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**Reflections on Stockholm, Decolonization, Restoration,
and Global Ecological Governance**

by John W. Head

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ABSTRACT

Although international environmental law has progressed in the 50 years since the Stockholm Conference, it suffers today from several structural deficiencies. These include anthropocentrism, conceptual shallowness, and global institutional timidity. Remedies for these deficiencies would involve (i) “species decolonization”, (ii) a reconceptualization from “sustainable development” to a more aggressive “process-relational restoration”, and (iii) a radical re-imagining of environmental governance regimes, involving something like “eco-states” and a new global institution to implement bold legal and structural reforms in ecological governance.

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The Historical Context: a 1972 Conference, a Modern Pandemic, and Five Converging Crises

The “call for papers” for this special issue of the LEAD Journal¹ intrigued me for several reasons. For one thing, the “call for papers” highlights and celebrates the 50-year anniversary of the Stockholm Conference on the Human Environment,² from which emerged both the Stockholm Declaration³ and the UN Environment Programme (UNEP).⁴ This appeals to me personally because my first law-journal article, written while I was still a law student, focused on the Stockholm Conference and the UNEP,⁵ which I had watched “in the creation” in 1972 (albeit from a distance).

Moreover, the “call for papers” – and indeed the overall theme for this LEAD Journal issue – emphasises “converging crises”.⁶ From an *ecological* perspective, I see four such crises: in the atmosphere (climate), the pedosphere (soil), the hydrosphere (water), and the biosphere (species diversity and the habitat it both requires and creates). Addressing those crises, in turn, requires grappling with a *human* crisis ... one born of insufficient imagination or boldness among global leaders, especially those in the Global North.

In the following pages, I respond to the “call for papers” by exploring three key topics: “species decolonisation”, “process-relational restoration”, and biome-based ecological governance. (I define

these terms below.) The LEAD Journal editors have kindly consented to my use of an essay format for my article, and this has allowed me to cover a lot of substantive ground in offering what I refer to in my title as “reflections” to help mark 50 years since Stockholm.⁷

Species Decolonisation: Helping to Remedy Anthropocentric Domination

In inviting contributions to this issue, the LEAD Journal editors have drawn special attention to “[d]ecolonisation and the environment, in its multiple forms and dimensions from the local to the global level”.⁸ Most of my professional career has focused on the aftermath of the tsunami of colonisation and decolonisation that did so much starting in the 16th century to shape our modern world politically and economically. Both in a decade of legal practice and in over three decades of legal academic work, I have studied ways in which international law and institutions might correct profound injustices emerging from colonisation, both formal and *de facto*. In this context, I regard colonisation as *the process by which one group of people deliberately dominates and/or displaces the indigenous population and their ways of living within their territory ...* and decolonisation is the reversal of this process.

In looking, however, at the four global ecological crises I noted above, my attention shifts to a different notion of decolonisation – what I would call “species decolonisation”. This notion draws from many writers and activists who urge that humans develop a “land ethic” (Aldo Leopold)⁹ or a “deep ecology” (Arne Naess)¹⁰, or that our spe-

¹ LEAD Journal, ‘Introduction to the Special Issue - Planetary health in Times of Converging Crises - Challenges and Opportunities’ (2023) 19/1 LEAD Journal 248-250 <<https://lead-journal.org/content/1906.pdf>>.

² See generally United Nations Conference on the Human Environment, 5-16 June 1972, Stockholm <<https://www.un.org/en/conferences/environment/stockholm1972>>.

³ Declaration of the United Nations Conference on the Human Environment, Stockholm, 16 June 1972, UN Doc A/CONF.48/14/Rev.1 [hereinafter Stockholm Declaration].

⁴ UN General Assembly Resolution 2997 (XXVII), Institutional and financial arrangements for International Environmental Cooperation, UN Doc A/RES/27/2997 (1972).

⁵ John W Head, ‘The Challenge of International Environmental Management: A Critique of the United Nations Environment Programme’ (1978) 18(2) Virginia Journal of International Law 269 [hereinafter Head-1978].

⁶ LEAD Journal (n 1).

⁷ For their help as I formulated these ‘reflections’, I thank several colleagues who critiqued an earlier version of this article in a July 2022 academic workshop in Colorado – along with my colleague Danny Volin, whose research assistance has helped me in all aspects of this work.

⁸ LEAD Journal (n 1).

⁹ Aldo Leopold, *A Sand County Almanac* (Ballantine 1966, 1949).

¹⁰ Arne Naess, ‘The Shallow and the Deep, Long-Range Ecology Movement: A Summary’ (1973) 16 (1-4) Inquiry 95.

cies needs to take an “inter-species equity” approach (Gwendellyn Io Earnshaw).¹¹

That inter-species equity approach, which gives consideration to nonhuman animals based on their inherent value and interests,¹² is similar in character to intergenerational equity that has become well-developed in international law and writing. Edith Brown Weiss has explained: “The principle of intergenerational equity states that every generation holds the Earth in common with members of the present generation and with other generations, past and future. The principle articulates a concept of fairness among generations in the use and conservation of the environment and its natural resources”.¹³ Inter-species equity carries the same import: it articulates a concept of fairness among species in the long-term integrity of the natural world. No single species can legitimately dominate all others to their detriment or extinction just as no single generation (of humans) can legitimately use its temporary dominance to deprive successor generations of their opportunities for well-being or even survival.

What about the other term I use, that of “species decolonisation”? Drawing an analogy to colonisation of the economic and political sort that features so prominently in international relations today and for the past several hundred years as a form of domination and displacement by one set of humans over another set of humans, I use the term “species decolonisation” – a term new with me, I believe¹⁴ – to signify *the process of reversing one species’ deliberate domination and/or displacement of all other indigenous species and their ways of living within their territory.*

How much of these notions of “inter-species equity” or “species decolonisation” appeared in the Stockholm Declaration? Very little. Perhaps

we can see some harbinger of those notions in these two provisions in the Declaration:

*“Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat, which are now gravely imperilled by a combination of adverse factors”.*¹⁵

*“States shall take all possible steps to prevent pollution of the seas by substances that are liable ... to harm living resources and marine life”.*¹⁶

Neither of these Stockholm Declaration provisions from 50 years ago does justice to the notion of a “species decolonisation” that I believe humans (*today’s* humans) must adopt in order to address the ecological crises we face.

What progress in this direction has emerged *since* the time of the Stockholm Conference? Here are four possible answers, focusing specifically on treaty law.

First, the Convention on International Trade in Endangered Species¹⁷ (CITES) includes provisions that hint at protecting other species for their own sake. Article II.1 subjects trade in “species threatened with extinction ... to particularly strict regulation in order not to endanger further their survival”.¹⁸ Still, the CITES preamble makes clear that its drafters were keenly “[c]onscious of the ever-growing value of wild fauna and flora from aesthetic, scientific, cultural, recreational and economic points of view”¹⁹ – thus reflecting an anthropocentric perspective: we should protect other species because of the benefits they bring to our own species.

Second, the Convention on Biological Diversity²⁰ (CBD) identifies the free-standing interests of

¹¹ Gwendellyn Io Earnshaw, ‘Equity as a Paradigm for Sustainability: Evolving the Process toward Interspecies Equity’ (1999) 5 *Animal Law Review* 113.

¹² *ibid* 123. See also Kyle Ash, ‘Why “Managing” Biodiversity Will Fail: An Alternative Approach to Sustainable Exploitation for International Law’ (2007) 13 *Animal Law Review* 209, 216.

