INTERNATIONAL LAW AND SPECIES DIVERSITY: AN IMMODEST PROPOSAL FOR IMPLEMENTING A PROGRESSIVE 30x30 NATURAL RESTORATION INITIATIVE IN THE GREAT NORTH AMERICAN PRAIRIES

*By: John W. Head**

ABSTRACT

The late-2022 global "30x30" agreements relating to the Biodiversity Convention call for 30% of the Earth's landscapes to be placed in environmentally protected status by the year 2030. These agreements build on similar suggestions also aimed at protecting and restoring natural habitat, including E. O. Wilson's "Half-Earth" suggestion. So far, the implementation of such agreements and suggestions has not occurred to any significant degree, perhaps because they are not widely enough understood as requiring drastic legal and policy reforms. Using Jonathan Swift's satirical eighteenth-century "modest proposal" as a rhetorical and conceptual springboard might foster such an understanding. Swift criticized English inaction toward Irish starvation by describing the problem vividly and then making a ghastly and unrealistic proposal to address it. By contrast, I suggest ways around political inaction on the biodiversity crisis by describing the magnitude of that crisis and then making radical but realistic legal and policy proposals for implementing a progressive plan for restoring the Earth's ecosystems. The plan involves a version of the "30x30" approach but then goes beyond that to set a "Two-Thirds-Earth" goal. I give special attention in this essay to a framework of legal and policy reforms that could be implemented at the binational level in the temperate grasslands ecoregions lying in Canada and the USA.

TABLE OF CONTENTS

I. INTRODUCTION – JONATHAN SWIFT'S MODEST PROPOSAL

In 1729, Jonathan Swift published (anonymously) a satirical essay that became, along with his book *Gulliver's Travels*, one of his most famous works. The essay carried the title *A Modest Proposal For preventing the Children of Poor People From being a Burthen to Their Parents or Country, and For Making Them Beneficial to the Publick*.[1] The essay suggests that poverty-oppressed people of Ireland might rise out of that poverty by selling their children as food to rich gentlemen and ladies. Swift notes, in arresting detail, various ways in which the Irish children could be used in making meals: "A young healthy child well nursed, is, at a year old, a most delicious nourishing

---

* John Head is the Robert W. Wagstaff Distinguished Professor of Law at the University of Kansas and has written widely on issues of international and comparative law, agricultural reform, and environmental protection. Extensive assistance in preparing this essay was provided by Emma Dipoto, by Emma Kurczek, and by Danny Volin, all of whom are J.D. students at the University of Kansas School of Law. Valuable comments on earlier drafts of this essay came from Margy Stewart of Bird Runner Wildlife Refuge and from several colleagues at the University of Kansas.

[1] Jonathan Swift, A MODEST PROPOSAL FOR PREVENTING THE CHILDREN OF POOR PEOPLE FROM BEING A BURTHEN TO THEIR PARENTS OR COUNTRY, AND FOR MAKING THEM BENEFICIAL TO THE PUBLICK (Start Classics, 2013) (1729).

and wholesome food, whether stewed, roasted, baked, or boiled; and I make no doubt that it will equally serve in a fricassee, or a ragout."[2]

Notwithstanding the title of Swift's essay, his proposal was of course anything but *modest*. By providing detailed calculations of the financial benefits that could be derived from selling Irish children for food, Swift was mocking and chastising the unwillingness of persons in authority—especially those responsible for British policy toward the Irish—to grapple effectively with a crisis.

In this essay, I offer my own *immodest* proposal. Like Swift's aim in his essay, my aim here is (in part) to mock and chastise the unwillingness of persons in authority—especially those at the international level and those in North America—to grapple effectively with a crisis. The crisis relates generally to the decline and threatened collapse of global biodiversity. The aspect of that crisis that I draw special attention to in section V is the accelerating pace of habitat destruction and species extinctions now occurring in the Great North American Prairies.

Before turning to that account, though, I report on several initiatives to preserve biodiversity worldwide. An important legal initiative at the global level emerged from Montreal in late 2022, when countries participating in the "Conference of Parties" to the 1992 Convention on Biological Diversity (the "Biodiversity Convention") adopted a "30x30" commitment: They pledged that by the year 2030 they would place at least 30 percent of the world's surface under some form of environmental protection—or, to use the formulation set forth in those negotiations, under "ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures."[3]

My overall question: Can the 2022 30x30 commitment breathe new life into the 1992 Biodiversity Convention? My more pointed question: In the context of the Great North American Prairies, can the 30x30 commitment, read in conjunction with other proposals that have emerged over the years, save this ecologically endangered portion of our continent?

I explain in section II the 30x30 commitment itself, and I describe in sections III and IV some other similar proposals for the restoration of natural landscapes to improve biodiversity. One of those proposals comes from the late E. O. Wilson in his book *Half-Earth*; another comes from Frank and Deborah

---

[2] *Id.*

[3] *See* Press Release, U.N. Convention on Biological Diversity, Nations Adopt Four Goals, 23 Targets for 2030 in Landmark UN Biodiversity Agreement, U.N. Press Release (Dec. 19, 2022), https://www.un.org/sustainabledevelopment/blog/2022/12/press-release-nations-adopt-four-goals-23-targets-for-2030-in-landmark-un-biodiversity-agreement/ [https://perma.cc/C6NB-BJBP] [hereinafter Montreal 2022 Press Release].

Popper, who proposed several decades ago the creation in the American Great Plains of a "Buffalo Commons."

After grappling with those issues, I present in section VI my *immodest* proposal for implementing what I call a "Great North American Prairies Restoration Initiative." Unlike Jonathan Swift's 1729 proposal for handling the crisis of poverty in Ireland, my proposal is one that I believe *could* be implemented without sinking into moral depravity. It is, though, a radical proposal because it involves a suite of far-reaching legal and policy reforms that—unlike the 30x30 pledges—might actually address the biodiversity crisis effectively.

II. 30X30 – BRINGING THE BIODIVERSITY CONVENTION TO (A NEW) LIFE

This section describes the global treaty setting in which the 30x30 proposal has been made. In a nutshell, here are its main points: (a) the Biodiversity Convention from roughly three decades ago acknowledged the responsibility our species has toward other species and processes that make ours a living planet, but the Biodiversity Convention has not prevented disastrous biodiversity and habitat losses; (b) the global 30x30 pledge that emerged in late 2022 attempts to breathe new life into the Biodiversity Convention's efforts toward habitat and species protection; and (c) starting in 2021, the Biden Administration has taken executive action to press for a 30x30 initiative in the USA, which is not a party to the Biodiversity Convention.

A. The Biodiversity Convention and its setting

Just over a half-century ago, the 1972 Stockholm Conference on the Human Environment ended with two key results: the Stockholm Declaration and a new entity called the United Nations Environment Programme ("UNEP"). I wrote an article in 1979—my first law-journal article, while still a student—about the Stockholm Conference[4]; in 2023 I wrote a 50-year retrospective on the Stockholm Conference.[5]

The 1972 Stockholm Conference had an echo 20 years later. The 1992 Rio Conference on Development and the Environment expanded on the agreements and programs emerging from the Stockholm Conference. The work-product of the 1992 Rio Conference included the Rio Declaration[6] and two key treaties. One was the UN Framework Convention on Climate Change ("UNFCCC")[7], which has served as the foundation for many further agreements and

---

[4] John W. Head, *The Challenge of International Environmental Management: A Critique of the United Nations Environment Programme*, 18 VA. J. INT'L L. 269 (1978).

[5] John W. Head, *Planetary Health in Times of Converging Crises: Reflections on Stockholm, Decolonization, Restoration, and Global Ecological Governance*, 19 L., ENV'T, AND DEV. J. 284 (2023), https://lead-journal.org/content/a1905.pdf [https://perma.cc/D6PN-KUYN].

[6] U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I) (Aug. 12, 1992).

[7] U.N. Framework Convention on Climate Change, *adopted* May 9, 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107.

conferences, including the 2015 Paris climate accords.[8] The other was the Biodiversity Convention, also known as the CBD.[9]

The Biodiversity Convention has been ratified by 196 nations, including all UN member states except for the USA.[10] According to the United Nations, the convention seeks to conserve "biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic sources."[11] The conservation called for in the Convention applies to all levels: the ecosystem level, the species level, and the genetic level.[12]

B. The 30x30 commitment emerging from COP15

Efforts at following through on the original 1992 Biodiversity Convention largely take the form of meetings of the "Conference of Parties" ("COP") established under the treaty itself.[13] The COP15 meeting, originally slated to take place in China, took place in Montreal in late 2022. Its major work-product was the Kunming-Montreal Global Biodiversity Framework ("GBF").[14]

As explained by the UNEP, "[t]he GBF aims to address biodiversity loss, restore ecosystems and protect indigenous rights. The plan includes concrete measures to halt and reverse nature loss, including putting 30 percent of the planet and 30 percent of degraded ecosystems under protection by 2030. It also contains proposals to increase finance to developing countries—a major sticking point during talks."[15] The GBF warns that "without such action, there will be a further acceleration in the global rate of species extinction, which is already at

---

[8] Paris Agreement to the U.N. Framework Convention on Climate Change, Apr. 22, 2016, T.I.A.S. No. 16-1104, 3156 U.N.T.S. 79.

[9] The Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79, 143, 31 I.L.M. 818 [hereinafter Biodiversity Convention or CBD].

[10] Convention on Biological Diversity, *List of Parties*, https://www.cbd.int/information/parties.shtml [https://perma.cc/FW3V-KX5F].

[11] *Convention on Biological Diversity, Key International Instrument for Sustainable Development*, U.N. (May 22, 2023), https://www.un.org/en/observances/biological-diversity-day/convention#:~:ext=The%20Convention%20on%20Biological%20Diversity,been%20ratified%20by%20196%20nations [https://perma.cc/6W7S-ABMH].

[12] *Id.*

[13] *See* Biodiversity Convention, *supra* note 9. Article 23 establishes the COP.

[14] Press Release, Convention on Biological Diversity, Final Text of Kunming-Montreal Global Biodiversity Framework, CBD/COP/15/L25, https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222 [https://perma.cc/M5HL-ADMH] [hereinafter GBF Text]; *see also* Aruna Chandrasekhar, Daisy Dunne, Orla Dwyer, Yanine Quiroz, & Giuliana Viglione, *COP15: Key Outcomes Agreed at the UN Biodiversity Conference in Montreal*, CARBON BRIEF (Dec. 20, 2022), https://www.carbonbrief.org/cop15-key-outcomes-agreed-at-the-un-biodiversity-conference-in-montreal/ [https://perma.cc/6J7A-RWQ8].

[15] *COP15 Ends with Landmark Biodiversity Agreement*, U.N. ENV'T PROGRAMME (Dec. 20, 2022), https://www.unep.org/news-and-stories/story/cop15-ends-landmark-biodiversity-agreement [https://perma.cc/X37J-72ZV].

least tens to hundreds of times higher than it has averaged over the past 10 million years."[16]

The specific commitments included in the late-2022 30x30 pledge warrant close attention. The countries taking the pledge asserted as a collective matter that they would:

> [e]nsure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine 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.[17]

This targeted 30x30 pledge was accompanied in the late-2022 Montreal agreements by some further commitments. For instance, the conference set out a specific action plan for mustering financial resources to implement the biodiversity strategies, such as "mobilizing at least 200 billion United States dollars per year" through private financing, invocation schemes, finance targeting, and market-based approaches.[18] Moreover, the conferees recognized the importance of using legal frameworks and reforms to accomplish their 30x30 aims. In this respect, "[i]t was agreed at COP15 that signatories will take legal, administrative or policy measures to encourage and enable large and transnational companies to report, monitor, and disclose their risks,

---

[16] Montreal 2022 Press Release, *supra* note 3.

[17] GBF Text, *supra* note 14 (emphasis added). The quoted material appears in "Target 3." The reference to "other effective area-based conservation measures" is a term appearing in the CBD and was defined in 2018 as measures within a "geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values." *See* Conference of the Parties to the Convention on Biological Diversity, *Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity*, U.N. Doc. CBD/COP/DEC/14/8, (Nov. 30, 2018), https://www.cbd.int/doc/decisions/cop-14/cop-14-dec-08-en.pdf [https://perma.cc/WF3M-4KEB].

[18] Montreal 2022 Press Release, *supra* note 3.

dependencies and impact on biodiversity"—and not merely in their operations but also in their "value chains and portfolios."[19]

Just following the late-2022 adoption of the 30x30 pledge in Montreal, a *New York Times* article summarized its aims and its significance:

> Roughly 190 countries early on Monday approved a sweeping United Nations agreement to protect 30 percent of the planet's land and oceans by 2030 and to take a slew of other measures against biodiversity loss, a mounting under-the-radar crisis that, if left unchecked, jeopardizes the planet's food and water supplies as well as the existence of untold species around the world. The agreement comes as biodiversity is declining worldwide at rates never seen before in human history. Researchers have projected that a million plants and animals are at risk of extinction, many within decades. The last extinction event of that magnitude was the one that killed off the dinosaurs 65 million years ago . . . . Overall, the deal lays out a suite of 23 environmental targets. The most prominent, known as 30x30, would place 30 percent of land and sea under protection. Currently, about 17 percent of the planet's land and roughly 8 percent of its oceans are protected, with restrictions on activities like fishing, farming and mining . . . . Now, the question is whether the deal's lofty targets will be realized.[20]

C. The USA and the 30x30 pledge

While the USA is not a party to the Biodiversity Convention,[21] the Biden administration started its own 30x30 initiative as part of efforts aimed at "Tackling the Climate Crisis at Home and Abroad." Specifically, Executive Order 14008 directed action to start toward "recommending steps that the United States should take, working with State, local, Tribal, and territorial governments, agricultural and forest landowners, fishermen, and other key stakeholders, to

---

[19] Rachel Richardson, *The 30x30 Commitment and COP 15*, LEXOLOGY (Jan. 16, 2023), https://www.lexology.com/library/detail.aspx?g=a8ad2f66-f73b-4723-b63e-d42544924941 [https://perma.cc/DQJ9-AUGN].

