thing that is being criticised—a colonial mindset’: Resource Africa, ‘Conservation and Colonialism—A Statement from the Southern Africa Community Leaders Network’, 20 January 2021, <http://resourceafrica.net/conservation-and-colonialism-a-statement-from-the-southern-africa-community-leaders-network>.

²¹⁵See Hart (n122); Clarke (n148).

²¹⁶Ibid.

²¹⁷Hart *ibid.*

²¹⁸Donaldson and Kymlicka (n160) 197.

sense to also view the threats posed by wildlife to humans in relation to the threats posed by humans to wildlife. Currently, these are often treated in ‘diametrically opposite ways,’ as Donaldson and Kymlicka observe:

Where wild animals pose a risk to humans, no matter how small, we typically think we are entitled to take any measures to eliminate the risk, even the most lethal measures. If coyotes or prairie dogs pose even a tiny risk to humans (or domesticated animals) we feel entitled to exterminate them en masse. But where our activities impose grave threats on wild animals, we often dismiss this as the price of progress. ... In general, the risks imposed on us by wild animals pale in comparison with the risks we impose on them. This incredible disparity of risk should ring alarm bells for our sense of justice.²¹⁹

Where these tolerant lines of thinking do not (yet) reflect the majority position, it is common practice for the competent authorities to respond to a fatal or otherwise severe incident by looking for the (likely) animal culprit and killing it.²²⁰ Past experience indicates that failure to do so risks undermining society’s tolerance for the presence of the species involved, which in turn may lead to policies to reduce its numbers, and/or to increased illegal killing.

The aforementioned brown bear situation in Trentino, northern Italy, exemplifies the challenge of striking the right balance between principle and pragmatism. Having dwindled to just a few animals, chiefly as a result of direct persecution, the bear population in this Alpine region was successfully reinforced with ten Slovenian bears in 1999–2002, and has prospered since, numbering around 100 animals at present.²²¹ As expected, this has resulted in an increase in close human–bear encounters. These have included various (scary but ultimately harmless) bluff charges, and eight cases since 2014 in which contact was made, resulting in injured humans and one fatality.²²² These physical attacks mostly involved mother bears with small cubs, one of them being JJ4, a female born in 2006. After having been implied in various bluff attacks, she charged and injured two hikers in 2020. In accordance with a previously established bear action plan, the regional wildlife authorities issued an order for the bear’s lethal removal. Animal rights organizations, however, managed to get this order annulled in court, and JJ4 was captured, GPS-collared, and released instead.²²³

²¹⁹Ibid 197 and 201.

²²⁰Hart (n122).

²²¹Groff (n123).

²²²Ibid.

²²³Ibid.

After several further warnings and thwarted requests for the bear's removal by the regional authorities, in June 2023 JJ4—then 17 years old and accompanied by three yearling cubs—attacked and killed a young man jogging on a trail near his village. This was the first fatal bear attack in Italy in over a century.²²⁴ JJ4 was captured shortly after the attack but not killed, again due to NGO litigation. Claudio Groff, of the Trentino wildlife department, describes the implications and aftermath as follows:

For the first time in Italy (and most of Europe), there are serious considerations of setting a maximum threshold for bear populations as one means of controlling conflicts. ... Attacks on people, combined with a lack of active management (shooting) of dangerous bears by the local government because of courts overturning removal orders, sharply erode public confidence in the bear management programme, undermine trust in bear managers and increase the temptation for individuals to take matters into their own hands. Five bears were found dead in Trentino since the fatality up to October [2023] [and] poaching was suspected in at least some cases. Nevertheless, animal rights protesters do not seem to see a connection between this situation and the court decisions. Thus, Trentino, which has served as an exemplary model of the recovery of a nearly-extirpated bear population, is now at a crucial juncture, testing the limits of coexistence of people and bears.²²⁵

At the time of writing, it looked like JJ4 would spend her remaining days in an enclosure.²²⁶ Captivity is widely regarded as a dubious management option, however.²²⁷ From the individual animals' point of view, it is far from evident that subjecting wild-raised bears to a life in captivity is any kinder than putting them down.²²⁸ And from a conservation point of view it obviously makes no difference, as the bear is lost to the wild population either way. Meanwhile, the take-home message from the JJ4 story and many similar ones is that it appears important to take account of social and cultural human dynamics when devising and implementing rules addressing human–wildlife conflict.²²⁹

²²⁴Ibid.

²²⁵Ibid 19.

²²⁶Ibid.

²²⁷Large Carnivore Initiative for Europe (LCIE), 'Assessment of the Brown Bear Project in Trentino (Italy)', 21 May 2018, https://lciepub.nina.no/pdf/636750961967998445_LCIE%20comment%20on%20Trenino%20bears.pdf.