¹³ Edith Brown Weiss, ‘Intergenerational Equity’ in Max Planck Encyclopedia of Public International Law (OUP, updated 2021).

¹⁴ For some writings using similar ideas but different terminology, Tomaz Mastnak, Julia Elyachar & Tom Boellstorff, ‘Botanical Decolonization: Rethinking Native Plants’ (2014) 32 (2) *Environment and Planning D: Society and Space* 363.

¹⁵ Stockholm Declaration (n 3) Principle 4.

¹⁶ *ibid* Principle 7.

¹⁷ Convention on International Trade in Endangered Species of Wild Fauna and Flora, 3 March 1973, 993 UNTS 243 [hereinafter CITES].

¹⁸ *ibid* Art. II.1.

¹⁹ *ibid* preamble.

²⁰ Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, 1760 UNTS 79 [hereinafter CBD].

non-human species in Article 8(d) (calling for “the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings”) and Article 8(f) (urging that parties to the CBD “[r]ehabilitate and restore degraded ecosystems and promote the recovery of threatened species”).²¹ Still, like the CITES, the CBD retains a strong anthropocentric perspective: the opening clause of its preamble notes both “the intrinsic value of biological diversity and ... the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity”²² ... auguring, presumably, to the benefit of humans.

Third, the Amazon Cooperative Treaty calls for its (eight) parties “to maintain the ecological balance within the [Amazon] region and preserve the species” there – but for what purpose? ... so that the “*exploitation* of the flora and fauna of [that region can] be rationally planned”.²³

Fourth, the Convention on the Conservation of Migratory Species of Wild Animals recognises that “wild animals in their innumerable forms are an irreplaceable part of the Earth’s natural system”, but the Convention states that wild animals “must be conserved *for the good of mankind*”.²⁴

In sum, what I am calling “species decolonisation” is foreign to most environmental *treaty rules*. What if we look beyond this formal source of “legislative-like” law, though, to other forms of norm-creation – especially the policy initiatives and other operations of international organisations in which customary international law can be found or generated? I briefly survey in the following few paragraphs (i) environment-specific intergovernmental organisations that have been created to protect non-human species, (ii) more broadly-focused intergovernmental organs (specifically the United Nations General Assembly), and (iii) relevant international non-government organisations, to see which if any of them embrace, in their actual policies and practices, “species decolonisation” as I have described it.

²¹ *ibid* Arts. 8(d), 8(f).

²² *ibid* preamble (emphasis added).

²³ Amazon Cooperative Treaty, Art. VII, 3 July 1978, amended 1998 (emphasis added).

²⁴ Convention on the Conservation of Migratory Species of Wild Animals, preamble, 23 June 1979 (emphasis added).

A key intergovernmental organisation with an environment-specific mandate is the UN Environment Programme (UNEP) itself, emerging from the 1972 Stockholm Conference – which I discuss more fully below. But the UNEP lays heavy emphasis on the *human* aspects and benefits of environmental protection. Its website, for instance, in describing the agency’s programs on forests, makes this assertion: “We support the protection of forests for social, economic, and environmental benefits”.²⁵ At least the first two of these factors suggest that *human* interests dominate the UNEP’s efforts.

Like the UNEP, most other existing intergovernmental organisations also seem to prioritise benefits to our own species, giving secondary priority to the interests of other species – or, more generally, to the non-human elements of the natural systems that make our Earth a living planet.

What about the United Nations itself, particularly the UN General Assembly (UNGA)? At first glance, the record of policy initiatives emerging from the UNGA seems impressive. The 1982 World Charter for Nature, the 2018 Global Pact for the Environment, and the Harmony with Nature initiatives all reflect the interest the UNGA has shown in environmental issues and (more specifically) in the protection of non-human species.

Of those three UNGA developments, the most extensive and impressive one is the series of Harmony with Nature initiatives. These started in 2009 – the year in which the UNGA proclaimed April 22 as International Mother Earth Day – and have now led to several UNGA resolutions urging a new regulatory approach, one that “draws upon the holistic scientific knowledge provided by Earth system science to evolve laws and policies that better manage human behaviour in light of the interconnections among people and nature”.²⁶

One project undertaken within the UNGA’s “Harmony with Nature” initiative is to document vari-

²⁵ See ‘Forests’ <unep.org/explore-topics/forests>.

²⁶ See UN Report of the Secretary-General on Harmony with Nature, UN Doc A/69/322 (2014), para 50. See also UNGA Resolution Harmony with Nature, UN Doc A/RES/74/224 (2019). For a chronology of the General Assembly’s evolution of ‘Harmony with Nature’ initiatives, see <<http://www.harmonywithnatureun.org/chronology/>>.

ous advances in law, policy, and education that reflect “the implementation of Earth-centred law”. A recent report enumerates instances of judicial decisions and legislative enactments by various countries and groups to grant “rights of Nature” (in Brazil, Colombia, Mexico, the Netherlands, Uganda, the United States, and elsewhere) – over two dozen of these just in 2019 and 2020.²⁷ Thus far, however, these legislative and judicial initiatives have remained at the national and local level, rather than taking the form of binding international law, as in the form of a treaty with effective enforcement mechanisms.

Accordingly, although the “Harmony with Nature” initiatives do contribute to improving international environmental law – in part by advancing a merger of indigenous legal traditions with Earth system science²⁸ – I fear that the momentum in this direction is building more slowly than is necessary to address the urgency of the “converging crises” I have referred to above. A *global* shift in perspective and in binding environmental law has yet to occur.

The same can be said if we turn our attention away from *intergovernmental* organisations to international *non-governmental* organisations (INGOs). Although many such organisations do address non-human species protection – these include the Animal Welfare Institute, Conservation International, the International Fund for Animal Welfare, the Jane Goodall Institute, Oceana, the Wildlife Conservation Society, the World Society for the Protection of Animals, Birdlife, and the World Wildlife Fund²⁹ – these INGOs are almost entirely privately funded; they therefore do not reflect an *official* commitment at the global level to serve the interests of other species.

Notwithstanding these efforts – both in treaties and in practice – we face today, 50 years after the Stockholm Conference, a crisis of monumental proportions in the well-being of non-human species and their habitats. For instance,

- Globally, across most major terrestrial biomes (i.e., not including ocean and freshwater life), the average abundance of native species has fallen by at least 20 percent in the past century.³⁰
- Three-quarters of the land-based environment and about 66 percent of the marine environment have been significantly altered by human actions. Furthermore, though the rate of forest loss has slowed globally in the past two decades, the rate of loss is not distributed equally; 32 million hectares of primary or recovering forest in the tropics (a highly biodiverse area) were lost between 2010 and 2015.³¹ Moreover, even this number might not give a full accounting of tropical forest loss: environmentalists believe that India is overcounting its forest growth over the past two decades by using a misleading definition of “forest”.³²
- An estimated one million plant and animal species face extinction in coming decades, representing a further acceleration in the global rate of extinction, already at its highest levels in 10 million years³³ – a trend emphasised in Elizabeth Kolbert’s book *Sixth Extinction*.³⁴

In sum, human action has wrought havoc. Louis Kotzé and Rakhyun Kim, whose “earth system law” work I examine more fully below in section 4 of this essay, express it this way: “We are witnessing unprecedented levels of Earth system destruction and intensifying patterns of injustice

²⁷ See Supplement to the Report on Harmony with Nature, UN Doc. A/75/266, <<http://files.harmonywithnatureun.org/uploads/upload1019.pdf>>, at pages 2–29. For information on a related ‘Eco Jurisprudence Monitor’ platform, see <<https://ecojurisprudence.org>>.