[20] Catrin Einhorn, *Nearly Every Country Signs On to a Sweeping Deal to Protect Nature*, N.Y. TIMES (Dec. 20, 2022), https://www.nytimes.com/2022/12/19/climate/biodiversity-cop15-montreal-30x30.html [https://perma.cc/R765-2LRH].

[21] *See id.* ("The United States is just one of two countries in the world that are not party to the Convention on Biological Diversity, largely because Republicans, who are typically opposed to joining treaties, have blocked United States membership. That means the American delegation was required to participate from the sidelines." (The only other country that has not joined the treaty is the Holy See)).

achieve the goal of conserving at least 30 percent of our lands and waters by 2030."[22]

Shortly thereafter, an "America the Beautiful" report emerged that broadly stated the goals of the Biden Administration's 30x30 conservation project.[23] By some accounts, though, that report purposefully declined to give specific details on how to actually achieve the overall 30x30 goals,[24] presumably in order to concentrate first on the task of gaining support for the goals themselves.[25]

How has the Biden Administration's 30x30 initiative progressed? I save that assessment for subsection VB below ("legal and policy efforts thus far in the USA and Canada"). However, a few other elements of the vision and realities that animate the US 30x30 initiative—as well as the global 30x30 efforts—do deserve attention first.

D. Overarching issues for 30x30

The US 30x30 initiative, like the global 30x30 pledge that emerged in late 2022, finds its source in earlier and broader calls to action. For instance, a 30x30 target was proposed in detail in a 2019 professional-journal article that highlighted the need for expanded nature conservation efforts and their relevance to climate change.[26] A lead author of that article was also a central

---

[22] *Executive Order on Tackling the Climate Crisis at Home and Abroad*, THE WHITE HOUSE (Jan. 27, 2021), https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/ [https://perma.cc/C8KM-D4VT]. The quoted passage appears in Sec. 216 of the executive order.

[23] NATIONAL CLIMATE TASK FORCE, CONSERVING AND RESTORING AMERICA THE BEAUTIFUL (2021), https://www.doi.gov/sites/doi.gov/files/report-conserving-and-restoring-america-the-beautiful-2021.pdf [https://perma.cc/K8F6-ZHP3] [hereinafter AMERICA THE BEAUTIFUL].

[24] Sarah Kaplan & Juliet Eilperin, *A Narrow Path for Biden's Ambitious Land Conservation Plan*, WASH. POST (May 6, 2021, 3:12 PM), https://www.washingtonpost.com/climate-environment/2021/05/06/biden-conservation-30x30/ [https://perma.cc/3WX9-YF3U] (noting that "the new report doesn't identify specific places for enhanced protection, define what level of conservation would be required for an area to count toward the administration's 30 percent goal or indicate how much federal funding would be needed to make Biden's vision a reality" and that "[t]his ambiguity is partly by design" because "it will take time to muster the kind of grass-roots support needed to achieve such a sweeping conservation goal").

[25] Some observers have noted that this task became more difficult with Republican control over the US Senate. Einhorn, *supra* note 20 (explaining in late 2022 that "any legislative efforts to support [the Biden administration's 30x30 goals] are expected to face strong opposition when Republicans take control of the House in January [2023]").

[26] Eric Dinerstein, Carly Vynne, Enric Sala, Anup Joshi, Sanjiv Fernando, Thomas Lovejoy, Juan Mayorga, David Olson, Gregory P. Asner, Jonathan Baillie, Neil D. Burgess, Karl Burkart, Ross F. Noss, Ya-Ping Zhang, Alessandro Baccini, Tanya Birch, Nathan Hahn, Lucas Joppa, & Eric Wikramanayake, *A Global Deal For Nature: Guiding Principles, Milestones, and Targets*, SCI. ADVANCES (Apr. 19, 2019), https://www.science.org/doi/10.1126/sciadv.aaw2869 [https://perma.cc/8C2V-F2XM] [hereinafter *Global Deal*] (noting that the Global Deal for Nature "targets 30% of Earth to be formally protected and an additional 20% designated as climate stabilization areas, by 2030" to meet climate goals set in Paris in 2015). The authors of that article acknowledged that other sources, including the International Union for the Conservation of Nature, have also highlighted the need for some form of "30x30" action. *Id*. in text accompanying note 40 of that article.

player in the "terrestrial ecoregions of the world" project, dating from nearly a quarter-century ago, to create "a new map of life on Earth,"[27] discussed further in subsection VA below. Unsurprisingly, the 2019 article includes maps depicting specific ecoregions requiring special protection efforts. The article also offers this disparaging description of a predecessor to the recent 30x30 initiatives—namely, the Biodiversity Convention's earlier "Aichi Targets," which set coverage targets for the year 2020 of 17% in the terrestrial realm and 10% in the marine realm: "[Those] . . . interim measures . . . are politically driven but not science based and are *widely viewed in the scientific literature as inadequate to avoid extinctions or halt the erosion of biodiversity*.[28]

The inadequacies referred to above reflect a terrible reality: biodiversity on Earth has plummeted recently on a worldwide basis.[29] Reports coming both from official government sources and from non-government organizations paint a somber picture. For instance:

- "The average abundance of native species in most major land-based habitats has fallen by at least 20% since 1900. More than 40% of amphibian species, almost 33% of reef-forming corals and more than a third of all marine mammals are threatened. At least 680 vertebrate species had been driven to extinction since the 16th century and more than 9% of all domesticated breeds of mammals used for food and agriculture had become extinct by 2016, with at least 1,000 more breeds still threatened."[30]
- "Monitored populations of vertebrates (mammals, birds, amphibians, reptiles, and fish) have seen a devastating 69% drop on average since 1970, according to the World Wildlife Fund's (WWF) *Living Planet Report 2022*. Populations in Latin America and the Caribbean have fared worse, with an average decline of 94%. Global

---

[27] David Olson, Eric Dinerstein, Eric Wikramanayake, Neil B Burgess, et al., *Terrestrial Ecoregions of the World: A New Map of Life on Earth*, 51 BIOSCIENCE 933–38 (Nov. 2001), https://www.researchgate.net/publication/216340317_Terrestrial_Ecoregions_of_the_World_A_New_Map_of_Life_on_Earth [https://perma.cc/5VHG-R9AD].

[28] *Global Deal*, *supra* note 26, at text accompanying note 20 (emphasis added).

[29] For details about declines in biodiversity in the region that this essay focuses on most directly—the Great North American Prairies—see *infra* subsection VA.

[30] *UN Report: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Acceleration'*, UNITED NATIONS (May 6, 2019), https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/ [https://perma.cc/D6QC-WMAJ].

> freshwater species have also been disproportionately impacted, declining 83% on average."[31]
>
> - "There has been a decline in abundance of about 500 amphibians species over the past half-century, including 90 presumed extinctions out of a total of about 6,600 known species . . . . The primary driver of this loss is amphibian chytridiomycosis panzootic, compounded by habitat loss and degradation, pollution, other invasive alien species and climate change."[32]
> - "Ten (of about 11,000 total) bird species and five (of about 5,600 total) mammal species are suspected of having gone extinct between 1993–2020."[33]
> - In her book *The Sixth Extinction*, author Elizabeth Kolbert warns that the "sixth extinction" is planet Earth itself. Kolbert states that human behavior is causing the extinction to accelerate at a fearsome pace. The behavior is attributed to fossil fuels, deforestation, and climate change which will in turn cause habitat loss, extinction, and endangerment.[34]

Another point regarding the background of both the global 30x30 pledge and the US 30x30 initiative also bears emphasis: indigenous rights and traditional knowledge receive special attention, at least rhetorically, in these efforts. The "America the Beautiful" report referred to above, for instance, offered these details about the need to honor tribal sovereignty and support the priorities of tribal nations:

> Tribal Nations have sovereign authority over their lands and waters, possess long-standing treaty hunting and fishing rights on and off reservations, and have many cultural, natural, and sacred sites on national public lands and the ocean. Efforts to conserve and restore America's lands and waters must involve

---

[31] *69% Average Decline in Wildlife Populations Since 1970, Says New WWF Report*, WORLD WILDLIFE FUND (Oct. 13, 2022), https://www.worldwildlife.org/press-releases/69-average-decline-in-wildlife-populations-since-1970-says-new-wwf-report [https://perma.cc/SMJ2-EARF].

[32] *See* Executive Secretary of the Secretariat of the Convention on Biological Diversity, *Expert Input to the Post-2020 Global Biodiversity Framework: Transformative Actions on All Drivers of Biodiversity Loss are Urgently Required to Achieve the Global Goals by 2050*, U.N. Doc. CBD/WG2020/3/INF/11 (Jan. 14, 2022), https://www.cbd.int/doc/c/5735/c241/efeeac8d7685af2f38d75e4e/sbstta-24-inf-31-en.pdf [https://perma.cc/4J86-F5B2].

[33] *Id.*

[34] ELIZABETH KOLBERT, THE SIXTH EXTINCTION: AN UNNATURAL HISTORY (2014). Kolbert highlights countless facets of the causes for such a sixth extinction. For instance, "the roster of perils includes, but is not limited to: overfishing, which promotes the growth of algae that compete with corals; agricultural runoff, which also encourages algae growth; deforestation, which leads to siltation and [much more]," *id.* at 141.

> regular, meaningful, and robust consultation with Tribal Nations. *These efforts must respect and honor Tribal sovereignty, treaty and subsistence rights*, and freedom of religious practices. Federal agencies should seek to support and help advance the priorities of American Indian, Alaska Native, Native Hawaiian, and Indigenous leaders, including those related to sustainable land management and the conservation of natural, cultural, and historical resources.[35]

In similar fashion, the 30x30 pledge emerging from the late-2022 COP15 negotiations also emphasized indigenous peoples. The word "indigenous" appears 11 times in the GBF document, most prominently in its recognition of "indigenous and traditional territories" and "the rights of indigenous peoples and local communities including over their traditional territories," and in its assertion that human use of wild species must be sustainable, while "protecting and encouraging customary sustainable use by indigenous peoples and local communities."[36]

In sum, the 30x30 initiatives summarized above—both at the international level (emerging from Montreal in late 2022) and within the USA—reflect the growing urgency of taking legal and policy action to address the biodiversity crisis. The scope and scale of that crisis can be seen in some of the facts noted above: the current rate of species extinction is ten to hundreds of times higher than it has averaged for the past 10 million years[37]; monitored populations of vertebrates have dropped 69% on average since 1970[38]; in just the 30 years since 1993, another ten bird species are suspected of having gone extinct.[39] Fortunately, at least some nod of acknowledgement has been made in the 30x30 initiatives toward the rights and roles of indigenous peoples.[40]

When we turn our attention to the Great North American Prairies, we will see the same urgency and the same need for attention to indigenous ways and wisdom. First, though, let us examine the larger context into which the 30x30 initiatives fit.

---

[35] AMERICA THE BEAUTIFUL, *supra* note 23, at 14 (emphasis added).
[36] GBF Text, *supra* note 14 (quoted material appears in "Target 3" and "Target 9"). Target 21 makes special reference to "traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities," *id.*
[37] *See supra* note 3 and accompanying text.
[38] *See supra* note 31 and accompanying text.
[39] *See supra* note 32 and accompanying text.
[40] *See supra* notes 17 and 35 and italicized passages in accompanying text.

III. *THE HALF-EARTH* PROJECT – E. O. WILSON'S LEGACY

The world-renowned entomologist Edward O. Wilson died in 2021 with an astonishing corpus of work. His books include *The Ants* (1990), *Consilience: The Unity of Knowledge* (1998), *The Social Conquest of Earth* (2012), *The Meaning of Human Existence* (2014), and most recently *Half-Earth: Our Planet's Fight for Life* (2016). The last of those books takes a global perspective on restoring biodiversity. In this section, I summarize Wilson's vision, as well as some criticisms and follow-on work to his Half-Earth proposals.

A. E. O. Wilson's Half-Earth vision

In *Half-Earth,* Wilson proposes that to protect a large proportion of the world's remaining biodiversity, one half of the Earth's surface must be set aside for conservation and away from human use.[41] Wilson gives two main reasons for urging protection of one half of the Earth, as opposed to a smaller, seemingly more feasible percentage such as that represented by the 30x30 initiative.[42] First, larger plots of land, or corridors connecting smaller plots of land, feature more ecosystems, and therefore more species, than small plots of land alone.[43] Wilson predicts that by conserving half the Earth, around 80% to 85% of the remaining species on Earth can be protected; if that half is specifically chosen to cover biodiversity hot-spots (areas with significantly above-average levels of biodiversity), that percentage of protected species could increase.[44]

Second, while Wilson's Half-Earth thesis might seem audacious, he defends it as being a goal with a clear end. People prefer to work toward a goal, he reasons, than to continuously make incremental progress without knowing when, or if, there is an end in sight.[45] It seems, in fact, as if Wilson intentionally set the 50% figure as an easily understood goal in lieu of more ambitious but less-easily-recognizable ones. After all, one of the conclusions Wilson reached in his research was that "[h]abitat size and the number of species it can sustainably support are mathematically related, not linearly, but by the 4th root."[46] The 4th root of 50% is just over 84%.[47] Perhaps a more logical approach to deciding on how much habitat is to be protected would be to start by establishing the overall proportion of species that *should* be saved from extinction and then calculating whether the proportion of landscapes to be protected is 50% or some less memorable figure. If, for instance, a species-saving figure of 90% were selected, Wilson's "4th-root formula" would call for

---

[41] EDWARD O. WILSON, HALF-EARTH: OUR PLANET'S FIGHT FOR LIFE 3 (2016).
[42] *Id.* at 3–4.
[43] *Id.*
[44] *Id.* at 4, 186.
[45] *Id.* at 4.
[46] *Why Half?*, E. O. WILSON BIODIVERSITY FOUND., https://eowilsonfoundation.org/what-is-the-half-earth-project/why-half/ [https://perma.cc/KYS5-CSQN].
[47] $0.50^{0.25} = 0.840896$. For a fuller explanation, see TROY VETTESE & DREW PENDERGRASS, HALF-EARTH SOCIALISM 11 (2022) ("Wilson and his colleague Robert MacArthur discovered a simple mathematical relationship between land area and biodiversity … the number of species was roughly proportional to the fourth root of the area.").