²²⁸For example, LCIE experts, *ibid*, consider captivity to be a 'poor welfare' option.

²²⁹See also IUCN (n120); Hart (n120).

5.5. Micromanagement: Aiding Afflicted Creatures

Also when it comes to feeding wild animals and ‘rescuing’ injured or ill ones, or apparently abandoned young, it seems important not to lose sight of the big picture, and to carefully assess not only whether the intended action will really enhance the fates of the targeted animals themselves, but also whether it will serve the long-term interest of the population, species, and ecosystem of which they are part. A recent example from the Netherlands is the controversy over supplementary feeding of deer and other ungulates in harsh winter conditions in the Oostvaardersplassen area.²³⁰ Ecologists cautioned against interference with the animals’ natural population dynamics, as regulated—in accordance with the Serengeti Rules—by fluctuations in food supply. The Dutch Scientific Council for Animal Affairs (RDA) also emphasized that periods of suboptimal or bad welfare conditions, resulting from adverse weather or food shortage, are part of the natural existence of wild animals, and therefore ‘a biological fact to be accepted.’²³¹ However, politicians eventually caved in to pressure exerted by certain NGOs, with help from the media spreading pictures of starving animals.²³²

Drafters of wildlife policies and laws must make up their minds as to whether and when intervening to help wild animals with poor survival chances is acceptable, or even a moral obligation to be codified. British naturalist Ian Carter has provided an insightful reflection on some common questions—both philosophical and pragmatic—in this regard, using the hedgehog as a case study.²³³ For various reasons, this species ‘enjoys (or suffers, depending on your point of view) more than its share of human interventions,’ particularly the widespread practice of ‘rescuing’ young or sick specimens that are unlikely to make it through the winter by themselves.²³⁴

First, there is the classic issue, highlighted in the preceding, of wildness²³⁵ and the inherent misery associated with it. It is inevitable that wild

²³⁰See, for example, J Keulartz, *Dieren in ons Midden* (Noordboek 2019) 61–105.

²³¹Raad voor Dieraangelegenheden, *Zorgplicht Natuurlijk Gewogen—Over het Welzijn van Semi- en Niet-Gehouden Dieren* (RDA 2012), 16 (translation by present author).

²³²Keulartz (n230).

²³³Carter (n60) 120–127.

²³⁴Ibid 122: ‘Research has shown that if young animals fail to reach a weight of 600 grams before the onset of cold conditions in late autumn they have little chance of surviving hibernation. This finding has been well publicized and has spawned a whole industry involving animals being picked up and examined in the autumn by enthusiasts. Those below the weight threshold are plucked from the wild, provided with food, and often overwintering indoors before being released in the following spring.’

²³⁵See also E Marris, *Rambunctious Garden: Saving Nature in a Post-Wild World* (Bloomsbury Publishing 2013).

animals ‘routinely suffer all sorts of traumas such as predation, injury, starvation and disease, and we cannot possibly hope to prevent this from happening.’²³⁶ Second, there is the aforementioned potential suffering linked to being taken into captivity.²³⁷ Third, it is often highly questionable whether intervention works in terms of helping to conserve the population concerned. When the species is very rare and every individual counts, it may. For more common species, like the hedgehog, however, it would appear that human intervention ‘contributes little, if anything, to long-term conservation,’²³⁸ given that wildlife populations are ultimately constrained by habitat and food availability.²³⁹ Indeed, patching up animals that were on their way out, as it were, and releasing them again could artificially increase the population beyond what the local area can support, increasing the struggle for resources:

The effects of this will be unpredictable, depending on a whole range of factors—but one entirely feasible outcome is reduced survival rates in wild Hedgehogs owing to increased competition. More wild animals may end up starving, largely unseen and therefore unreported, but the direct result of human intervention.²⁴⁰

There is no cheating the Serengeti Rules. Growing hedgehog populations requires augmenting the extent and quality of habitat, not rehabilitation centers. Fourth, interventions may have undesirable evolutionary implications in the longer term, as underweight hedgehogs are likely to include a disproportionately high number of genetically weaker specimens.²⁴¹ Fifth and finally, given the nature of ecology, there are no free meals, and every intervention will have consequences elsewhere in the system. An underweight, diseased, or injured animal ‘may have little hope of survival, but

²³⁶Carter (n60) 123.

²³⁷Ibid 125: ‘This is difficult to judge in most species, and Hedgehogs are not the most expressive of creatures. Perhaps they adapt to temporary captivity rather better than most. But for animals such as Foxes, Badgers, deer and most birds, familiar only with life in the wild and with an in-built healthy fear of human contact, time spent in captivity involves prolonged stress and suffering. Would a relatively quick death in the wild be kinder?’

²³⁸Ibid 124.