²⁸ For a recent analysis situating the UN’s ‘Harmony with Nature’ initiatives within the context of Indigenous legal traditions, rights of nature, and Earth system science, see Jeremy J Schmidt, ‘Of Kin and System: Rights of Nature and the UN Search for Earth Jurisprudence’ (2022) 47(3) *Transactions of the Institute of British Geographers* 820.

²⁹ For accounts of the work of these and similar INGOs, see ‘Major International Wildlife Conservation Organizations Active in the World Today’ *WORLDATLAS* <<https://www.worldatlas.com/articles/major-international-wildlife-conservation-organizations-active-in-the-world-today.html>>.

³⁰ Intergovernmental Platform on Biodiversity & Ecosystems Services, ‘The Global Assessment Report on Biodiversity and Ecosystem Services’ (IPBES 2019) 11 <<https://zenodo.org/record/3553579#.YrzKAbM12w>>.

³¹ *ibid.* See also ‘Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Media Release Issued on 6 May 2019’ <<https://ipbes.net/news/Media-Release-Global-Assessment>>.

³² Anonymous, ‘Seeing Green: Is the Government Overcounting the Overstory?’ (2002) 1 *The Economist* 32 (‘Officially, any patch of land greater than a hectare with canopy cover of at least 10 % counts as a forest ...’).

³³ *ibid.* 11–12.

³⁴ Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (Picador 2015).

at all levels and scales [leading to the likely] transgression of critical tipping points in the Earth system”.³⁵ This tsunami of Earth-systems disruption will unleash its fury on all species, not just on humans whose dominant position has allowed them to “colonise” all corners of the planet.

Recall that I have offered above this definition of “species decolonisation”: *the process of reversing one species’ deliberate domination and/or displacement of all other indigenous species and their ways of living within their territory*. What would a robust set of “species decolonisation” measures look like? I offer two responses; both would extend far beyond what I have described above from existing treaties and international organisations.

First, a response referring to *treaties*: In a book published five years ago, I proposed creating a treaty – a “Global Convention on Agroecology” – whose parties would adopt as a matter of law the principles (i) that humans need to reintegrate with the rest of the natural world³⁶ and (ii) that our species carries a uniquely heavy responsibility to restore the Earth’s ecological integrity.³⁷

By including these principles, the proposed Global Convention on Agroecology would push hard toward “species decolonisation”. However, treaties need implementation to do much good, so I would envision a range of concrete steps to breathe life into the principles noted above. For instance, states participating in the Global Convention on Agroecology would agree to adopt legislative reforms to protect threatened species from further harm.³⁸ Such reforms would require rehabilitation and reintroduction of threatened or extirp-

ated species,³⁹ and even exploring prospects for de-extinction.⁴⁰ They would also involve setting aside “nature reserves” for the preservation of endangered or threatened species and to restore biodiversity more generally⁴¹ – perhaps along the lines proposed by E. O. Wilson in his book *Half-Earth*⁴² or by the Poppers for a “Buffalo Commons”.⁴³

The Global Convention on Agroecology would establish a “duty of cooperation” among participating states to ensure adherence, as well as an independent body of experts to offer candid assessment and public accountability.⁴⁴ To assure broad adherence to its requirements, the Global Convention on Agroecology would use conditionality: states’ enjoyment of benefits from participation in other international regimes – such as WTO trade benefits or IMF loans – would be conditional upon taking the legal and policy steps enumerated.⁴⁵

These actions would aid in the process of “species decolonisation” – that is, the process of reversing our own species’ deliberate domination and/or displacement of all other indigenous species and their ways of living within their territory. In section 4 of this essay, I explore further the notion of “species decolonisation” and situate it more exactly within the rich landscape of recent scholarship on international environmental governance. First, though, I will introduce a companion concept: “process-relational restoration”.

³⁵ Louis J Kotzé and Rakhyun E Kim, ‘Exploring the Analytical, Normative and Transformative Dimensions of Earth System Law’ (2020) 50(6) Environmental Policy and Law 457,459. See also Louis J Kotzé and Rakhyun E Kim, ‘Earth System Law: The Juridical Dimensions of Earth System Governance’ (2019) 1 Earth System Governance 100003, and Louis J Kotzé, ‘Earth System Law for the Anthropocene’ (2019) 11(23) Sustainability 6796.

³⁶ John W Head, *International Law and Agroecological Husbandry: Building Legal Foundations for a New Agriculture* (Routledge 2017) 299-300 [hereinafter *Agroecological Husbandry*]. This principle could draw from Principle 1(a) of the Earth Charter, which recognises ‘that all beings are interdependent and every form of life has value regardless of its worth to human beings’. *ibid*, citing Klaus Bosselmann and J Ronald Engel (eds), *The Earth Charter: A Framework for Global Governance* (KIT 2010) 257-261.

³⁷ Head, *Agroecological Husbandry*, *ibid* 300. This principle would involve a duty of restoration, with the character of a trustee’s fiduciary duty toward the beneficiaries of the trust.

³⁸ *ibid* 306-7. See also CBD (n 20) Art. 8(k).

³⁹ Head, *Agroecological Husbandry* (n 36) 306-7. See also CBD (n 20) Art. 8(c).

⁴⁰ For a recent survey of de-extinction efforts, see Matt Reynolds, ‘You’re (Maybe) Gonna Need a Patent for That Woolly Mammoth’ (*Wired*, 9 February 2022) <<https://www.wired.com/story/de-extinction-patents/>>.

⁴¹ Head, *Agroecological Husbandry* (n 36) 307.

⁴² Edward O Wilson, *Half-Earth: Our Planet’s Fight for Life* (Liveright 2016).

⁴³ Deborah Epstein Popper and Frank J Popper, ‘The Great Plains: From Dust to Dust’ (Planning, December 1987) <<http://www.lacusveris.com/The%20HiLine%20and%20the%20Yellowstone%20Trail/The%20Buffalo%20Commons/From%20Dust%20to%20Dust.shtml>>.

⁴⁴ Head, *Agroecological Husbandry* (n 36) 319.

⁴⁵ John W Head, *A Global Corporate Trust for Agroecological Integrity: New Agriculture in a World of Legitimate Eco-states* (Routledge 2019) 285.

“Process-Relational Restoration”: a Successor to the Sustainable Development Paradigm

Another broad theme that the LEAD Journal editors have emphasised is this: “rethinking the bases for environmental law beyond the existing framing that has led to the current crises, such as *paradigms going beyond sustainable development*”.⁴⁶ I turn to such a “rethinking” now – building, of course, on work done by other observers.

At the outset, it is worth noting that the term “sustainable development” itself does not date back to the Stockholm Conference (1972) but is usually thought to have crystallised in 1987 with the publication of *Our Common Future*.⁴⁷ That book was seen as an attempt to deal, at least rhetorically, with the contradiction evident in the Stockholm meetings between environmental protection and economic development. After all, the Stockholm Conference carried the official title of “United Nations Conference on the Human Environment”, reflecting the widely-held view of the environment as a repository of resources meant for human use.

Today, several decades following the compromise reflected in the term “sustainable development”, I believe that concept has largely outlived its usefulness: it has become flabby and sloppy in its meaning and has been kidnapped by persons and interests wishing to emphasise the noun “development”, pertaining especially to the process of *economic* development, nearly to the exclusion of its modifying adjective “sustainable”.