65.61% (not 50%) of Earth's habitat to be protected.[48] As suggested below in section VI, an alternative to Wilson's Half-Earth approach would be a "Two-Thirds-Earth" approach aimed at saving just over 90% of species from extinction according to Wilson's formula.

Wilson notes that the actual implementation of his Half-Earth proposal will require a fundamental shift in moral reasoning—away from the belief that using nature to accumulate wealth will lead to an increased quality of life, and toward the belief that quality of life will be achieved through self-understanding.[49] Wilson points to advancing technologies that will reduce the ecological footprint of the individual in many ways, including less need for travel (due to a more "virtual" world), innovative agricultural practices, and more energy-efficient technologies generally. Those developments, combined with a predicted population peak of about 10 billion to 12 billion people, makes Wilson optimistic that changes can be made to ensure the future of humanity and the planet.[50]

Notably, Wilson does not suggest that protected landscapes need to be transferred to the ownership of a government entity or an environmental non-profit to manage. Instead, he just says that such lands should "be allowed to exist unharmed"—undeveloped, as a safe haven for biodiversity, whether in the hands of the government or a private owner.[51]

B. The vision's limits and critics

It might seem likely that Wilson's book would appeal to many readers: it outlines the need to set aside half the Earth for nature, describes the plight of species on or past the brink of extinction, and extols the virtues of a world in which new technology might permit a smaller human footprint. However, Wilson's daunting proposal has attracted substantial criticism. For instance, as Robin McKie explained in a review of *Half-Earth* for *The Guardian*, "having prepared his case so carefully, Wilson then stops in his tracks and hesitates, providing no detail of the measures needed to ensure his goal is completed."[52]

To some extent, this lack of detail is unsurprising as E. O. Wilson was an entomologist, not a lawyer. However, other observers raise similar questions

---

[48] $0.6561^{0.25} = 0.9$.

[49] *See* WILSON, *supra* note 41, at 193.

[50] *Id.* at 191.

[51] *Id.* at 189.

[52] Robin McKie, *Half-Earth: Our Planet's Fight for Life by Edward O Wilson – Review*, THE GUARDIAN (Apr. 11, 2016), https://www.theguardian.com/books/2016/apr/11/half-earth-planets-fight-for-life-edward-o-wilson-review [https://perma.cc/63YZ-GDAT]. Other observers point out, though, that Wilson does give some details, as by "identif[ying] thirty biomes ranging from the Brazilian *cerrado* to the Polish-Belarusian Białowieża Forest that would be the heart of Half-Earth" and that "would eventually be stitched together" to create a mosaic of protected regions. VETTESE & PENDERGRASS, *supra* note 47, at 80.

and criticisms about Wilson's lack of specificity, including these: While explaining what Half-Earth is *not* (the removal of humans from an entire hemisphere or the transfer of all natural spaces to a private entity), Wilson fails to explain what it *is*. What spaces will count as "protected?" How do we ensure equitable treatment for the thousands of people who likely will be displaced at some point down the line? How exactly will indigenous stewardship play into the plans? What entity will determine when the goal is met?[53]

Some responses to Wilson's Half-Earth proposal focus more on its underlying premises. One observer, for example, writes that focusing on promoting biodiversity by setting a goal to "protect" a certain area of land mass ignores the less direct drivers of biodiversity loss, such as climate change.[54] The same observer asserts that Wilson's proposal and related proposals "exacerbate conservation's tendency to focus too heavily on protected areas to the neglect of other necessary measures, which is problematic for multiple reasons."[55] Moreover, "the difference between formally designating a given space as a protected area and genuinely protecting biodiversity within that space is significant, as the amount of area where habitat and organisms are truly protected is much smaller than that of formally declared protected area."[56] Yet another writer points out that the areas most likely to be "protected" are those that are already less accessible to humans—arid deserts, steep and inaccessible lands—not necessarily those with high biodiversity. Because of this, some argue that half may not be enough to reach biodiversity protection goals—a point I explore and endorse below in section VI.[57]

A particularly potent critique of Wilson's Half-Earth proposal comes from Troy Vettese and Drew Pendergrass in their 2022 book *Half-Earth Socialism*. In general, they argue that Wilson's proposal does not go far enough in several respects, making it a "demi-utopia that luckily doesn't have a hope of being implemented."[58] More specifically, they brand it as a "colonial Half-Earth" [59] because it fails (as Wilson presents it) to grasp the need for profound changes in the global economic system, from capitalism to socialism.[60] Vettese and

---

[53] For some such questions and criticisms, see Jeremy Hance, *Could We Set Aside Half the Earth for Nature?*, THE GUARDIAN (Jun. 15, 2016), https://www.theguardian.com/environment/radical-conservation/2016/jun/15/could-we-set-aside-half-the-earth-for-nature#:~:text=If%20protection%20efforts%2C%20however%2C%20focus,the%20planet's%20species%20over%20time [https://perma.cc/63YZ-GDAT].

[54] *See* Brian M. Napoletano, *Half-Earth Socialism and the Path Beyond Capital*, MONTHLY REV. (Feb. 1, 2023), https://monthlyreview.org/2023/02/01/half-earth-socialism-and-the-path-beyond-capital/#:~:text=One%20of%20the%20central%20criticisms,is%20problematic%20for%20multiple%20reasons [https://perma.cc/9R5W-Q895].

[55] *Id.*

[56] *Id.*

[57] *See* Erle C. Ellis, *To Conserve Nature in the Anthropocene, Half Earth Is Not Nearly Enough*, 1 ONE EARTH 163, 163–67 (2019), https://www.sciencedirect.com/science/article/pii/S2590332219300909 [https://perma.cc/39QK-TDNV].

[58] VETTESE & PENDERGRASS, *supra* note 47, at 74.

[59] *Id.* at 166.

[60] *Id*. at 74 (asserting that "Half-Earth must be socialist" and "capitalism produces more and graver ecological problems than any other social form in human history").

Pendergrass acknowledge that Wilson's "scientific work on island biogeography has withstood more than five decades of scrutiny"[61] and that "[t]here is simply no way to stop the Sixth Extinction other than expanding nature preserves,"[62] which of course is Wilson's aim. Still, for Vettese and Pendergrass, Wilson's proposal cannot succeed because it would rely on a capitalist economic system that is enamored of technological innovations that cannot possibly produce adequate energy in a sustainable fashion.[63]

The critique offered by Vettese and Pendergrass goes well beyond their call for the "Half-Earth Socialism" that their book's title touts. Their critique of E. O. Wilson's work turns on at least two additional points worth considering. For one thing, Vettese and Pendergrass claim that the roots of the Half-Earth proposal that Wilson promotes lie in the "toxic politics" of one organization that promoted anti-immigrant policies[64] and another organization "with a dark and frankly bizarre past" that included support for South Africa's former apartheid regime.[65]

Moreover, Vettese and Pendergrass emphasize the sheer impossibility of placing half of the Earth's landscapes in a protected status while still practicing animal husbandry at the current level, since livestock (especially cattle) account for "60 per cent of the total terrestrial mammalian biomass," compared with wild animals accounting for only 4% and humans counting for 36%.[66] These facts take Vettese and Pendergrass back to capitalism, which they say emerged in part from animal husbandry[67] to create a vast system of domesticated animals that might "be seen as living factories no different from smoke-belching industrial factories."[68]

Although Vettese and Pendergrass find profound fault with the specifics of E. O. Wilson's Half-Earth proposal—its reliance on an economic system they deplore, its shady pedigree, and its faith in technological innovations they

---

[61] *Id.*

[62] *Id.*

[63] Vettese and Pendergrass explain that the technological solution promised by bioenergy carbon capture and sequestration ("BECCS") is illusory because it would not produce enough power unless it had "at least 350 million hectares—an area larger than India," and "[a]t this scale of deployment, BECCS would actually *increase* global deforestation and exacerbate the Sixth Extinction," *id.* at 63. (BECCS is defined *id.* at 19.) Vettese and Pendergrass dismiss nuclear power as a feasible global energy source because it fails each of three necessary assumptions … that nuclear power is safe, that nuclear plants provide "carbon free" power, and that "fast-breeder" reactors can deliver the improvements their promoters promise, *id.* at 64 ("None of these claims holds up under scrutiny.").

[64] *Id.* at 71 (referring to the Wildlands Network, which "focused on drafting blueprints of a rewilded North America," and one of whose leaders made the case in 1992 "for rewilding 50 per cent of the continent").

[65] *Id.* at 72–73 (referring to the WILD Foundation).

[66] *Id.* at 77.

[67] *Id.* at 75.

[68] *Id.* at 77.

consider fantasies—the authors of *Half-Earth Socialism* do endorse the overarching ecological aims Wilson adopts. For Vettese and Pendergrass, though, placing 50% (or some larger percentage) of the Earth's landmass in protected status so that it can be "rewilded" must be part of a much larger program of reform. That program would involve, in their view, several key elements (beyond "rewilding", that is): (1) widespread veganism, to reflect the dramatic drop in livestock (so that grazing lands can be converted to biofuel production or included in those regions placed under protection);[69] (2) renewable energy sources[70] accompanied by energy quotas as called for by the "2000-Watt Society"[71] (thus cutting Global North energy consumption drastically and slightly increasing energy available in much of the Global South[72]); (3) ensuring that the nature preserves being created are managed and restored "under Indigenous leadership wherever possible;"[73] and (4) solving "the devilishly difficult problem of planning"—that is, determining how it is possible "to organize production and consumption without a market," so as "to prevent the market commodifying and controlling all of nature."[74]

C. The Half-Earth Project map and performance assessments

Although E. O. Wilson has died, work continues on some of his proposals in the form of the E. O. Wilson Biodiversity Foundation[75]—and specifically in the so-called "Half-Earth Project." The website of the "Half-Earth Project Map" invites visitors to "explore where species conservation activities are the most needed."[76] One set of maps gives "national report cards" and uses a "Species

---

[69] *Id.* at 80, 166. Vettese and Pendergrass explain that under their proposal, "much of the world's pasture is converted into biofuel plantations for the short-term decarbonization of transportation and industry, while the remainder is rewilded," *id.* at 111. They also explain that their plans would "maintain and enhance the biosphere through abolishing animal husbandry," *id.* at 168.

[70] *Id.* at 81.

[71] *Id.* at 82.

[72] *Id.* at 82, 110; *see also id.* at 19 (noting that "the scarcity of land" bears on "the material elements of Half-Earth Socialism's veganism, renewables in energy quotas, and planetary rewilding").

[73] *Id.* at 74. For other references by Vettese and Pendergrass to the need for indigenous rights, knowledge, and interests to be given high priority, see *id.* at 15 ("[c]onservationists need to work carefully with Indigenous nations to ensure that nature preserves do not continue to act as institutions of colonial exclusion") and see *id.* at 111 (noting that the portions of the world that are rewilded would "require an expanded cadre of ecologists and foresters trained in both conventional science and traditional Indigenous knowledge").

[74] *Id.* at 19. Vettese and Pendergrass urge that "[c]onsumerism is the golden shackle that must be cut to achieve true freedom," *id.* at 168. Perhaps anticipating the skepticism some of their readers might have for this suggestion that capitalism be replaced by socialism, Vettese and Pendergrass offer this assurance: "By combining the strengths of both democratic and flexible centralized planning, our scheme aims to avert the humanitarian and ecological catastrophes of past socialist experiments," *id.* at 166. To bolster that assurance, they assert that "Half-Earth socialist planning is inspired by a slew of traditions" developed by various writers and other sources that they trust, *id.*

[75] *See E.O. Wilson*, E.O. WILSON BIODIVERSITY FOUND., https://eowilsonfoundation.org/about-us/e-o-wilson/ [https://perma.cc/5SV9-GMS3].

[76] *See Half Earth Project Map*, E.O. WILSON BIODIVERSITY FOUND., https://map.half-earthproject.org/ [https://perma.cc/7EZQ-BZDZ].

Protection Index" ("SPI") to estimate how well each country is meeting the conservation targets that would be needed to "protect half of the land and sea to safeguard the bulk of Earth's biodiversity and preserve the bulk of the species."[77]

For instance, the two countries where the Great North American Prairies are located—the USA and Canada—have SPIs of 48 and 78, respectively. The national report card for the USA (which is said to have 2,650 land vertebrate species, of which 501 are endemic) states that 13% of land area is protected and that 13% of additional land protection is needed. By contrast, the national report card for Canada (which is said to have 1,206 land vertebrate species, of which 5 are endemic) states that 13% of land area is protected and that 3% of additional land protection is needed.[78] Exploring further on the same data set reveals that the USA ranks 109th and Canada ranks 36th of the 254 countries and territories surveyed in the Half-Earth Project.[79] Several of the higher-ranked countries have already exceeded the 30%-protection figure called for in the 30x30 proposals discussed in section II—these include Luxembourg, Botswana, Zambia, Slovakia, Cambodia, Croatia, Belize, Slovenia, and Germany—and one (Luxembourg) has exceeded the 50%-protection level that Wilson's Half-Earth proposal would urge,[80] demonstrating that such goals are attainable in certain circumstances.