²³⁹Ibid: ‘Providing food for wildlife may increase the available resources and so increase population size. In contrast, taking underweight animals into captivity, boosting their survival chances by feeding them and then releasing them back into the wild is unlikely to make any difference in the long term. There is only so much good-quality habitat and food to go around in any given area.’

²⁴⁰Ibid.

²⁴¹Ibid 126: ‘These animals will be less well adapted to life in the wild and less able to attain the required weight before hibernation. Evolution works by favouring the individuals best placed to survive and breed successfully, and it won’t work as efficiently if animals that are less well adapted are rescued, provided with unlimited food, and subsequently returned to the wild. That may seem to be a rather bleak, utilitarian view—but it is important to remember that the wild animals we are so fond of have been moulded over generations by this process.’

it has an excellent chance of becoming a decent meal for a predator or scavenger.²⁴² Despite the understandable, as such entirely sound, urge to help fellow creatures in need (and his own inconsistent track record when it comes to such interventions), altogether Carter reaches the following conclusion:

I certainly believe a policy of total non-intervention in respect of sick, unhealthy or weak animals is entirely justifiable, and I think a strong case can be made that intervention brings few, if any, benefits to wildlife. Logically, I think the arguments for non-intervention stack up—though admittedly we are not logical creatures.²⁴³

All of this reinforces the conclusion drawn several times above already, namely, that providing sufficient *space* for wildlife and ecosystems to flourish is paramount. Marris once more puts it well:

With wild animals squeezed in to narrow slivers of space in between farms and roads and cities, conflicts multiply, populations become fragmented and endangered, and our ethical conundrums multiply. By simply reducing the human footprint and creating *more space* for other species, we can let them sort out many conflicts and solve many problems on their own rather than having to intensively manage them. ... Simply put, the more room animals have, the less micromanaging we will have to do and the easier our ethical decision-making will be.²⁴⁴

6. Conclusion

So, what do the coyotes mean when they yodel at the moon? It seems we cannot know exactly.²⁴⁵ But, as Marris would say, it is a pretty good guess that *they* know.

This article is quite long, but its conclusions can be brief. There are not that many firm ones to draw, in any case. Essentially, the article has said nothing new. It has merely sought to draw existing insights together in an attempt to understand what the Serengeti Rules and the intrinsic value of wildlife imply for the role and further development of wildlife law, and how indeed these two grand notions can be coherently combined in the law's practical application. More questions have been raised than

²⁴²Ibid: 'When it is taken into captivity, we are essentially removing a potential food source for other species. And of course, if a predator is deprived of an easy catch (an animal that was probably destined to die anyway), it will inevitably seek out other targets. If it is successful, then another animal will be killed that may otherwise have survived. If unsuccessful, the predator (or its young) will go hungry.'

²⁴³Ibid 127.

²⁴⁴Marris (n85) 248 (emphasis in original).

²⁴⁵According to one hypothesis, 'the coyote's howl is the original national anthem of North America, a canine 'Star-Spangled Banner' that has been playing for nightly sporting events on this continent for nearly 1 million years': D Flores, *Coyote America: A Natural and Supernatural History* (Basic Books 2016) 82.

answered, but it is hoped these have at least provided some readers with welcome morsels for thought, and fellow wildlife lawyers with reconfirmation that work remains to be done. In any event, some things *can* be concluded with reasonable certainty.

For one, there appears to be every reason for an unreserved implementation of existing wildlife law and policy, and for investing in the further development of legal frameworks to ensure they are fit for purpose. In essence, that purpose is no less than securing a future for ‘all the earthly things.’²⁴⁶ The importance of robust legal limits and obligations (for humans), and perhaps rights (of nature), stands out clear. The required transition away from anthropocentrism is not a given in light of human nature, which besides many laudable features continues to be characterized by selfish, forgetful, heedless, counterproductive, and contradictory tendencies so persistent that they cast doubt on the accuracy of the scientific name *Homo sapiens*.²⁴⁷

A particularly firm conclusion, emerging time and again, is the need to grant other species and ecosystems *lots of space*. Whether looking at the issue from the perspective of the Serengeti Rules and the necessity of healthy ecosystems for the future of humanity,²⁴⁸ the untold intrinsic value of wildlife,²⁴⁹ the associated moral and, in more and more places, legal duty to respect the rights of non-human beings and collectives to persist and evolve,²⁵⁰ the growing imperative to provide restorative justice for non-human communities,²⁵¹ or the complexities of doing justice to the multiple values and interests of wildlife and humans in practice,²⁵² the main conclusion is the same each time: namely, that providing space must be a primary goal for wildlife law and policy, by (1) securing the future of currently remaining ecosystems on land and in the oceans by protecting and restoring them in large, representative, resilient, well-connected, and effectively conserved networks of protected areas and other spaces where wildlife conservation is prioritized; (2) growing these networks by freeing up additional space for wildlife, principally by rewilding parts of the global

²⁴⁶Nick Cave and The Bad Seeds, ‘Breathless’, *Abattoir Blues/The Lyre of Orpheus*, 2004.