This general criticism of the concept of “sustainable development” can be found, along with many other critiques (and defences), in an extens-

ive literature that has developed in recent years. Contributions to that literature have come (i) from Tom Waas and collaborators, who explain that the deliberate misuse of “sustainable development” can allow a bad actor to use the term as window dressing for unsustainable business-as-usual practices,⁴⁸ (ii) from Jem Bendell, who would replace “sustainable development” with “an upgraded form of Disaster Risk Management”,⁴⁹ and (iii) from Jason Hickel, who asserts that indexes designed to measure countries’ sustainability – particularly the Sustainable Development Goals (SDG) Index published by the United Nations⁵⁰ – are “incoherent” from an ecological perspective and often favour wealthy countries whose consumption levels are unsustainable.⁵¹

John Dernbach and Federico Cheever offer an especially insightful analysis of “sustainable development”. As they point out, “[t]he central conceptual achievement of sustainable development is to offer an alternative to the binary “environment or development” narratives that have traditionally dominated public and private political discourse”.⁵² But if the balance of the phrase is weakened – if, for instance, economic players merely use environmental rhetoric to burnish their public relationship efforts – then has the notion become distorted beyond recognition? The answer, to my belief, is yes; “development” has defeated “sustainable” as the essence of the term.

Dernbach and Cheever admit nearly as much. Although they do mount a vigorous defence of the term “sustainable development” against those critics who consider it too vague, the authors acknowledge that “[a] wide variety of “sustainability” definitions have been enacted into law” and that the term “sustainable development” is often misapplied, which in turn explains the criticism

⁴⁶ LEAD Journal (n 1) (emphasis added).

⁴⁷ See World Commission on Environment and Development, *Our Common Future* (Oxford University Press 1987). Some sources point to a 1980 strategy paper as an earlier introduction of the term ‘sustainable development’. See ‘World Conservation Strategy: Living Resource Conservation for Sustainable Development’ (IUCN 1980).

⁴⁸ Tom Waas and others, ‘Sustainable Development: A Bird’s Eye View’ (2011) 3(10) Sustainability 1637, 1638.

⁴⁹ Jem Bendell, ‘Replacing Sustainable Development: Potential Frameworks for International Cooperation in an Era of Increasing Crises and Disasters’ (2022) 14(13) Sustainability 8185.

⁵⁰ eg ‘Rankings: The overall [SDG] performance of all 193 UN Member States’ <<https://dashboard.sdgindex.org/rankings>>.

⁵¹ Jason Hickel, ‘The World’s Sustainable Development Goals Aren’t Sustainable’ (*Foreign Policy*, 30 September 2020) <<https://foreignpolicy.com/2020/09/30/the-worlds-sustainable-development-goals-arent-sustainable/>>.

⁵² John C Dernbach and Federico Cheever, ‘Sustainable Development and Its Discontents’ (2015) 4(2) Transnational Environmental Law 247, 263.

of such observers as Klaus Bosselmann, who “is most critical of an understanding of sustainability that involves trading off social, economic and environmental concerns” rather than giving *primacy* to environmental concerns.⁵³

More important in my view is the fact that the adjective itself – “sustainable” – aims too low. The crises in the atmosphere, pedosphere, hydrosphere, and biosphere cannot be addressed by measures designed to be merely sustainable. The measures must instead aim at *restoration*. Recall the well-known distinction between conservation and preservation, which one source expresses thus: “Put simply, conservation seeks the *proper use of nature*, while preservation seeks protection of nature from use”.⁵⁴ However, given the enormity of our species’ imprint on the natural world, we have passed far beyond the point of either *conserving* the natural world so that humans can continue exploiting it at the pace of recent years or *preserving* the natural world in its current state, which is now deeply degraded. Instead, an unprecedentedly ambitious program of ecological *restoration* is needed.

Consider the illustrations I offered above regarding species decline and habitat degradation (forest loss, extinctions, “tipping points”).⁵⁵ For each of those illustrations, we can envision action that would be *restorative* in character as distinct from action that would be merely “*sustainable*”. It is that restorative sort of action that the set of converging ecological crises at the heart of this LEAD Journal issue requires today.

Expressed differently: instead of hewing to the tired concept of sustainable development, we should develop a concept of restoration and then place *that* concept at the centre of our efforts going forward toward global environmental governance. I have proposed this also in the context of the Global Convention on Agroecology discussed above: states becoming parties to that treaty would acknowledge the responsibility of humans to restore the Earth’s ecological integrity,

a responsibility akin to a legal trustee’s duty to act in the interest of the trust’s beneficiaries.⁵⁶

Why do I use the term “*process-relational restoration*” in the heading to this section 3 of my essay? Because I believe it highlights just what *it is that needs restoration*. The new paradigm I urge – moving beyond the sustainable development paradigm – is one in which we push back against the Enlightenment-fuelled penchant for reductionism and classification and instead understand the Earth’s systems as constituting a single integrated network of interdependent species and their habitats. James Lovelock touched on this in developing his metaphor of “*Gaia*”,⁵⁷ building from earlier writings and philosophies that see the world as a single integrated network of natural systems making our Earth a living planet.

Process-relational philosophy touches on such matters. Robert Mesle offers this explanation:

Process philosophy is an effort to think clearly and deeply about the obvious truth that our world and our lives are dynamic, interrelated processes and to challenge the apparently obvious, but fundamentally mistaken, idea that the world (including ourselves) is made of *things* that exist independently of such relationships and that seem to endure unchanged through all the processes of change.⁵⁸

In borrowing the term “process-relational” to explain the character and scope of ecological restoration that I have in mind, I incorporate Mesle’s insistence that we look beyond *things* and conceive of our world to be a swirlingness of processes and relationships. Why? Because the value of our shared life on Earth comes mainly from what he calls “relational power” – that is, the ability to be actively open to and affected by the world around us. Mesle explains:

⁵⁶ See text at note 37 above.

⁵⁷ For one of Lovelock’s most recent books relating Gaia specifically to climate change, see James Lovelock, *The Revenge of Gaia: Earth’s Climate Crisis & the Fate of Humanity* (Basic Books 2006).

⁵⁸ C Robert Mesle, *Process-Relational Philosophy: An Introduction to Alfred North Whitehead* (Templeton Foundation Press 2008) 8 (emphasis added). See also J R Hustwit, ‘Process Philosophy’ (Internet Encyclopedia of Philosophy) <<https://iep.utm.edu/processp/>>.

⁵³ *ibid* 272, 273, 277.

⁵⁴ ‘Conservation vs Preservation and the National Park Service’ (National Park Service) <<https://www.nps.gov/teachers/classrooms/conservation-preservation-and-the-national-park-service.htm>>.

⁵⁵ See text at notes 30-33 above.

Ultimately, growth in relational power takes us beyond the human community. A process-relational vision of the world makes it clear that we humans are not the only members of the world community to experience pain or pleasure or values of our own. ... It may take even greater relational power to become open to the values experienced by those nonhuman members of our community, but in the long run, we must develop the power to perceive those values, or we will surely continue to do massive damage to the ecological web essential to our own survival.⁵⁹

Then, as if catching the anthropocentric stumble that those last five words reflect, Mesle adds this clarifying note:

Inevitably, we are most motivated to be ecological sensitive because the environment is essential to our own survival and our own humanity. But *growth in relational sensitivity to that [ecological] web leads to valuing other lives around us for their own sake because they have value to themselves, not merely because of their instrumental value for us.*⁶⁰

It is this culminating point that explains why I use process-relational philosophy in responding to the LEAD Journal editors' call for a "rethinking [of] the bases for environmental law beyond ... [the paradigm of] sustainable development". In my "rethinking", we should advance from "sustainable development" to "process-relational restoration", by which we restore the Earth's ecological web not for purely anthropocentric purposes but as an exercise in nurturing our own relational power to see ourselves embedded in the fabric of life. Doing so will manifest a sensitivity to other components of the natural world *because they have value to themselves* ... and will further our aim to enhance such value for its own sake.