The work of the Half-Earth Project, and particularly the maps it provides, do add specificity to E. O. Wilson's Half-Earth proposal, thus blunting a few of the criticisms enumerated above. Still, the added specificity offers little in the way of *legal and policy reforms*, focusing instead on the *outcomes* that such reforms would need to achieve in order to meet Wilson's proposed goal. Moreover, the sharpest criticisms leveled at Wilson's Half-Earth proposal by Vettese and Pendergrass still remain. As noted above, those criticisms also involve issues of economic policy, energy policy, and rationing. In section VI, I attempt to grapple with some of these legal-and-policy-implementation issues for confronting the planet's biodiversity crisis, whether through a 30x30 approach, a Half-Earth proposal, or even a Two-Thirds-Earth project. First, though, we should identify other initiatives that have some similar attributes, especially as they might be relevant to the Great North American Prairies.

---

[77] *National Report Cards*, E.O. WILSON BIODIVERSITY FOUND., https://map.half-earthproject.org/ [https://perma.cc/2LKE-66SM] (click on National Report Cards to access map).

[78] *Id.* (click on maps of the USA and Canada, respectively).

[79] *Id.* (after clicking on map, click Explore to view ranking).

[80] *SPI Ranking*, E.O. WILSON BIODIVERSITY FOUND., https://map.half-earthproject.org/nrc/LUX?ui=%7B%22landMarineSelection%22%3A%22land%22%2C%22categorySort%22%3Anull%2C%22fullRanking%22%3Atrue%7D [https://perma.cc/3WVC-UL7D].

IV. OTHER PROPOSALS AND DREAMS

While the 30x30 pledges and the Half-Earth proposal have gained broad global notoriety, countless other initiatives have also emerged as the biodiversity crisis has worsened. Perhaps no comprehensive account of those initiatives could ever be possible. In any event, my aim in this section is to offer a brief illustrative survey that includes two North American efforts plus a reference to similar biodiversity-restoration efforts in South America, Europe, and China.

A. The Buffalo Commons

In 1987, Frank and Deborah Popper developed the idea for a Buffalo Commons. In their article *The Great Plains: From Dust to Dust*, the Poppers made an audacious proposal: de-privatize the Great Plains and create one extraordinarily large public land holding called the Buffalo Commons.[81]

The Buffalo Commons concept was centered around the Poppers' belief that over the coming generations "the Plains will, as a result of the largest, longest-running agricultural and environmental miscalculation in American history, become almost totally depopulated."[82] Why? Because the Plains were unsuited for permanent forms of agriculture. The Buffalo Commons proposal sought a way out of the boom-and-bust agricultural cycle of the Great Plains, and called for "restor[ing] large parts of the Plains to their pre-white condition, to make them again the commons the settlers found in the nineteenth century."[83]

The Poppers further called for federal intervention, and specifically for the federal government to purchase the land needed to create the commons: "the government will take the newly emptied Plains and tear down the fences, replant the shortgrass, and restock the animals, including the buffalo."[84] It was, the Poppers knew, a monumental task that would require "a substantial administrative undertaking" and "competent land-use planning to identify acquisition areas, devise fair buyout contracts, and determine permitted uses." They urged that "[t]o accomplish these tasks, the federal government will, for the first time, have to create an agency with a Plains-specific mandate—a regional agency like the Tennessee Valley Authority or a public-land agency like the Bureau of Land Management, but with much more sweeping powers."[85]

Naturally, the scale of the Buffalo Commons proposal—and, perhaps more specifically, its call for returning privately-owned lands to governmental ownership—attracted a great deal of controversy and criticism at the time. Bodyguards were provided for the Poppers at some events due to safety concerns,[86] and Kansas governor Mike Hayden was quoted as urging his

---

[81] Deborah Epstein Popper & Frank J. Popper, *The Great Plains: From Dust to Dust*, PLANNING MAG., Dec. 1987, at 12.
[82] *Id.*
[83] *Id.* at 17.
[84] *Id.*
[85] *Id.* at 18.
[86] Pete Letheby, *Thanks, Frank and Deborah Popper, for Pointing the Way*, HIGH COUNTRY NEWS (Aug. 4, 2003), https://www.hcn.org/wotr/14186 [https://perma.cc/Q8ZS-344H].

audiences to "[t]ell the Poppers that America's Great Plains do not equal the Sahara."[87]

However, the Buffalo Commons idea proved to have a firm grip on the public imagination, and the Poppers gradually attracted more favorable attention, especially as their Buffalo Commons proposal evolved away from such a heavy government-concentrated role.[88] Even Governor Hayden changed his tune. Although "[w]hen the Poppers first introduced their Buffalo Commons idea . . . [he] came out guns blazing like Matt Dillon," he later admitted that the Poppers had been right about their prediction of depopulation in Kansas—and, in fact, "the depopulation [had] been greater than what the Poppers predicted."[89]

Now the Great Plains Restoration Council ("GPRC"), for which Frank Popper serves as Board Chair,[90] carries forward the idea of a Buffalo Commons and related initiatives. According to the GPRC's website:

> The backbone of the Buffalo Commons movement is the work—over a period of decades—to re-establish and re-connect prairie wildland reserves and ecological corridors large enough for bison and all other native prairie wildlife to survive and roam freely, over great, connected distances, while simultaneously restoring the health and sustainability of our communities wherever possible so that both land and people may prosper for a very long time.[91]

A goal of the Southern Great Plains Conservation & Recreation Area—one of GRPC's ongoing projects—is to "ensure ancestral connections for Indigenous people." Specifically, "GPRC is working to engage the Oklahoma-based Comanche and Kiowa peoples and other Southern Plains Indigenous people in

---

[87] Anne Matthews, *The Poppers and the Plains*, N.Y. TIMES (June 24, 1990), https://www.nytimes.com/1990/06/24/magazine/the-poppers-and-the-plains.html?smid=url-share [https://perma.cc/HJ4D-5BDZ].

[88] *See* Florence Williams, *Plains Sense*, HIGH COUNTRY NEWS (Jan. 15, 2001), https://www.hcn.org/issues/194/great-plains-sense-buffalo [https://perma.cc/WQ2W-8HSQ] ("The couple no longer speaks of federal buy-outs on the Plains, or of massive, communally owned preserves and herds.").

[89] Michael J. Hayden, *Were the Poppers Right? Outmigration and the Changing Economy of the Great Plains*, 2 ONLINE J. OF RURAL RSCH. AND POL'Y 1 (2007).

[90] *See Frank Popper, Ph.D.*, GREAT PLAINS RESTORATION COUNCIL, https://gprc.org/about/people/frank-popper-ph-d/ [https://perma.cc/SP66-NZCC].

[91] *See Buffalo Commons,* GREAT PLAINS RESTORATION COUNCIL, https://gprc.org/research/buffalo-commons/ [https://perma.cc/AJH7-MLY3].

this planning effort, and to center their leadership in stewarding and interpreting the site."[92]

B. The American Prairie nature preserve

In 1999, The Nature Conservancy published *Ecoregional Planning in the Northern Great Plains Steppe*, a planning document that pointed to the northern Great Plains as a particularly viable region for the preservation of grassland ecology.[93] Based on those findings, the World Wildlife Fund helped found the Prairie Foundation as an independent nonprofit organization. Now called American Prairie, the organization seeks "to create the largest nature reserve in the contiguous United States, a refuge for people and wildlife preserved forever as part of America's heritage."[94]

American Prairie's methodology to obtain the land needed for its mission is unique among the efforts of private conservation groups. Its focus, as declared on its website, is to "purchase and permanently hold title to private lands that glue together a vast mosaic of existing public lands so that the region is managed thoughtfully and collaboratively with state and federal agencies for wildlife conservation and public access."[95]

Ultimately, American Prairie's goal is to stitch together approximately 3.2 million acres (about 5,000 square miles) of land in order to create a functioning shortgrass prairie ecosystem.[96] To do so, the organization seeks to acquire and manage approximately 700,000 private acres.[97] Then, as opportunities arise, American Prairie will connect those acres to existing public lands in the area—including (i) the 1.1 million acre Charles M. Russell National Wildlife Refuge, (ii) the 375,000 acre the Upper Missouri River Breaks National Monument, and (iii) other public lands managed by the Bureau of Land Management—to create a contiguous ecosystem.[98] Since 2004 American Prairie has "completed 40 transactions to build [its] habitat base of over 460,000 acres."[99] Of this total,

---

[92] *Great Plains Restoration Council has been Awarded $200,000 in Two Grants to Culminate its Lifetime Goals and Launch the New Southern Great Plains Conservation & Recreation Area Project in the Texas Panhandle*, GREAT PLAINS RESTORATION COUNCIL, https://gprc.org/great-plains-restoration-council-has-been-awarded-200000/ [https://perma.cc/56RS-3MAE].

[93] *See History and Values*, AM. PRAIRIE, https://americanprairie.org/history-and-values/ [https://perma.cc/DVP8-TZL8] [hereinafter *America Prairie History*]; *see also* THE NATURE CONSERVANCY, ECOREGIONAL PLANNING IN THE NORTHERN GREAT PLAINS STEPPE (1999), https://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Documents/ngps_final_feb99.pdf [https://perma.cc/Q78W-PC2W].

[94] *American Prairie History*, *supra* note 93.

[95] *Id.*

[96] *See Assembling the Land*, AM. PRAIRIE, https://americanprairie.org/project/assembling-the-land/ [https://perma.cc/78RK-RCKR].

[97] *Id.*

[98] *Id.*

[99] *Id.*

roughly 126,000 acres are private lands owned by American Prairie and roughly 337,000 acres are leased public lands (federal and state)."[100]

A significant part of American Prairie's land acquisition methodology involves obtaining Bureau of Land Management ("BLM") grazing leases with its land purchases and using those leases to further its conservation goals.[101] Specifically, American Prairie's wildlife restoration work includes bison restoration, and bison are an important part of the organization's land acquisition strategy.[102] When bison were nearly driven to extinction in the late 1800s, many that survived were saved as agricultural commodities; that is, they were seen as livestock raised for commercial sale. Government agencies shared this view, and thus, under USDA regulations, bison are considered livestock.[103] As livestock, bison can satisfy the BLM's grazing requirements, saving American Prairie from having to either acquire cattle or from commingling bison and cattle to maintain the leases, which would complicate and possibly undermine its ecological restoration efforts.[104] Furthermore, grazing privately owned indigenous animals, such as the organization's bison herd, is consistent with the multiple-use objectives required by the statutes regulating the BLM.[105]

Thus, American Prairie's ecological restoration goal and land acquisition strategy are intertwined. The process is this: American Prairie maintains its purchased BLM grazing leases through bison grazing while simultaneously beginning the process of wildlife restoration of multiple species. Not only are bison reintroduced to their original habitat, but so are prairie dogs, black-footed ferrets, pronghorns, swift foxes, cougars, and more.[106] Furthermore, American Prairie undertakes efforts to improve the soil and native vegetation, increasing the abundance of native grasses, shrubs, and wildflowers—the biodiversity of

---

[100] *Id.* The American Prairie website emphasizes the importance of "Montana's Indigenous communities" and says that "[r]elationships are strengthened as we work to preserve and honor the land, to rebuild a seamless landscape for people and wildlife, and to tell the intricate story of the region." *Indigenous Communities*, AM. PRAIRIE, https://americanprairie.org/project/indigenous-communities/ [https://perma.cc/27DE-F97S]. It appears that none of the acreage brought together by American Prairie is or was tribal reservation land, but some of it is adjacent to the Fort Belknap, Fort Peck, and Chippewa Cree reservation in Montana, *see id.*

[101] James L. Huffman, *American Prairie Reserve: Protecting Wildlife Habitat on a Grand Scale*, NAT. RES. J., Winter 2019, at 35, 36.

[102] *See Bison Restoration,* AM. PRAIRIE, https://americanprairie.org/project/bison-restoration/ [https://perma.cc/E5JG-F3Z3].

[103] This treatment of bison as a "livestock species" is reflected, for instance, on the UDSA's Veterinary Accreditation" webpage. *See* Animal and Plant Health Inspection Service, *Category I and II Animals*, U.S. DEP'T OF AGRIC., https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/nvap/CT_category1-2 [https://perma.cc/RG9N-9NJC].

[104] *Id.*; *see also* Bryan Leonard & Shawn Regan, *Legal and Institutional Barriers to Establishing Non-Use Rights to Natural Resources*, NAT. RES. J., Winter 2019, at 135, 153.

[105] 43 C.F.R. § 4130.6-4 (2024).

[106] *See Rewilding*, AM. PRAIRIE, https://americanprairie.org/rewilding/ [https://perma.cc/5J37-BMXY].

flora, in other words—in the land it manages.[107] Fence removal and modification efforts are designed to ease the movements of native animals not managed by American Prairie (e.g., mule deer), increase the connectivity of the habitat, and unify the ecology of the shortgrass prairie.[108] In the end, BLM's classification of bison as grazing livestock and the bison's significant role in the ecology of North America's grassland plains allows American Prairie to reestablish the ecology and biodiversity of the prairie within the existing statutory structures of federal public land management. Although the bison herds could not approach the scale of those envisioned in a Buffalo Commons, the American Prairie efforts have similar aims.