²⁴⁷Or, as Donaldson and Kymlicka (n160), 256, put it in slightly milder terms: ‘It is asking too much of moral arguments to expect them to overcome by themselves deeply entrenched cultural assumptions and the powerful forces of self-interest.’

²⁴⁸See parts 2.3, 3.2, and 4.2.

²⁴⁹See parts 3.4 and 3.5.

²⁵⁰See part 4.3.

²⁵¹See parts 4.3–4.5.

²⁵²See Section 5.

estate currently used for agriculture; and (3) also safeguarding living space for wildlife within areas dominated by humans, while aiming for harmonious human–wildlife coexistence.

Another vital and recurrent conclusion is the necessity, whatever the issue at hand, of maintaining a critical attitude and, especially, of never losing sight of the ‘big picture’. The main reason for the elaborate treatment of down-to-earth issues and examples in the article’s preceding Section,²⁵³ besides underlining that space for wildlife is the paramount concern, is to drive home that reversing the biodiversity crisis and achieving durable human–wildlife coexistence require due consideration of both the intrinsic value of wildlife *and* the Serengeti Rules, and employment of both heart *and* mind. As science communication professor Adam Hart warns:

We are in the midst of a biodiversity crisis. If we are serious about solving it, we need to park our preconceptions, and temper our emotions.²⁵⁴

His advice concerning preconceptions has been amply corroborated in this article.

As regards emotions, the point seems to be that these need to be channeled well, rather than ignored.²⁵⁵ In the last chapter of his highly readable book *How to Be a Bad Birdwatcher*, sports journalist Simon Barnes concludes that there is a ‘trinity of reasons’ for wildlife conservation: ‘duty, self-interest, and love. The greatest of these is the last.’²⁵⁶ In light of the above findings, it appears that the best way to act out this love, and to infuse compassion into conservation,²⁵⁷ is to grant wildlife plenty of space and to approach possible interventions with a critical mindset, all the while guarding against relapsing into instrumentalist, anthropocentric ways of thinking which ‘distort our sensitivity to and knowledge of nature, blocking humility, wonder and openness in approaching the more-than-human.’²⁵⁸ Dutch theologian Stefan Paas seems correct in suggesting that they who regard wildlife indifferently have more explaining to do than

²⁵³*Ibid.*

²⁵⁴Hart (n120).

²⁵⁵See also MH Jacobs and JJ Vaske, ‘Understanding Emotions as Opportunities for and Barriers to Coexistence with Wildlife’, in B Frank et al (eds), *Human–Wildlife Interactions: Turning Conflict into Coexistence* (Cambridge University Press 2019) 65.

²⁵⁶Barnes (n65) 191.

²⁵⁷See also CA Bobier and BL Allen, ‘Compassionate Conservation Is Indistinguishable from Traditional Forms of Conservation in Practice’ (2022) 13 *Frontiers in Psychology* 750313.

²⁵⁸Plumwood (n172), 15.

those who stand in wonder.²⁵⁹ Regarding the intelligence, consciousness, agency, and precious value of non-human creatures, the preceding analysis points to a twin prerequisite (i) to take these seriously by translating them into corresponding action, and (ii) to do so in careful, pragmatic ways, avoiding blinders and pitfalls.

Being pragmatic should, in this context, clearly not be confused with cutting corners as regards the values of non-humans, or with taking their interests less seriously in situations where they are inconvenient in light of human needs and ambitions. It does mean critically addressing the question what course of action would seem, overall, to best serve the aggregate interests of all beings involved, and to do most justice to their worth. This entails taking due account of all relevant circumstances and constraints, ecological as well as social, cultural, and economic ones.²⁶⁰ Given the scale of the biodiversity crisis, it also entails prioritizing the collective over the individual, and ecosystem health over animal, plant, or fungus welfare, where a choice needs to be made.

In sum, by flouting the Serengeti Rules and denying the value of fellow creatures belonging to other species, humans have come to ‘normalize the abnormal, and accept the unacceptable,’ to borrow words from a recent book on animal senses by Ed Yong.²⁶¹ Science, ethics, and law all appear to indicate that it is time to correct this, and to restore what is broken.

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²⁵⁹S Paas, *Vrede op Aarde: Over heil en Redding in Deze Tijd* (Kok Boekencentrum 2023) chapter 6.

²⁶⁰See also IUCN (n120).

²⁶¹E Yong, *An Immense World: How Animal Senses Reveal the Hidden Realms Around Us* (Penguin 2022) 352.