⁵⁹ Mesle (n 58) 76-7.

⁶⁰ *ibid*, footnote 8, p 77.

Context and Correctives: Fine-Tuning “Species Decolonisation” and “Process-Relational Restoration”

For the sake of brevity, I have thus far painted with a broad brush in emphasising the importance of “species decolonisation” and “process-relational restoration”. Both concepts warrant elaboration and contextualisation.

First, the concept of “species decolonisation” that I have introduced above, along with the related principle of “inter-species equity”, should be viewed within the frame of a literature involving the rights of nature, of ecosystems, and of animals. Karen Bradshaw has contributed to this literature by exploring the impact of human property rights on biodiversity,⁶¹ and Martha Fineman’s work on vulnerability theory, in particular its core idea that humans inevitably rely on social relationships, would certainly have applications to the natural world and interspecies relationships.⁶²

Several other writers have also helped build the “rights of nature” foundation on which my “species decolonisation” concept rests. For instance, David Boyd, the U.N. Special Rapporteur on human rights and the environment, has written extensively on “rights of nature”.⁶³ Boyd’s work is sometimes cited along with that of Thomas Berry, Cormac Cullinan, and Vandana Shiva as notable contributors to the literature on “rights of nature”.⁶⁴

Fortunately, some of these efforts to build a philosophical and theoretical foundation for “rights of nature” have influenced international policy – as

⁶¹ Karen Bradshaw, *Wildlife as Property Owners* (University of Chicago Press 2020).

⁶² For details about the work of Martha Fineman, founding director of the ‘Vulnerability and the Human Condition’ initiative at Emory University, see <<https://web.gs.emory.edu/vulnerability/about/director-team.html>>.

⁶³ See David R Boyd, ‘Recognizing the Rights of Nature: Lofty Rhetoric or Legal Revolution?’ (2018) 32(4) *Natural Resources & Environment* 13, 17 [hereinafter Boyd-2018]. See also David R Boyd, *Rights of Nature: A Legal Revolution that Could Save the World* (ECW Press 2017).

has been the case with the “Harmony with Nature” initiatives emerging in recent years in the UN system, examined above.⁶⁵ But let us look beyond *policy* to see what actual *legal* reforms have emerged from the “rights of nature” writings and initiatives I have summarised here.

In recent years, numerous statutory and constitutional provisions have been adopted that recognise certain rights of ecosystems. In New Zealand, the Whanganui River Deed of Settlement treaty recognised a river as a legal person.⁶⁶ Similarly, the Ecuadorean constitution provides that nature has “the right to integral respect for its existence”.⁶⁷

These and other legal initiatives trace their conceptual roots in part to Christopher Stone’s article “Should Trees Have Standing?”, published in 1972 – the same year as the Stockholm Conference. The same holds for several judicial decisions that have also recognised legal “rights of nature”, with special emphasis on non-human animals and on ecosystems as the holders of such rights. Several prominent such pronouncements, for instance, have come from India and Pakistan.⁶⁸

Second, some elaboration is warranted for the notion of “process-relational restoration” that I introduced above. For one thing, a rich literature has already developed around the concept of en-

vironmental restoration (or similar terminology). The Society for Ecological Restoration defines it as “the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed”.⁶⁹ The United Nations, when proclaiming 2021-2030 as the Decade on Ecosystem Restoration, used the term to mean “the process of halting and reversing degradation, resulting in improved ecosystem services and recovered biodiversity”.⁷⁰ Robert Keiter goes further in his definition, not limiting “restoration” to recovery or reversing degradation; instead, Keiter believes ecological restoration should return an indigenous ecosystem to a close approximation of its condition prior to disturbance and seek to repair its structure, function, and integrity.⁷¹

Some perspectives on “ecological restoration” integrate the concept of “resilience”. Indeed, a vast array of “resilience” literature has demonstrated that as a matter of science, we live in an ecologically changing world that requires constant modifications in the behaviour of species and their habitats.⁷² Then again, some observers push beyond resilience as a norm governing the operation of the ecosphere and emphasise an even less stable, less predictable set of factors and outcomes that keep the world’s natural systems ricocheting from one reality to another; in such a setting, “adaptive capacity” supplants “resilience” as the most crucial feature of a species or a system.

These rejections of a steady-state or equilibrium model of the natural world have triggered, in part, my use of the term “process-relational restoration”. As noted above in section 3, process-relational philosophy urges that reality comprises momentary events of inter-related experience rather than enduring material substances (things) – or, expressed differently, that “the language of devel-

⁶⁴ See, e.g., Thomas Berry, *Evening Thoughts: Reflecting on Earth as a Sacred Community* (Sierra Club Books 2006) (discussing his “Earth jurisprudence” philosophy of law and human governance); Vandana Shiva, *Earth Democracy: Justice, Sustainability, and Peace* (South End Press 2015); Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice* (Chelsea Green Publishing 2003) (proposing the recognition of natural communities and ecosystems as legal persons with legal rights).

⁶⁵ See text at notes 26-28.

⁶⁶ See New Zealand’s Whanganui River Deed of Settlement treaty (2017). Other river-system rights-of-nature developments are documented in the 2020 report ‘Rights of Rivers: A Global Survey of the Rapidly Developing Rights of Nature Jurisprudence Pertaining to Rivers’ <<https://www.internationalrivers.org/wp-content/uploads/sites/86/2020/10/DIGITAL-Right-of-Rivers-Report-Exec-Summary-English-optimized.pdf>>.

⁶⁷ See Constitution of Ecuador, Chapter 7.

⁶⁸ See *T N Godavarma Thirumulpad v Union of India* (2012) 2 SCC 267. See also *Animal Welfare Board of India v Nagaraja*, *Supreme Court of India* (2014) 7 SCC 547 (holding that the right to dignity and fair treatment as enshrined in Article 21 of India’s Constitution is not confined to human beings but extends to animals as well); *D G Khan Cement Company v Government of Punjab*, *Supreme Court of Pakistan* (2021) C.P.1290-L/2019 (asserting that ‘the law treats environmental objects as holders of legal rights’). For a synopsis of several such cases, see Tiffany Challe, ‘The Rights of Nature – Can an Ecosystem Bear Legal Rights?’ (*Columbia Climate School*, 22 April 2021) <<https://news.climate.columbia.edu/2021/04/22/rights-of-nature-lawsuits/>>.

⁶⁹ G D Gann and others, ‘International Principles and Standards for the Practice of Ecological Restoration’ (Society for Ecological Restoration 2019) 15.

⁷⁰ UNEP and Food & Agriculture Organization, ‘Becoming # Generation Restoration: Ecosystem Restoration for People, Nature and Climate’ (2021) 7.

⁷¹ Robert B Keiter, ‘Ecological Restoration and the Public Lands: Toward a More Natural Order’ (2003) 33 *Environmental Law Reporter* 0445-10446.