C. Other initiatives for broad-scale biodiversity protection

1. Tompkins Conservation

Whereas both the Buffalo Commons proposal and the American Prairie efforts reflect mainly a "stitching together" approach based on broad-based support from many contributors, the Tompkins Conservation story is different: it shows that remarkable successes in "rewilding" can emerge from intense private-sector philanthropic efforts to purchase, restore, and preserve large landscapes. As noted on its website, Tompkins Conservation is "committed to working on the ground in the Southern Cone of South America to confront the twin crises facing life on Earth: climate chaos and mass extinction."[109]

Tompkins Conservation builds on initiatives taken by Doug Tompkins and his wife Kris McDivitt Tompkins in buying more than 2 million acres of wilderness in Chile and Argentina in the 1990s.[110] A 2021 *Atlantic* article describes how Tompkins, after earning a fortune in business,[111] then changed course:

> Tompkins . . . became a famous altruist who renounced the business world and moved to a cabin in Patagonia. There he used his wealth to become what his biographer, Jonathan Franklin, calls "among the greatest conservationists of his

---

[107] *Id.*; *see also Grasslands*, AM. PRAIRIE, https://americanprairie.org/project/grasslands/ [https://perma.cc/3XFW-7U9Z].

[108] *See Habitat Connectivity*, AM. PRAIRIE, https://americanprairie.org/project/habitat-connectivity/ [https://perma.cc/M8WY-QQCJ].

[109] *See About Us*, TOMPKINS CONSERVATION, https://www.tompkinsconservation.org [https://perma.cc/X3A3-HC29] (click on "Our Team").

[110] *See* Stuart L. Pimm, *"Pleistocene Park" emerges from Patagonia's rescued grasslands*, NATGEO NEWSWATCH (Jan. 23, 2010), https://web.archive.org/web/20100228232746/http://blogs.nationalgeographic.com/blogs/news/chiefeditor/2010/01/patagonia-grasslands-park.html [https://perma.cc/P8T8-MQZU].

[111] *See* Caty Enders & Jonathan Franklin, *Doug Tompkins: life and death of the ecological visionary behind North Face*, THE GUARDIAN (Dec. 13, 2015), https://www.theguardian.com/us-news/2015/dec/13/douglas-tompkins-co-founder-north-face-chile-conservation [https://perma.cc/WG47-VTLJ]. Tompkins was a co-founder of the clothing companies North Face and Esprit and died in 2015 in a kayaking accident, *id.*

> generation." From the early 1990s until his death in 2015, Tompkins led a campaign to preserve more than 10 million acres of wilderness in Patagonia, helping build or expand more than a dozen national parks throughout Chile and Argentina. In *A Wild Idea*, Franklin compares him, in his mercurial zeal and undaunted ambition on multiple fronts, to Bill Gates and Steve Jobs.[112]

A crowning achievement of the Tompkins' efforts was the Parque Pumalín, "a million-acre collection of untrammeled vistas and valleys that was patched together by a pair of American conservationists whose mission, known as 'wildlands philanthropy,' was to keep the lands free from industrial development."[113] In 2017, Chilean president Michelle Bachelet signed an accord to convert Tompkins' private Parque Pumalín into a Chilean national park. "Today," she said, "we are bequeathing to the country the greatest creation of protected areas in our history."[114]

This Tompkins approach—dependent, of course, on extreme concentrated wealth and an inclination to use it for purchasing huge tracts of land—does represent another route to biodiversity protection and landscape restoration, very different from the more public-sector aspects of a 30x30 approach involving a gradual stitching-together of protected areas. And it produces results. The set of Half-Earth Project map and performance assessments referred to above in subsection IIIC shows Chile with a ranking of 39th in the world for its protection of national species (higher than either Canada or the USA), with 22% of land area under protection compared with 13% for both the USA and Canada.[115]

---

[112] Michael O'Donnell, *The Would-Be Savior of Patagonia*, THE ATLANTIC 82 (Aug. 5, 2021), https://www.theatlantic.com/magazine/archive/2021/09/douglas-tompkins-wild-idea-patagonia/619495/ [https://perma.cc/3DR3-WELC].

[113] Jonathan Franklin, *Chile's new 'route of parks' aims to save the wild beauty of Patagonia*, THE GUARDIAN (Mar. 18, 2017, 8:04 PM), https://www.theguardian.com/world/2017/mar/19/chile-route-of-parks-beauty-patagonia [https://perma.cc/5LLE-9XHA].

[114] *Id.* It is unclear whether, and to what extent, the patching-together of landscapes involved displacement of indigenous peoples, but public reports do indicate that there were "settlers" in some portions of the area who "did not have clear titles to the lands they occupied." *See* Ingrid Espinoza, *Assembling Pumalín Park*, *in* PUMALÍN DOUGLAS TOMPKINS NATIONAL PARK 43, 44 (Tom Butler ed., 2020). That publication features a Preface written by Edward O. Wilson. *See* Edward O. Wilson*, Preface to* PUMALÍN DOUGLAS TOMPKINS NATIONAL PARK 25, 25 (Tom Butler ed., 2020).

[115] *See supra* notes 76–78 and accompanying text; *see also Chile*, HALF-EARTH PROJECT, https://map.half-earthproject.org/nrc/CHL [https://perma.cc/4AHF-4U52].

2. European initiatives

The European Union has committed to protecting 30% of Europe's land and seas by 2030 through various strategies, including expansion of the Natura 2000 program, "with strict protection for areas of very high biodiversity and climate value."[116] Natura 2000 encompasses "the largest coordinated network of protected areas in the world," covering 18% of land and 8% of marine territories in Europe.[117] The European biodiversity strategy also includes reducing pesticide use, restoring free-flowing rivers, and planting over 3 billion trees.[118]

The EU Biodiversity Strategy Dashboard tracks progress on various targets comprising the strategy.[119] As of January 2024, the dashboard shows 50 goals completed, 46 in progress, and 8 delayed.[120] The EU biodiversity strategy is "a key pillar of the European Green Deal,"[121] a set of initiatives focused on "economic growth decoupled from resource use."[122] Like the Biden Administration's 30x30 initiative reflected in *America the Beautiful*,[123] the EU takes a somewhat anthropocentric approach by emphasizing economic factors. Proponents of the initiative noted that "between 8 and 38 euro worth of benefits [are estimated] for every euro spent" on protection.[124]

---

[116] *Biodiversity strategy for 2030*, EUR. COMM'N https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030en (last visited Feb. 1, 2024) [hereinafter *Biodiversity 2030*].

[117] *Natura 2000*, EUR. COMM'N, https://ec.europa.eu/environment/nature/natura2000/indexen.htm [https://perma.cc/MX8V-97SJ]; *see also* Roberto Cazzolla Gatti, Piero Zannini, Gianluca Piovesan, Nicola Alessi, Alberto Basset, Carl Beierkuhnlein, Michele Di Musciano, Richard Field, John M. Halley, Samuel Hoffmann, Jacopo Iaria, Athanasios Kallimanis, Gabor L. Lövei1, Alberta Morera, Antonello Provenzale, Duccio Rocchini, Ole R. Vetaas, & Alezzandro Chiarucci, *Analysing the distribution of strictly protected areas toward the EU2030 target*, 32 BIODIVERSITY AND CONSERVATION 3157, 3160 (2023).

[118] *Biodiversity 2030*, *supra* note 116. To count toward the 3 billion trees target, participants must "plant only native tree species unless it can be demonstrated that they are no longer adapted to projected climatic, soil and hydrological conditions." *See 3 Billion Trees Pledge*, EUR. COMM'N, https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030/3-billion-trees_en [https://perma.cc/975V-2XYM]. Furthermore, trees planted for near-future harvest – such as those grown for Christmas trees or energy production – do not qualify. *See Commission New EU Forest Strategy for 2030*, at 7-8 COM (2021) 572 final (July 16, 2021). Notably, many trees counted toward the "pledge" are expected to be planted by private individuals and organizations, another example of the use of private-government partnerships in 30x30 initiatives.

[119] *EU Biodiversity Strategy Dashboard*, EUR. COMM'N (Mar. 13, 2023), https://dopa.jrc.ec.europa.eu/kcbd/dashboard/ [https://perma.cc/E36L-CSAJ].

[120] *Id.*

[121] *Questions and Answers: EU Biodiversity Strategy for 2030 - Bringing nature back into our lives*, EUR. COMM'N, (May 20, 2023), https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_886.

[122] *The European Green Deal*, EUR. COMM'N, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en [https://perma.cc/53TP-L5D6].

[123] For a summary of the "America the Beautiful" report, see *supra* note 23 and accompanying text.

[124] Eur. Climate, Infrastructure and Env't Exec. Agency, *New Nature Restoration Law boosts biodiversity and climate action across Europe*, EUR. COMM'N (July 12, 2023), https://cinea.ec.europa.eu/news-events/news/new-nature-restoration-law-boosts-biodiversity-and-climate-action-across-europe-2023-07-12_en [https://perma.cc/F8KQ-5ZZN].

3. The Chinese eco-civilization strategy and 30x30 efforts

Three points warrant attention in considering very briefly what the Chinese government[125] has done in respect of biodiversity protection and restoration. For one thing, China helped host the COP15 meetings in Montreal that produced the global 30x30 pledge discussed above,[126] and China was one of the roughly 190 countries that took that pledge.

Second, and consistent with its 30x30 pledge, China recently completed work on a nationwide system of "ecological red lines" aimed at preserving its ecosystems and resources. This initiative, underway for about a dozen years, purports to place large parts of the country off limits to development, in hopes of halting and reversing some of the damage suffered in much of the country from rapid urbanization and industrial growth.[127] This "red-lining" exercise has involved the creation of several nature reserves to combat what the Ministry of Environmental Protection has termed "irrational development" encroaching upon forests and wetlands. With the completion of the "red-lining" program, roughly 3 million square kilometers of land—about 30% of China's total—are to receive protection.[128]

With such a broad territorial reach, the off-limits rules will involve massive enforcement, which the head of the nature protection office at China's Ministry of Ecology and Environment has said will come in part from a surveillance network that will use 30 Chinese and foreign satellites that can spot human encroachment. Even with this technology, though, enforcement remains uncertain.[129]

Third, China has embarked on an ambitious "Ecological Civilization" initiative. Indeed, its recent "ecological red-lines" program can be seen as just one element of the country's larger effort to establish a new ideology of environmental protection and human-nature harmony. In a recent book, I offered this summary:

> The term "ecological civilization" began seeing widespread use in China in 2007, and shortly thereafter the Communist Part of China ("CPC") adopted "ecological civilization" as an explicit goal for the country. Indeed, the CPC went so far as to

---

[125] I refer here to the government in Beijing of the People's Republic of China, not the government in Taipei of the Republic of China.

[126] *See supra* subsection IIB.

[127] *'Ecological red lines': New no-development zones look to protect 30% of land in China*, EURONEWSGREEN & REUTERS (Apr. 29, 2023), https://www.euronews.com/green/2023/04/29/ecological-red-lines-new-no-development-zones-look-to-protect-30-of-land-in-china [https://perma.cc/XUT8-XYUV].

[128] *Id.*

[129] *Id.*

> incorporate two references to it into the Constitution of the PRC. The more explicit of these two references [provides that the State Council is to] "direct and administer economic affairs and urban and rural development, as well as *the building of an ecological civilization*."[130]

Given the centralized character of Chinese political power, we can expect that most of the efforts toward biodiversity protection in China will come under government control. This distinguishes it sharply from the collective-private-sector approach seen in the Buffalo Commons and American Prairies initiatives summarized above, and more sharply still from the Tompkins Conservation approach involving ultra-wealthy individuals involved in "wildlands philanthropy." Taken together, though, all of the approaches discussed in the preceding pages—30x30, Half-Earth, and all the rest—reflect the diversity of thinking and richness of possibilities for arresting and reversing the biodiversity crisis facing the Earth today. Having explored them briefly, I turn now to a consideration of what approach(es) might work in North America.

V. UNADDRESSED DEGRADATION IN THE GREAT NORTH AMERICAN PRAIRIES

In the preceding pages I have introduced the global 30x30 pledge and the Biden Administration's similar 30x30 initiative. I have also summarized E. O. Wilson's Half-Earth proposal and offered illustrations of other "proposals and dreams"—all devoted to arresting and reversing the crisis of species extinction that humans have created.

Now I turn to the Great North American Prairies, to bring a regional focus on a particular biome that happens to lie in territories administered both by the USA and Canada—and by sovereign tribes and nations of indigenous peoples (Native Americans and First Nations), at least to the extent the US and Canadian authorities respect such sovereignty. In making this shift in focus, I wish to highlight (i) the extent and condition of the Great North American Prairies, (ii) the general contours of the US legal and institutional framework that would contribute to actually implementing a 30x30 initiative in the Great North American Prairies, along with some information in this regard about Canada as well, and (iii) the massive gaps that exist in practice between the promises made, the actions taken to date, and the likely success of such actions even if the promises were totally performed. These matters are personal to me: I grew up on a farm in this part of the world and have spent most of my life here.

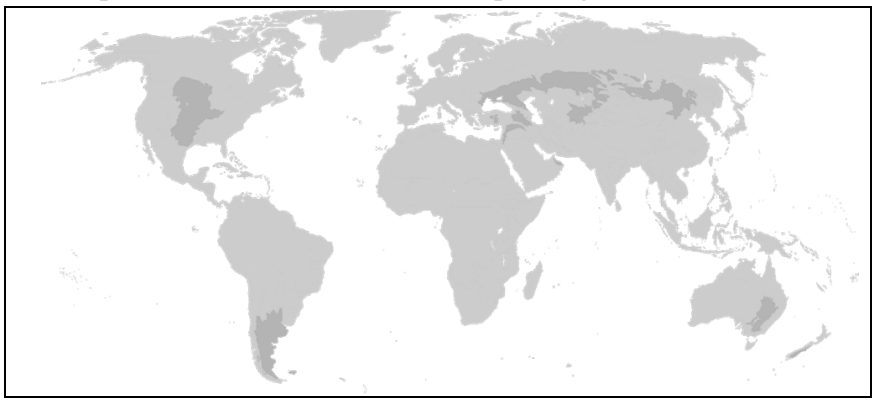
---

[130] JOHN W. HEAD, DEEP AGROECOLOGY AND THE HOMERIC EPICS: GLOBAL CULTURAL REFORMS FOR A NATURAL-SYSTEMS AGRICULTURE 138–39 (2021) (emphasis added) (quoting from article 89 of the PRC Constitution) [hereinafter DEEP AGROECOLOGY]. The account of "ecological civilization" appearing in that book drew heavily from the work of my colleague Dr. Xing Lijuan.

A. The Great North American Prairies and their degraded condition

Under the auspices of the World Wildlife Fund, a team of scientists around 2001 created a set of ecological maps of the world. The system used by the scientists in creating the maps involved "biomes" and "ecoregions."[131] One of the "biomes" identified and defined by the scientists is the temperate grasslands biome. Map #1 shows in general terms where the temperate grasslands biome appears around the world—that is, those portions of the world that share the same general biogeophysical features: soils, rainfall, temperatures, landcover, latitudes, and the like.[132]

Map #1: General distribution of temperate grasslands worldwide



As is clear from Map #1, one of the largest territorial reaches of the temperate grasslands biome is in North America. Map #2 shows in detail just where the individual ecoregions within that biome appear on the North

---

[131] *See supra* note 27 and accompanying text.

[132] Map #1 draws from data compiled by the World Wide Fund for Nature (WWF). *File: Map of temperate grasslands, savannas and shrublands biomes.svg*, WIKIMEDIA COMMONS (last modified Jan. 4, 2023), https://commons.wikimedia.org/wiki/File:Biome_map_08.svg [https://perma.cc/5J6G-Q2E4]. For the data used to create these maps see *Terrestrial Ecoregions of the* World, WORLD WILDLIFE FUND (Aug. 1, 2012), https://www.worldwildlife.org/publications/terrestrial-ecoregions-of-the-world [https://perma.cc/8GEL-DVZG] (listed author: Terpischores; images licensed under Creative Commons Attribution-ShareAlike 3.0 Unported License, for permissive use with attribution – and is available at https://creativecommons.org/licenses/by-sa/3.0/legalcode). For a world map showing (in distinct colors) all of the 867 terrestrial ecoregions under the WWF classification system, see *Terrestrial Ecoregions of the World*, Wikipedia (Apr. 8, 2014), https://upload.wikimedia.org/wikipedia/commons/5/50/Terrestrial_Ecoregions_of_the_World.jpg [https://perma.cc/J3TC-67QK].

American continent.[133] Map #2 also superimposes those ecoregions over the various political boundaries separating Canada from the USA and separating individuals states and provinces within those two countries.[134] Before the European invasion of North America in the 16th century, those temperate-grasslands ecoregions were home to various Native American and First Nations peoples, including Assiniboin, Cheyenne, Kiowa, Mandan, Omaha, Osage, Pawnee, Sioux, Wichita, and many others.[135]

---

[133] Map #2 was created by Kate Gleeson, an alumna of the University of Kansas School of Law, using databases available in the map collection held by the University of Kansas library system. Map #2 appeared, along with maps of several other temperate-grasslands ecoregions, in JOHN W. HEAD, GLOBAL LEGAL REGIMES TO PROTECT THE WORLD'S GRASSLANDS 37 (2012).

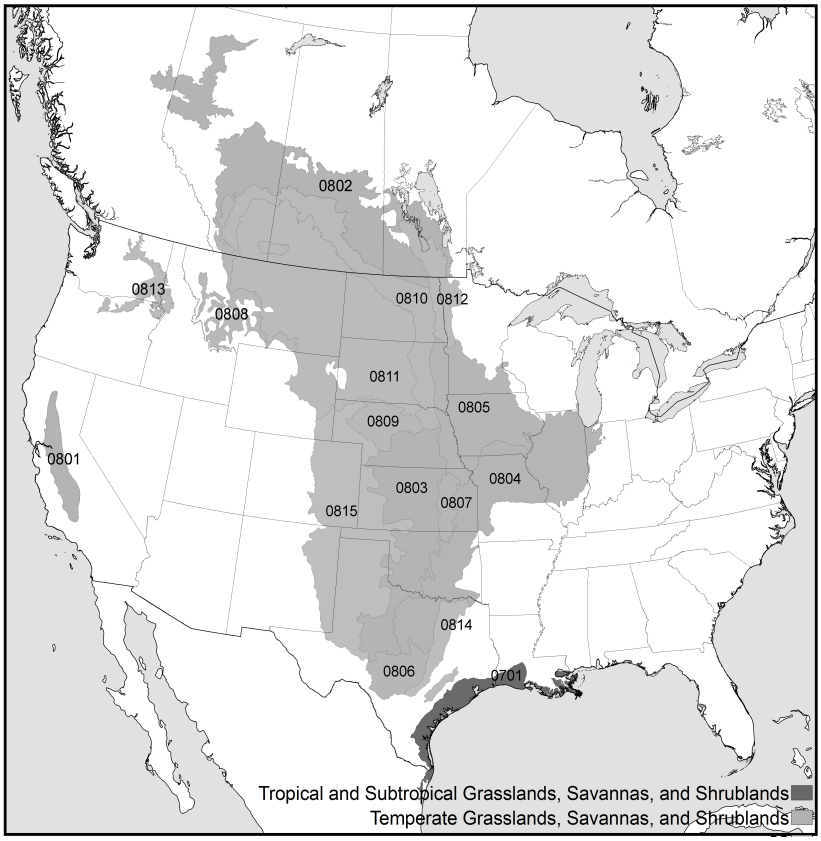
[134] The four-digit numbers on Map #2 identify the 15 specific temperate grassland ecoregions in North America under the World Wide Fund for Nature classification system. The names and WWF numbering for those ecoregions – along with their sizes and their current WWF classification in terms of ecological condition – are as follows:

- #0801 = California Central Valley grasslands, 21,300 sq. mi., critical/endangered;
- #0802 = Canadian Aspen forests and parklands, 153,400 sq. mi., critical/endangered;
- #0803 = Central and Southern mixed grasslands, 108,900 sq. mi., critical/endangered;
- #0804 = Central forest-grasslands transition, 157,100 sq. mi., critical/endangered;
- #0805 = Central tall grasslands, 95,900 sq. mi., critical/endangered;
- #0806 = Edwards Plateau savanna, 23,900 sq. mi., critical/endangered;
- #0807 = Flint Hills tall grasslands, 11,400 sq. mi., vulnerable;
- #0808 = Montana Valley and Foothill grasslands, 31,500 sq. mi., critical/endangered;
- #0809 = Nebraska Sand Hills mixed grasslands, 23,600, relatively stable/intact;
- #0810 = Northern mixed grasslands, 84,500 sq. mi., critical/endangered;
- #0811 = Northern short grasslands, 246,500 sq. mi., critical/endangered;
- #0812 = Northern tall grasslands, 29,300 sq. mi., critical/endangered;
- #0813 = Palouse grasslands, 18,100 sq. mi., critical/endangered;
- #0814 = Texas blackland prairies, 19,400 sq. mi., critical/endangered;
- #0815 = Western short grasslands, 168,000 sq. mi., critical/endangered.

(Of the ecoregions listed above, I exclude from my definition of the Great North American Prairies the two ecoregions – #0801 and #0813 – that lie west of the Rocky Mountains.) For these and other details, see the individual ecoregion webpages for the "Nearctic" temperate grasslands linked from https://www.worldwildlife.org/biomes/temperate-grasslands-savannas-and-shrublands, such as https://www.worldwildlife.org/ecoregions/na0804 (for the Central forest-grasslands transition ecoregion where Lawrence, Kansas is located). *Temperate grasslands, savannas, and shrublands*, WORLD WILDLIFE FUND, https://www.worldwildlife.org/biomes/temperate-grasslands-savannas-and-shrublands [https://perma.cc/QZM2-SDA3]; *see also Central forest-grasslands transition*, WORLD WILDLIFE FUND, https://www.worldwildlife.org/ecoregions/na0804 [https://perma.cc/UM6J-4V85]. Under an updated numbering system, the ecoregions referred to here are designated with five numerals instead of four; the numeral "5" precedes the various four-digit numerical codes listed above. *See Ecoregion Legend*, IPUMS DHS, https://www.idhsdata.org/idhs/ecoregion.shtml [https://perma.cc/EBC8-2KVR]. Map #2 also shows the only subtropical grassland ecoregion in North America, which is #0701, the Western Gulf coastal grasslands ecoregion. For details of that ecoregion and its "critical/endangered" conservation status, see *Western Gulf coastal grasslands*, VANDERBILT UNIV., https://bioimages.vanderbilt.edu/ecoregions/50701.htm [https://perma.cc/HVL6-82YK].

[135] *See Native American culture of the Plains*, KHAN ACAD., https://www.khanacademy.org/humanities/us-history/precontact-and-early-colonial-era/before-contact/a/native-american-culture-

Map #2: Ecoregions constituting the Temperate Grasslands Biome in North America



For our purposes here, I equate the Great North American Prairies with the temperate grasslands ecoregions of North America that lie east of the Rocky Mountains and that extend from central Texas into the so-called "prairie provinces" of Canada—that is, Alberta, Saskatchewan, and Manitoba. This includes all of the ecoregions shown in Map #2 except for the small areas in

---

of-the-plains# [https://perma.cc/R5YU-G9MX]; *see also Plains Indians*, WIKIPEDIA, https://en.wikipedia.org/wiki/Plains_Indians#/media/File:Early_Localization_Native_Americans USA.jpg [https://perma.cc/W3UH-XPAT] (discussing *early Naïve American tribal territories color-coded by linguistic group*); *Indigenous Connections*, PARKS CAN., https://parks.canada.ca/pn-np/sk/grasslands/culture/autochtone-indigenous [https://perma.cc/DJW6-7AD3].

California (#0801) and the Palouse area lying mainly in eastern Washington State (#0813).

As I described in a 2017 law-journal article,[136] the condition of those ecoregions is increasingly degraded. For instance, 11 out of the 13 are designated as being in "critical" (most endangered) status.[137] One authority offers this assessment:

> Of all the ecosystems on earth, none has been more dramatically affected by humanity than native grasslands. Although native grasslands at one time covered 40% of the North American Continent, the vast majority has been transformed into agricultural lands, urban settings, and other settlement uses, with less than 1% remaining today. In places with significant development and agricultural pressures, nearly all native grasslands have disappeared.[138]

The two principal ways in which humans have brought about this momentous alteration of the world's grasslands include (i) agricultural conversion—that is, conversion of native ecosystems to crops grown mainly for human food or for livestock feed—and (ii) inappropriate grazing. The fertility of temperate grasslands, such as those in North America, has tempted some people (especially European settlers) to plow the grasslands for agricultural purposes.

It has only been fairly recently that the conversion of grasslands to agricultural use began to have a significant impact. Up until roughly two centuries ago, the world's richest prairies and grasslands were largely intact. One reason for this is that, until recently, humans had no way to destroy the very richest of the world's grasslands. Don Worster, an emeritus distinguished professor at the University of Kansas, explains this reality and how it changed suddenly:

> Down to the 19th century the grasslands resisted the farmer's plow. For thousands of years plows had been made of wood, and even when they were given cast-iron edges, they could not penetrate the grasslands. They would break first. Their usable range was limited to exposed soils along the river bottoms or what had once been forest floor.

---

[136] *See generally* John W. Head, *Grasslands, Agriculture, and International Law: A Survey of Proposed Reforms*, 26 KAN. J. L. & PUB. POL'Y 297 (2017).
[137] *See supra* note 134.
[138] Wetlands Stewardship Partnership, *Grasslands in British Columbia: A Primer for Local Governments* 9 (2010), https://bcwetlandsca.files.wordpress.com/2016/11/grasslandsprimer_wsp_2010.pdf [https://perma.cc/476L-L4UT].

> Not until the nineteenth century did an American inventor named John Deere, followed by other inventors and manufacturers, begin making plows of steel, an alloy of iron and carbon forged with the heat of burning coal. The first steel plow appeared in 1837 near the prairie city of Chicago, Illinois. Such a formidable tool of nearly indestructible steel, pulled in the early days by large yoked teams of oxen or horses, could slice through the toughest sod and expose the deep, fertile soil to the air. Armed with the new plows, farmers could at last, after millennia of avoiding the grasslands, begin to venture out onto them and begin to conquer. They bought John Deere's invention eagerly and [in North America they] began ripping up the midcontinent prairie.
>
> We can trace the waves of conquest decade by decade across the [American] continent: beginning with Iowa and Minnesota in the 1840s and [18]50s, then across eastern Kansas and Nebraska by the 1860s, then across the mid-latitude grasslands by the 1870s and 1880s, before drought put a stop to the advancing plows. Then in the first three decades of the twentieth century the great plow-up continued westward, all the way to the Rocky Mountains. The original sea of grass had given way to a sea of wheat and corn.[139]

A key effect that agricultural conversion has on grasslands—that is, by physically replacing them with fields of crops—is habitat destruction or degradation. This in turn brings injury to the native species. Consider these statistics relating just to grassland bird populations in North America and just in the past few years:

---

[139] Donald Worster, *The Grasslands in Time: From the Eocene to the Anthropocene*, Keynote Address for conference on Comparing Grasslands in China and North America, Chinese Academy of Social Sciences, Beijing, China, 12–13 (September 2011). More recently, Professor Worster has expressed some doubt about the term "Anthropocene" as appearing in the title to his keynote address: "I would not emphasize the Anthropocene [so much now, since its use might just be a fashion that] . . . will fade away in a couple of more years, especially if the stratigraphers reject it." E-mail from Dr. Donald Worster, Professor Emeritus, University of Kansas, to Professor John W. Head, Distinguished Professor of Law, University of Kansas School of Law (Jan. 26, 2017) (on file with author).