⁷² For a succinct account of the various attributes of resilience, see Jan Cassin & John H Matthews, ‘Nature-based Solutions, Water Security, and Climate Change: Issues and Opportunities’ in *Jan Cassin, John H Matthews and Elena Lopez Gunn (eds), Nature-Based Solutions and Water Security: An Action Agenda for the 21st Century* (Elsevier 2021) 63.

opment and change are more appropriate descriptors of reality than the language of static being”.⁷³ The scientific and philosophical literature supporting this view runs deep, going back to Heraclitus, who is famous for the aphorism that one can never step in the same river twice,⁷⁴ as well as to Taoist and Buddhist doctrines.⁷⁵

Process-relational philosophy developed most richly, though, in the 20th century with Alfred North Whitehead (1861-1947), Charles Hartshorne (1897-2000), and others who posit “that actuality is not made up of inert substances that are extended in space and time” but instead “is made up of atomic or momentary events [that]... occur very briefly”, so that “[t]he enduring objects one perceives with the senses (for example, rocks, trees, persons, etc.) are [in fact] ... strings of momentary actual occasions, each flowing into the next and giving the illusion of an object that is continuously extended in time, much like the rapid succession of individual frames in a film that appear as a continuous picture”.⁷⁶

Some readers of these accounts of process-relational philosophy might respond, “well, of course I know that the world is not *static*; things are always interacting, and their relationships with each other are extremely complex”. However, process-relational philosophy urges more - specifically, a realisation that speaking of the world as a *thing* that is itself populated by *things* can be profoundly misleading: convenient as it may be on a day-to-day basis to simplify complexity in this way (the world as a thing composed of things), a radically different conceptualisation in which there are only processes and relationships will serve us better in understanding reality. Viewed in an “environmental-protection” context, this requires us to acknowledge that the natural systems in which all species exist are unimaginably complex, transitive, and flowing.

Why does this conceptual point *matter* - that is, why might a reconceptualisation focusing on “process-relational restoration” change the current direction of global ecological governance? Be-

cause a proper recognition of the profound complexity that a process-relational viewpoint reveals would prompt us as a species to see that *restoration* can in many cases come only through *withdrawal* from the very ecosystems we have so degraded and endangered. Expressed differently: the mark that humans have left on the living world can usefully be characterised as a profound interference with the *natural* processes and the *natural* relationships that developed over the millennia before our species came to dominate all others. This human interference has ushered us to a moment of existentially dangerous stress on the processes and relationships that have nurtured the emergence and proliferation of life on Earth. In many cases, this existentially dangerous stress can be relieved only by human action akin to that proposed in Montreal at the December 2022 meetings aimed at strengthening the Convention on Biological Diversity (CBD). Central to the agreements reached at those meetings is a “30x30” approach by which 30 percent of land and sea territories on Earth would be placed under protection by 2030.⁷⁷

Such an approach is not novel; as I noted above in section 2, E. O. Wilson calls in his *Half-Earth* for a reversion of vast segments of the world to non-humans, and many initiatives in this direction have emerged at a smaller scale worldwide. These initiatives include proposals for “rewilding”, especially in sites scarred by human misuse and a takeover by invasive species.⁷⁸

To some extent, the 2022 Montreal proposals and the attention that “rewilding” gives to the intricacies of specific ecosystems resemble the initiatives I explain below in section 5 of this essay regarding “biome-based governance”. Before turning to that, however, I wish to address briefly a challenge issued by Kotzé and Kim in their 2020 article summarising “earth system law”,⁷⁹ which is part of the larger “earth system governance” project.⁸⁰

⁷³ Hustwit (n 58) introductory paragraphs.

⁷⁴ Mesle (n 58) 8 notes that Heraclitus’ student Cratylus asserted that ‘you can’t step into the same river once’, because ‘[t]he river changes even as we step into it, and so do we’ (emphasis added).

⁷⁵ Hustwit (n 58) introductory paragraphs.

⁷⁶ *ibid.*

⁷⁷ See Catrin Einhorn, ‘Nations Approve U.N. Pact Aiming to Protect Nature’ *New York Times* (30 December 2022) A10.

⁷⁸ See Dorothy Wickenden, ‘Second Nature: How Rewilders in India are Working to Reverse Environmental Destruction’ *The New Yorker* (19 December 2022) 40.

⁷⁹ See Kotzé and Kim 2020 (n 35) 457.

⁸⁰ For details on the ‘earth system governance’ project, see <https://www.earthssystemgovernance.org/>.

In that 2020 article, Kotzé and Kim take positions similar to those I have expressed in this essay. In writing why they “believe international environmental law has reached the end of its shelf life”, Kotzé and Kim propose an “earth system law” that can better provide the “analytical, normative and transformative” framework for the future. They posit that international environmental law has not “managed to contribute to maintaining and/or improving planetary integrity and socio-ecological justice [over] the past 50 years” because (i) it relies too much on official state action (and authority), (ii) its substantive norms “merely scratch the surface by facilitating “prevention” and “precaution” [without addressing] ... the scale, depth and nature of the challenge they seek to tackle, namely *Earth system destruction*”, and (iii) it is too timid to facilitate “a deep transformation” that is needed “to halt the growing human encroachment on the biogeophysical limits of the Earth system”.⁸¹

With all these assessments, I largely agree. However, I wince on reading, in the 2020 article by Kotzé and Kim, that “earth system law cannot have either humanity or nature as a central reference point”.⁸² To my mind, the central reference point to earth system law (or whatever the necessary new legal regime might be called) *must* be nature and not humanity. I hasten to add, though, that the burden of creating the new legal regime must rest on humans in the Global North in general, and specifically on those persons whom Kotzé and Kim refer to as the “privileged few” humans who have up to now been able to “selectively advance their own entrenched short-term interests through predatory, exploitative politics, policies and laws”.⁸³ By means of reparations, or by rationing, or by taxation, or by dispossession and relinquishment of property rights, or by litigation – through whatever lawful means may be necessary, those persons or groups most responsible for the degradation must carry the responsibility of restoration.

⁸¹ Kotzé and Kim 2020 (n 35) 459-62.

⁸² *ibid* 465.

⁸³ *ibid* 459.

Biome-Based Ecological Governance: Reconfiguring Sovereignty for Natural-Systems Protection

Another theme that the LEAD Journal editors have drawn special attention to is this: “Critical reflections on evolving environmental governance and institutional developments”.⁸⁴ In this respect, I will posit (i) that environmental governance at the global level is evolving too slowly and in the wrong directions; and (ii) that the “institutional developments” we need for addressing today’s confluence of crises include a reconfiguration of the concept of sovereignty and those entities that exercise it – beyond nation-states to something we might call “eco-states”, with territorial authority based on ecological factors and with subject-matter authority encompassing all matters involving ecological restoration.

Let me “unpack” that omnibus statement with several explanatory points. In doing so, I will clarify why I use the phrase “biome-based ecological governance” as the heading for this part of my essay.

First: the form of environmental governance that has evolved in the 50 years following Stockholm is spotty, disjointed, and weak. It comprises a scattering of subject-matter-specific treaties and institutions without attempting a comprehensive fabric of protection for natural systems. It lacks coordination, especially insofar as environmental protection remains almost entirely within the jurisdiction of individual states, with only the loosest façade of global cohesion.

The UNEP *might* have served a cohesive function by which global environmental issues would gradually shift outside the parameters of state sovereignty and lodge with an international institution. Indeed, the second portion of Principle 21 in the Stockholm Declaration could have prompted this:

⁸⁴ LEAD Journal (n 1).