- A 2019 study found that grassland bird populations in the continental USA and Canada had fallen 53% since 1970, compared to overall bird loss of 30% in those countries.[140]
- A 2022 report found that, of 24 grassland bird species, two-thirds had experienced significant population declines[141] and eight were at a tipping point[142] for having lost 50% or more of their breeding population and for being on track to lose another 50% in the next half century.[143]
- The populations of lesser prairie chicken have declined by more than 90% with an estimated remaining 2022 population of about 27,000.[144]
- Both mixed-grass prairie ecosystems have declined dramatically from historical levels—from 140 million acres to 30 million acres.[145]

B. Legal and policy efforts thus far in the USA and Canada

In the face of these various types of degradation that human activity has brought to the Great North American Prairies, what has been done, especially in terms of law and policy? For this, we should focus not on the work of private-sector action—that is, by non-government organizations or environmental-protection philanthropists—but rather by government agencies and other official entities. This focus is not to discount the significance of the private sector,[146]

---

[140] Kenneth V. Rosenberg, Adriann M. Dokter, Peter J. Blancher, John R. Sauwe, Adam C., Paula C. Smith, Jessica C. Stanton, Arvind Panjabi, Laura Helft, Michael Parr, & Peter P. Marra, *Decline of the North American avifauna*, 366 SCI. 6461 120–24 (Oct. 2019). Consistent with these figures is a May 2023 report from the Government of Canada showing a drop in Canadian grassland bird populations of 57% between 1970 and 2016. *See Toward a 2030 Biodiversity Strategy for Canada: Halting and reversing nature loss*, https://www.canada.ca/content/dam/eccc/documents/pdf/wildlife/biodiversity/23016.01-Toward%20a%202030%20Biodiversity%20Strategy%20for%20Canada-EN_V05.pdf [https://perma.cc/D9MU-JSUG] [hereinafter *Strategy for Canada*].

[141] *Grassland Birds*, NABCI, https://www.stateofthebirds.org/2022/grassland-birds [https://perma.cc/S44Q-GNW2].

[142] *Taxonomic List of On-Alert and Tipping Point Species*, NABCI, https://www.stateofthebirds.org/2022/taxonomic-list-of-on-alert-and-tipping-point-species [https://perma.cc/YR6Q-RHLQ].

[143] *See* Tammy Webber, *North American grassland birds in peril, spurring all-out effort to save birds and their habitat*, AP NEWS (Aug. 25, 2023, 11:33 AM), https://apnews.com/article/grassland-birds-decline-endangered-species-climate-ce14337f33e77f190e245270bb3e6769 [https://perma.cc/63RE-6ZNG].

[144] *Id.*

[145] *North American Grassland & Birds Report*, NAT'L AUDUBON SOC'Y, https://www.audubon.org/conservation/working-lands/grasslands-report/ [https://perma.cc/E663-2N53]. In fact, in Canada alone, 70% of prairie grasslands had been lost before 1990. *See Strategy for Canada*, *supra* note 140 ("The greatest areas of loss [include] 99 percent of tall grass prairies in Manitoba.").

[146] Indeed, a more complete account of the role of private-sector entities involved in environmental protection in general, and species biodiversity in particular, would include not only the American Prairies initiatives summarized above in subsection IVB but also other organizations. For instance,

but merely to reflect the fact that any undertaking of the scope that the 30x30 initiatives at least pretend to involve cannot succeed without a framework of official public support and funding—a matter that I return to in section VI.

Let us look, then, at the framework for biodiversity protection and restoration as a matter of official government law and policy. I begin with a survey of US and Canadian government action in this regard generally, and then I highlight some specific US and Canadian government actions that are linked to the recent 30x30 initiatives.

In the USA, public lands are managed by a patchwork of state and federal agencies, including (i) the Department of the Interior—which in turn encompasses the National Park Service and the US Fish and Wildlife Service—as well as (ii) the US Department of Agriculture and its sub-agency, the Forest Service, and (iii) the BLM. Despite the broad coverage across federal and state governments, or perhaps because of the presence of so many "cooks in the kitchen," very few government initiatives exist with the goal of protecting and conserving the Great Plains. A few do, however, come close. For instance, the Department of the Interior created a Bison Conservation Initiative in 2008, with the stated aim of "establishing and maintaining large, wide-ranging bison herds, subject to the forces of natural selection, on appropriate large landscapes where their role as ecosystem engineers shape healthy and diverse ecological communities."[147]

The US Forest Service manages not only National Forests but also millions of acres of National Grasslands as well, including 20 different National

---

through its "Sustainable Ranching Initiative," the World Wildlife Fund works with "landowners, corporations, industry-groups, NGOs, and government agencies to … protect lands from grassland conversion, improve management on working lands, and restore cropland or degraded lands back to native grassland." *See Northern Great Plains*, WORLD WILDLIFE FUND, https://www.worldwildlife.org/places/northern-great-plains [https://perma.cc/6NSK-ELVV]. The World Wildlife Fund also works with tribal nations to develop and implement comprehensive wildlife management systems to restore wildlife to tribal lands. Similarly, the Nature Conservancy has "introduced bison to the Nachusa Grasslands, a 4,000-acre restoration project about 100 miles west of Chicago." David J. Unger, *Saving America's Broken Prairie*, UNDARK (Apr. 26, 2017), https://undark.org/2017/04/26/saving-americas-broken-prairie/ [https://perma.cc/RNC5-JJ73]. As of 2021, the summer herd size on the Nachusa Grasslands had reached around 120 bison, including 30 calves born that year. *Bison at Nachusa,* FRIENDS OF NACHUSA GRASSLANDS (Dec. 2021), https://www.nachusagrasslands.org/bison.html/ [https://perma.cc/B548-ESKU]. One effort by some non-government organizations revolves around securing conservation easements and also outright ownership of critical lands to help facilitate eco-transformation and eco-restoration. The Kansas Land Trust engages in this work. *See generally* KANSAS LAND TRUST, https://www.klt.org/properties [https://perma.cc/47FH-BWSJ].

[147] U.S. DEP'T OF THE INTERIOR BISON WORKING GRP., BISON CONSERVATION INITIATIVE 2020 2 (2020), https://www.nps.gov/articles/000/upload/BCI2020-2020_05_06_508-Compliant.pdf [https://perma.cc/227G-P2BK].

Grasslands across 13 states.[148] Conservation initiatives include reintroducing bison to the Midewin National Tallgrass Prairie, in collaboration with the Nature Conservancy and the National Forest Foundation.[149] Moreover, the National Park Service manages a number of grassland and prairie sites, including the mixed-grass prairies in Badlands National Park in South Dakota, the tallgrass Prairie National Preserve in Kansas, and Effigy Mounds National Monument in Iowa.[150]

Further prairie protection comes from an unlikely place: the US Department of Agriculture's Risk Management Agency and crop insurance subsidies. Colloquially known as "sodsaver" provisions, the terms of Section 7333 of Title 7 of the United States Code reduces insurance subsidies for crops during the first four years of crop production that farms undertake on native sod.[151] While the provisions currently apply only to land in Minnesota, Iowa, North Dakota, South Dakota, Montana, and Nebraska, recent legislative efforts have been made to expand the program nationwide.[152] According to the sponsors of the legislation to make such an expansion, the "sodsaver" provisions seek to disincentivize farmers from breaking native sod, while not completely prohibiting it—all while reducing spending of government funds, which could in turn be put toward other affirmative conservation programs.[153] In similar fashion, the US Department of Agriculture's Conservation Reserve Program also helps protect "environmentally sensitive land" by paying farmers to remove the land from agricultural use and instead "plant species that will improve environmental health and quality," under terms included in ten- to fifteen-year contracts.[154]

While this array of agencies and programs might seem impressive, certain realities reflect their limitations. For instance, the National Grasslands program

---

[148] *See* U.S. DEP'T AGRIC., NATIONAL GRASSLANDS INTERPRETIVE MASTER PLAN 8 (Sept. 2013), https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5439005.pdf [https://perma.cc/55GM-2WBF].

[149] *See* NAT'L FOREST FOUND., MIDEWIN NATIONAL TALLGRASS PRAIRIE 5, 10, https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3833921.pdf [https://perma.cc/6ZD2-XU7V].

[150] *See Badlands*, NAT'L PARK SERV., https://www.nps.gov/badl/index.htm/ [https://perma.cc/6YJV-HXX9]; *Tallgrass Prairie*, NAT'L PARK SERV., https://www.nps.gov/tapr/learn/nature/bottomland-prairie-restoration.htm/ [https://perma.cc/ZR63-XX9T]; *Effigy Mounds*, NAT'L PARK SERV., https://www.nps.gov/efmo/learn/nature/prairies.htm/ [https://perma.cc/47DZ-8S8J].

[151] *See Native Sod Guidelines for Federal Crop Insurance*, U.S. DEP'T OF AGRIC. (Aug. 2019), https://www.rma.usda.gov/en/Fact-Sheets/National-Fact-Sheets/Native-Sod-Guidelines-for-Federal-Crop-Insurance#:~:text=Native%20sod%20acreage%20is%20acreage,been%20tilled%20for%20crop%20production.&text=You%20must%20provide%20documentation%20to,be%20unclassified%20as%20native%20sod/ [https://perma.cc/W2J8-UBET].

[152] Conservation Reserve Program Improvement Act of 2023, S. 174, 118th Cong. (2023), https://www.congress.gov/118/bills/s174/BILLS-118s174is.pdf [https://perma.cc/ZY58-G8X8].

[153] *See* Press Release, John Thune, U.S. Senator, Thune-Klobuchar Bill Would Expand Sodsaver Initiative (May 10, 2023), https://www.thune.senate.gov/public/index.cfm/2023/5/thune-klobuchar-bill-would-expand-sodsaver-initiative/ [https://perma.cc/6ZHU-FCLR].

[154] *See Conservation Reserve Program*, U.S. DEP'T AGRIC., https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index/ [https://perma.cc/UJ37-J5JG].

described above covers less than 4 million acres of US territory,[155] while National Forests (subject to logging and other uses) comprise over 188 million acres.[156] Moreover, public policy often works directly against the goals of environmental protection, including species biodiversity of the sort that 30x30 initiatives or Half-Earth proposals seem aimed to support. Crop and insurance subsidies are designed to ensure that farms remain profitable even when natural forces (both climate and market) might force farmers and ranchers into other professions and allow lands converted earlier to agricultural use to revert to a more natural state.

Furthermore, federal programs touted as "conservation" and "restoration" programs often focus only on reducing harm or preserving land for human use, as opposed to preserving or restoring natural ecosystems. For example, land managed by the BLM or by the Forest Service is under a multi-use mandate, meaning that the agencies must balance competing interests of preservation versus use, such as cattle grazing on BLM lands.[157]

Notably, the legal and institutional details enumerated above do *not* reflect specific action emerging from the Biden Administration's 30x30 initiative. Why? Because very little such action has emerged yet. For instance, the "atlas" called for in the Biden Administration's 30x30 initiative has not yet been issued.[158] Indeed, the Administration has not yet defined what lands and waters are considered to be conserved for purposes of the Executive Order announcing the 30x30 initiative.[159]

Unhappily, Canadian efforts to implement a 30x30 strategy also remain in their early stages. The government has announced that Canada's follow-up to the late-2022 COP15 30x30 pledge will be led by the Environment and Climate Change Canada office within the Ministry of Environment and Climate Change. A National Biodiversity Symposium was scheduled to be conducted (in virtual format and via surveys) from mid-May to mid-July 2023 to "kick off the

---

[155] *See* NATIONAL GRASSLANDS INTERPRETIVE MASTER PLAN, *supra* note 148, at 8; *see also Grassland Survey*, *supra* note 136, at 310–11 (providing a map of the US National Grasslands and noting that "the degree of protection afforded by the designation of an area as a national grassland is paltry").

[156] *See* U.S. DEP'T AGRIC. NAT'L FOREST SERV., NATIONAL AND REGIONAL AREAS SUMMARY, (Oct. 15, 2022), https://www.fs.usda.gov/land/staff/lar/LAR2022/LARTable1.pdf [https://perma.cc/XTF3-GK22].

[157] *See* Huffman, *supra* note 101, at 57.

[158] Email from Drew McConville, Center for American Progress, to Professor John W. Head, Distinguished Professor of Law, University of Kansas School of Law, "[t]he Administration still hasn't released its Atlas" (Jul. 2023) (on file with author).

[159] ANNE A. RIDDLE, CONG. RSCH. SERV., IN12116, 30 BY 30: A TWO-YEAR STATUS UPDATE ON E.O. 14008 2 (2023), https://www.everycrsreport.com/files/2023-02-24_IN12116_4970c0d9852d114eb6e7d9cf4ab76e6efe4b5b1b.pdf/ [https://perma.cc/9836-J352] [hereinafter *Status Update*].

engagement process for developing [Canada's 2030 National Biodiversity] Strategy."[160] No results from that Symposium have surfaced yet.