*States have the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.*⁸⁵

This Principle 21 language, which was then repeated almost verbatim in Principle 2 of the Rio Declaration 20 years later,⁸⁶ could have served as grounds for authorising the UNEP to spearhead a robust “internationalisation” of environmental policy, especially as the long-term effects of states’ actions (in pursuit of “their own environmental policies”) increasingly came to be seen as transboundary in character. This did not happen. Although the UNEP has built a remarkable record of accomplishments in many specific areas of concern, its overall powers fall short of its ambitions and the world’s needs.

To be more specific, here are some representative recent criticisms of the UNEP, mostly revolving around the constraints it faces in the authority granted to it by its members:

- While countries do capture and report data to the UN, there are no adequate accountability mechanisms.⁸⁷
- UN member states, if their internal politics dictate, can intentionally withhold from the UNEP the status, mandates, money, and personnel it needs to effectively carry out its mission.⁸⁸
- The UNEP has created or administered a patchwork of agencies and institutions – for example, separate conventions on wetlands, migratory species, and biodiversity – that, although well-intentioned, can create bureau-

cratic barriers to projects that are inherently ecologically interconnected.⁸⁹

That said, the UNEP has delivered many significant achievements that are nearly impossible to envision occurring in its absence. For example:

- In conjunction with the World Meteorological Organization, the UNEP founded the Intergovernmental Panel on Climate Change (IPCC).⁹⁰
- As an implementing agency, the UNEP has provided financial and technical assistance to developing country parties to the Montreal Protocol, widely considered to be one most successful environmental treaties in history.⁹¹
- The UNEP has facilitated “COP” (Conference of Parties) meetings on climate and biodiversity, taking active roles most recently in the Egypt and Montreal conferences discussed below.⁹²
- The UNEP coordinates the Global Mercury Project, a multi-sectoral and multi-stakeholder network that focuses on immediate actions to reduce the harmful effects of mercury pollution.⁹³
- The UNEP helped establish the International Methane Emissions Observatory to monitor methane outputs worldwide and catalyse dramatic reduction of methane emissions, in hopes of meeting the Paris Accord’s goal of limiting climate warming to less than 1.5 degrees Celsius.⁹⁴
- Through sponsorship of a renewable energy loan financing program in India, the UNEP helped more than 100,000 people in 18,000

⁸⁵ Stockholm Declaration (n 3) Principle 21 (emphasis added).

⁸⁶ Rio Declaration on Environment and Development, 14 June 1992, UN Doc A/CONF.151/26/Rev. 1 (Vol. I), Annex II (1992), principle 2.

⁸⁷ ‘The UN Environment Programme Needs New Powers’ (editorial), *Nature* (2 March 2021) <<https://www.nature.com/articles/d41586-021-00528-8>>.

⁸⁸ Helmut Volger, ‘The UN Environment Program, Influential but Lacking Power’ (*PassBlue*, 5 February 2015) <<https://www.passblue.com/2015/02/05/the-un-environment-program-influential-but-lacking-power/>>.

⁸⁹ Maria Ivanova, ‘At 50, the UN Environment Programme Must Lead Again’ *Nature* (16 February 2021) <<https://www.nature.com/articles/d41586-021-00393-5>>.

⁹⁰ International Panel on Climate Change, ‘History of the IPCC’ <<https://www.ipcc.ch/about/history/>>.

⁹¹ UN Environmental Programme, ‘About Montreal Protocol’ <<https://www.unep.org/ozonaction/who-we-are/about-montreal-protocol>>.

⁹² Details of these conferences are provided below; see text at notes 100-103.

⁹³ UNEP Mercury Factsheet <https://wedocs.unep.org/bitstream/handle/20.500.11822/29451/CHB_HgFactsheet.pdf?sequence=1&isAllowed=y>.

⁹⁴ UNEP, ‘Facts about Methane’ <<https://www.unep.org/explore-topics/energy/facts-about-methane/>>.

households install and use solar electric home power systems – and now similar programs are in place for Morocco, Tunisia, Algeria, Indonesia, Mexico, and Chile.⁹⁵

- The UNEP led the restoration of the Iraqi marshlands – one of the world’s largest wetland ecosystems – which had been almost completely destroyed during the decades from the 1970s through the early 2000s.⁹⁶

To generalise: the UNEP has built an excellent record where its authorities extend and its member states permit. It has taken initiatives to monitor the state of the environment, to provide an empirical basis for political initiatives, to promote scientific research, to facilitate efforts for climate mitigation and ecosystems restoration, and much more. Still, external factors hobble the agency. It lacks the means to meet the expanding challenge of international environmental management.

I made similar observations in 1978, shortly after the UNEP was created. As a law student watching the early development of international environmental law, I “analyze[d] the design of UNEP and its accomplishments since its inception” and then “compare[d] the Programme’s performance with that of a model international institution for environmental management”, based on recommendations of several international legal scholars.⁹⁷ My 1978 article drew attention to the difficulties confronting the UNEP from its creation: “A general lack of confidence in the effectiveness of the United Nations, a heavy majority of developing nations more interested in exploitation than preservation, a concern for protecting sovereign jurisdiction, and the dependence of the United Nations Environment Fund on voluntary contributions”.⁹⁸ I concluded my 1978 assessment with this warning:

[Unless the UNEP is strengthened substantially,] progress toward global environmental management will remain slow and sketchy, retaining the piecemeal, nationalistic orientation which has characterized it in the past. ... [If the interests of environmental protection are] to survive in the face of the great human demands of the next several decades, a new regime must be carefully but quickly developed. UNEP has laid the foundation for that new regime and must now build and fortify it.⁹⁹

Now, nearly a half-century later, I would draw the same conclusion. Today our global ecological dangers are so urgent that the UNEP in its current formulation is inadequate. It is too late to continue allowing the development of environmental law and policy to remain predominantly state-centric in character. Indeed, state-centricity underlies many of the criticisms not only of the UNEP itself but also of many other international environmental-protection initiatives. Some of these initiatives have made headlines recently: late 2022 saw both (i) the COP27 climate talks in Egypt settle on important “loss and damage” agreements¹⁰⁰ along with other agreements lauded by the “UN Climate Change High-Level Champions”,¹⁰¹ and (ii) the biodiversity negotiations held in Montreal settling on a proposed “30x30” approach for strengthening the CBD (as referred to above in section 4).¹⁰² Although these and similar international negotiations do signal progress, they have also attracted strong criticism¹⁰³ – much of which can, in my view, be attributed to the state-centricity of the negotiations.

This leads me to a final observation about “biome-based ecological governance” (the heading I have given to this part 5 of my essay): In my view, the institutional developments we need to nurture for facing today’s confluence of crises include a reconfiguration of the concept of sovereignty and those entities that exercise it. I have ex-

⁹⁵ ‘UNEP’s India Solar Loan Programme Wins Prestigious Energy Globe’ (UNEP, 12 April 2007), <<https://web.archive.loc.gov/all/20070417093420/http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=504&ArticleID=5562&l=en>>.

⁹⁶ UNEP, ‘Back to Life: Environmental Management of the Iraqi Marshland’ (2005) <<https://wedocs.unep.org/bitstream/handle/20.500.11822/9253/-Back%20to%20life.%20environmental%20management%20of%20the%20Iraqi%20marshlands-2005BacktoLife-English.pdf?>>.

⁹⁷ Head-1978 (n 5) 270.

⁹⁸ *ibid* 272.

⁹⁹ *ibid* 288.

¹⁰⁰ See generally the reports of COP27 at <<https://unfccc.int/cop27>> referring to these agreements as a ‘breakthrough’.

¹⁰¹ See the analysis by those ‘champions’ at <<https://climatechampions.unfccc.int/contribution-of-the-all-of-society-global-climate-action-agenda-at-cop27/>>.

¹⁰² See text at note 77.

plained in a different context¹⁰⁴ the anachronistic character of “monolithic sovereignty” that still dominates international affairs several centuries after Thomas Hobbes first described it in his book *Leviathan*.¹⁰⁵ This concept of sovereignty both reflected and promoted the rise of the nation-state as the fundamental political unit in Europe of the 17th century. Today, this concept impedes good policy, especially environmental policy.

I am well aware that the nation-state has many cheerleaders. For instance, a recent *Wall Street Journal* column called the nation-state “a critical achievement of modern civilisation” that “has proved the most productive, beneficial form of human politics yet devised”.¹⁰⁶ I view the nation-state, though, as obsolete in at least one crucial way: it has proven wholly unsuited to protecting the Earth’s natural systems. I urge creating a better institutional and conceptual structure designed specifically for doing so, by assigning primary responsibility for managing the restoration of natural systems to quasi-sovereign operational entities organised territorially by biomes, and not by the vagaries of history, politics, military conquest, or other *human* criteria. After all, those natural systems – comprising as they do a magnificent array of species and processes and relationships – *do* have rights that are not just national in origin, not just human in character,

but rather are deserving of respect and nurturing through effective means.

With these thoughts in mind, I have proposed that although human affairs *inter se* – within our own species, human to human – might appropriately be managed within the context of nation-states as we have come to know them, a *different* form of organisation and a different category of entities should be developed to govern legal matters involving other species and the systems and habitats that they both require and create.

I refer to these other entities as “ecological states” or “eco-states” in order to distinguish them from “nation-states”, for which I sometimes use the term “anthro-states”. In a nutshell, the proposal that I elaborate in detail elsewhere¹⁰⁷ calls for the use of ecological factors such as climate, soil type, landcover, and other biogeophysical features in drawing territorial boundaries that would apply to the various legal entities that would exercise sovereign authority – in parallel with existing “anthro-states” – for purposes of global environmental governance. If “biomes” of the sort described in the extensive Terrestrial Ecoregions of the World project¹⁰⁸ were used to draw those territorial boundaries, there would be 14 of these terrestrial “eco-states”.¹⁰⁹ In my proposal, it is those entities, and the professional international civil servants working in them with deep scientific understanding of natural systems, that would form the front line of action in pursuit of global ecological restoration.

To coordinate the efforts and activities of these novel international legal entities, a new global institution would be created. I also have described this elsewhere,¹¹⁰ and for present purposes I will emphasise only two features it would have. First, this new international institution would have structure-and-control designs that

¹⁰³ For critical reactions to the COP27 outcomes in Egypt, see Aidan Lewis, Sarah McFarlane and Valerie Volcovici, ‘COP27 Climate Summit Missed Chance for Ambition on Fossil Fuels, Critics Say’ *Reuters* (28 November 2022) <<https://news.yahoo.com/cop27-climate-summit-missed-chance-061233157.html>>. See also Bill McKibben, ‘How to Pay for Climate Justice when Polluters Have all the Money’ *The New Yorker* (19 November 2022) <<https://www.newyorker.com/news/daily-comment/how-to-pay-for-climate-justice-when-polluters-have-all-the-money>> and ‘Should Rich Countries Pay for Climate Damage in Poor Ones?’ *The Economist* (24 November 2022). For critical reactions to the CBD negotiations in Montreal, see Phoebe Weston, ‘Cop15 in Montreal: Did the Summit Deliver for the Natural World?’ *The Guardian* (20 December 2022) <<https://www.theguardian.com/environment/2022/dec/20/cop15-montreal-did-it-deliver-for-natural-world-aoc>>. See also David Wallace-Wells, ‘Has Climate Change Blinded Us to the Biodiversity Crisis?’ *The New York Times* (21 December 2022).

¹⁰⁴ See John W Head, ‘Addressing Global Challenges through Pluralistic Sovereignty: A Critique of State Sovereignty as a Centerpiece of International Law’ (2019) 67 *University of Kansas Law Review* 727. See also Head, ‘Agroecological Husbandry (n 36) 354-73; Head (n 45) 234-45.

¹⁰⁵ Thomas Hobbes, *Leviathan*, Part II, Chap. xvii (R.A. Waller ed., Cambridge University Press 1904, 1651). Hobbes did not use the term ‘monolithic sovereignty’. I have used it in several of my own writings on sovereignty. See (n 104).

¹⁰⁶ Christopher DeMuth, ‘Long Live Ukraine, Taiwan and the Nation-State’ *The Wall Street Journal* (4 February 2022) <<https://www.wsj.com/articles/long-live-ukraine-taiwan-nation-state-empire-invasion-china-russia-imperialism-putin-xi-globalism-human-rights-democracy-11643992601>>.

¹⁰⁷ See Head (n 45) 156-95; Head (n 36) 373-380; John W Head, *Deep Agroecology and the Homeric Epics: Global Cultural Reforms for a Natural-Systems Agriculture* (Routledge 2021) 84-98.

¹⁰⁸ This project, starting in the late 1990s, has created a ‘map of the world’s ecoregions’. David M Olson and others, ‘Terrestrial Ecoregions of the World: A New Map of Life on Earth’ (2001) 51(11) *Bioscience* 933.

¹⁰⁹ The territorial boundaries of these eco-states would shift with climate change, but something similar occurs with the boundaries of anthro-states; they change frequently, sometimes abruptly, through the victories or vagaries of power.

¹¹⁰ See generally Head (n 45) especially Chapter 6.

would differ dramatically from existing organisations, such as the International Monetary Fund and the World Bank, that have proven so incapable of addressing inequities coming from the colonisation-decolonisation tsunami I mentioned earlier.

Moreover, this new international institution, standing at the centre of the regime of global ecological governance, would coordinate both (i) the functions of other more subject-matter-specific institutions (those focusing on climate change, on biodiversity, etc.) and (ii) the operations of the “eco-states” described above. An overriding cluster of responsibilities shouldered by the coordinating institution, in the nature of a fiduciary duty, would be to ensure equitable economic treatment of the Global South, adherence to human rights both of individuals and of peoples (especially indigenous peoples and marginalised communities), and participatory democracy involving non-state actors ... all within the ultimate mandate to place global ecological restoration at the very top of its list of priorities.

faults and gaps, and my scholarship on these issues continues. I call on my colleagues everywhere to improve on my proposals ... and to make them more ambitious.

Closing Observations

My “reflections” on the Stockholm Conference might appear overly ambitious and politically unachievable. I see them differently. If anything, the observations and proposals I have summarised above are probably too timid. Given the “confluence of crises” that we as a species face today – and which we surely are responsible not only for *creating* but also for *addressing* – I see our lack of progress since 1972 as deeply troubling, and I consider the need for immediate action to be extremely daunting. Many participants in the June 2022 “Stockholm + 50 International Meeting” sounded similar alarms, and I take heart at the intensity of the discussions undertaken there.¹¹¹ Still, I worry that those discussions, like other initiatives and efforts I have summarized in this essay, lack the full measure of ambition we need if we are to meet our challenges in the short time that remains. It is with this worry that I have offered here a suite of proposals that call for profound legal, conceptual, and institutional reform. My proposals are surely riddled with

¹¹¹ See <<https://www.stockholm50.global/>>.

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