On the other hand, at least some specific measures have been put in place, both in the USA and in Canada. In the USA, these include the following:

- Increasing "the protection of important historical and natural resources by expanding the boundaries of several existing parks and adding two new rivers to the Wild and Scenic Rivers System."[161]
- Expanding the scope of the Red River National Wildlife Refuge by thousands of acres.[162]
- Establishing a "Lost Trail Conservation Area in northwest Montana as the 568th and newest unit of the National Wildlife Refuge System."[163]
- Designating the Connecticut National Estuarine Research Reserve along Long Island Sound, encompassing over 52,000 acres, as the 30th site in the reserve system.[164]
- Providing funding for the establishment of a $350 million competitive grant pilot program for construction of wildlife road crossings to reduce vehicular crashes and benefit migration corridors.[165]
- Providing more than $4 million across the Federal Government in funding for fish passage.[166]
- Providing $905 million in funding to restore public lands under the authority of the Department of the Interior,

---

[160] *See Canada's 2030 National Biodiversity Strategy*, ENV'T & CLIMATE CHANGE CAN. https://www.canada.ca/en/environment-climate-change/services/biodiversity/national-biodiversity-strategy.html [https://perma.cc/CXZ7-RBX7]; *see also Consultations launched on the development of Canada's 2030 Biodiversity Strategy*, ENV'T J. (May 25, 2023), https://environmentjournal.ca/consultations-launched-on-the-development-of-canadas-2030-biodiversity-strategy/ [https://perma.cc/M3WP-KB8S].

[161] U.S. DEP'T OF THE INTERIOR, AMERICA THE BEAUTIFUL 2022 ANNUAL REPORT 10 (2022), https://www.doi.gov/sites/doi.gov/files/final-atb-2022-annual-report-508.pdf [https://perma.cc/L6AJ-AXX2] [hereinafter *2022 Report*].

[162] *Id.*

[163] *Id.*

[164] *Id.*

[165] *See Wildlife Crossings Program*, U.S. DEP'T OF TRANSP. FED. HIGHWAY ADMIN. (Dec. 5, 2023), https://highways.dot.gov/federal-lands/programs/wildlife-crossings#:~:text=Program%20Overview&text=L.,FHWA/ [https://perma.cc/YP5C-3P5T].

[166] *See* Office of Energy Efficiency & Renewable Energy, *WPTO Releases $4 Million Funding Opportunity to Advance Fish Passage and Protection Technologies*, U.S. DEP'T OF ENERGY (Oct. 31, 2022), https://www.energy.gov/eere/water/articles/wpto-releases-4-million-funding-opportunity-advance-fish-passage-and-protection [https://perma.cc/877E-3SG2].

> along with $255 million for restoration of important ecosystems and watersheds.[167]

In Canada, although the 2030 National Biodiversity Strategy seems still a work in progress, some 30x30-related steps have been taken. For instance, a C$1.4 billion Nature Smart Climate Solutions Fund (NSCSF) has been established to "help conserve, enhance, and restore wetlands, peatlands, grasslands and agriculture lands."[168] Driving its mission forward is not only its goal to "reduce 2–4 megatons of greenhouse gas emissions annually" over ten years, but also its project selection process, which emphasizes biodiversity concerns and seeks to conserve, restore, and enhance the "important habitat[s] for migratory birds, species at risk and other species of cultural and/or socio-economic importance."[169]

Moreover, on the day that the COP15 30x30 pledge was announced in Montreal in December 2022, the Government of Canada made its own announcement—that the government would soon recognize several federally-managed properties "using an international mechanism established by the International Union for the Conservation of Nature, called Other Effective area-based Conservation Measures (OECM)" under which land managed for other purposes can nevertheless "achieve long-term and effective conservation of biodiversity."[170] In this way, "more than 15,000 hectares have been added to Canada's Protected and Conserved Areas Database."[171]

Montreal is not Canada's only site of recent international action on biodiversity. In August 2023, representatives of 185 countries met in Vancouver and agreed to launch the Global Biodiversity Framework Fund ("GBFF") with intent to "mobilize and accelerate investment in the conservation and sustainability of wild species and ecosystems, whose health is under threat from

---

[167] *Id.* Other legislative initiatives could be viewed as having "30x30-adjacent" effects—that is, as aiming at some of the same conservation-encouraging targets. These include the "Growing Climate Solutions Act" enacted in late 2022 to help farmers work with the U.S. Department of Agriculture to engage more directly in entering the carbon market, thereby benefitting from reducing their greenhouse gas emissions. *See* Press Release, Abigail Spanberger, House of Representatives, *President Signs Into Law Spanberger's "Growing Climate Solutions Act," Greenlights Making Carbon Markets More Accessible to American Agriculture* (Dec. 30, 2022), https://spanberger.house.gov/posts/president-signs-into-law-spanbergers-growing-climate-solutions-act-greenlights-making-carbon-markets-more-accessible-to-american-agriculture [https://perma.cc/3KRH-W2TP]

[168] *See Strategy for Canada*, *supra* note 140.

[169] *Nature Smart Climate Solutions Fund*, ENV'T & CLIMATE CHANGE CAN. (Mar. 8, 2023), https://www.canada.ca/en/environment-climate-change/services/environmental-funding/programs/nature-smart-climate-solutions-fund.html [https://perma.cc/2W3W-J646].

[170] *Government of Canada recognizing federal lands and water to contribute to 30 by 30 nature conservation goals*, ENV'T & CLIMATE CHANGE CAN. (Dec. 9, 2022), https://www.canada.ca/en/environment-climate-change/news/2022/12/government-of-canada-recognizing-federal-land-and-water-to-contribute-to-30-by-30-nature-conservation-goals.html [https://perma.cc/RG7Y-DCUT].

[171] *Id.*

wildfires, flooding, extreme weather, and human activity including urban sprawl."[172] Canada, as host, was one of two countries to make an initial contribution to the GBFF's capital fund, in an amount of C$200 million.[173]

Although these and other actions have been taken by both Canadian and US government authorities toward implementing their 30x30 initiatives, criticisms have been sharp, particularly in the USA. For instance, the Congressional Research Office offered this critique of the 30x30 initiative in February 2023 on grounds of its lack of clarity:

> The Administration has not yet defined what lands and waters are considered to be conserved for the purposes of E.O. 14008. In the absence of such a definition, a baseline of conservation under the policy cannot be established and progress cannot be definitively measured. Therefore, stakeholders might question what U.S. lands and waters are already conserved, how progress toward 30 by 30 is to be measured, and what specific actions may support or oppose the policy. For example, it is unclear whether progress requires protection of currently unprotected land—such as through new conservation easements, federal land designations, or federal land acquisition—or whether it also includes restoration of currently protected areas. It is also unclear whether areas with certain characteristics "count" under E.O. 14008—such as those where extractive activities are allowed, such as fishing or timber harvesting.[174]

The Congressional Research Office highlighted other ways in which "[t]he federal 30 by 30 policy has been controversial."[175] Specifically, it noted that critics "have asserted that it could lead to increased federal land acquisition and protective designations, or federal conservation easements on private land, infringing on private property rights, curtailing state and local government revenue, or reducing economic opportunity."[176]

The Biden Administration's 30x30 initiative is a target for criticism in two other ways—its voluntary character and its emphasis on "conservation" rather than "protection" or "preservation." As for the first of these points, an interagency report has lauded praise on private landowners, urging that the

---

[172] Press Release, Global Environmental Facility, New Global Biodiversity Fund Launched in Vancouver (Aug. 24, 2023), https://www.thegef.org/newsroom/press-releases/new-global-biodiversity-fund-launched-vancouver [https://perma.cc/WY5K-G86X] [hereinafter Global Biodiversity Fund]; *see also* Brenna Owen, *Leaders vow to hurry action at environment conference*, GLOBE2GO (Aug. 26, 2023), https://globe2go.pressreader.com/article/281638194763306 [https://perma.cc/76ZV-WVNF].

[173] *See* Global Biodiversity Fund, *supra* note 172.

[174] *See Status Update*, *supra* note 159, at 2.

[175] *Id.*

[176] *Id.*

"strong stewardship ethic among America's fishers, farmers, ranchers, [and] forest owners" be recognized and honored and that the Biden Administration "will support *voluntary* stewardship efforts that are already underway across the country's lands and waters."[177]

The same inter-agency report lays heavy emphasis on the fact that the Biden Administration's 30x30 initiative aims at conservation as distinct from preservation. According to the report, that initiative "specifically emphasizes the notion of 'conservation' of the nation's natural resources (rather than the related but different concept of 'protection' or 'preservation') recognizing that many uses of our lands and waters, including of working lands, can be consistent with the long-term health and sustainability of natural systems."[178]

In sum, it seems that the 30x30 efforts in the US context are predominantly (and unfortunately) voluntary, light in touch, and anthropocentric. That last point—anthropocentricity—appears in the 2022 annual report on the Biden Administration's efforts; the report asserts that "[t]he America the Beautiful initiative *is designed to strengthen the nation's economy* by addressing the interconnected climate and biodiversity crises and improving equitable access to nature."[179]

These criticisms do not contradict the statements made in that same 2022 report that in his first two years in office President Biden "took more conservation actions and protected more lands than any other 21st century President"[180] or that the Administration's "efforts have conserved millions of acres of lands and waters through designations of national monuments, wildlife refuges, wilderness areas, farm bill conservation programs, and more."[181] Still, these efforts fall far short of matching the scale of the challenge that the biodiversity crisis presents.

After all, the areas to which some form of protection has been extended thus far under the Biden Administration's 30x30 initiative represent only a tiny proportion of the Great North American Prairies, which encompass roughly 1.15 million square miles of landscapes[182]—territories that until relatively recently

---

[177] *2022 Report*, *supra* note 161, at 15 (emphasis added). The word "voluntary" appears 18 times in the report, on average about once per page of text, *id.*

[178] *Id.* at 10.

[179] *Id.* at 4 (emphasis added).

[180] *Id.* at 6.

[181] *Id.*

[182] For the sizes of each of the ecoregions in the Great North American Prairies, see *supra* note 133. The figures shown there total 1,153,400 sq. mi. According to a more recent "One Earth" set of data, the sizes of the ecoregions in this region (with boundaries drawn slightly differently) total 271,479,000 hectares, comprising 59,934,000 hectares in "bioregion NA21" (encompassing 3 ecoregions), 112,913,000 hectares in "bioregion NA12" (encompassing 3 ecoregions), and 98,632,000 hectares in "bioregion NA20" (encompassing 5 ecoregions). *See Northern America*, ONE EARTH, https://www.oneearth.org/realms/northern-america [https://perma.cc/4YUB-FWVJ].

served as habitat for millions of animals that are increasingly threatened because all but two of the ecoregions in the Great North American Prairies now are classified as in "critical/endangered" ecological condition.[183] Contrasting with the relatively small scope of the protective action taken thus far is the massive reach that some scientists say such protection *should* have. For instance, a team of scientists writing about five years ago asserted that dealing with both the climate crisis and the biodiversity crisis will require aiming at "a single target: protect at least half of Earth by 2050 and ensure that these areas are connected."[184] They then offer these details:

> [W]hile we may be able to afford to wait to formally designate 50% protected in nature reserves, we need to fast-track the protection and restoration of all natural habitat by 2030 . . . . A ["global deal for nature"] that will ensure that we have at least 50% intact natural habitats by 2030 is the only path that will enable a climate-resilient future and is one that will offer a myriad of other benefits.[185]

Recall also that E. O. Wilson's "4th root formula"[186] would call for roughly half of the over one million square miles of the Great North American Prairies[187] to be given effective protection if we are prepared to watch about 15% of the species go extinct. If we wish to limit the extinction percentage to only 10%, the protection should be extended not to just half of the landscapes but to about 65% of the landscapes.[188]

Converting these figures as expressed in hectares into figures expressed in square miles yields a total of 1,048,181 sq. mi. (1 sq. mi. = 259 hectares), which is slightly smaller than the same total area as noted above (1,153,400 sq mi.).

[183] *See supra* note 134. One of the two exceptions is ecoregion #0807, the Flint Hills tall grasslands, which are subject to some protective measures, such as the Tallgrass Prairie National Preserve. *See Last Stand of the Tallgrass Prairie*, NAT'L PARK SERV., https://www.nps.gov/tapr/index.htm [https://perma.cc/45W4-3HRB]. The other exception is ecoregion #0809, the Nebraska sand hills mixed grasslands, where "fragility of soils has dissuaded excessive overgrazing and cropping." *See* S. Chaplin, P. Simms, E. Dinerstein, K. Carney, Rick Schneider, & T. Cook, *Nebraska Sand Hills mixed grasslands*, WORLD WILDLIFE FUND, https://www.worldwildlife.org/ecoregions/na0809 [https://perma.cc/8R7F-MSDM].

[184] *See Global Deal*, *supra* note 26.

[185] *Id.* Some observers assert that even 50% is not enough. *See generally* Ellis, *supra* note 57.

[186] For details on the "4th root formula," see *supra* note 47 and accompanying text.

[187] For calculations of the total size of the Great North American Prairies in square miles and in hectares, based on data from two sources, see *supra* note 182.

[188] *See supra* note 48 and accompanying text.

VI. NATURAL RESTORATION IN THE GREAT NORTH AMERICAN PRAIRIES AND BEYOND – A PROGRESSIVE 30X30 LEGAL AND POLICY FRAMEWORK

I have already cited a few facts illustrating how thoroughly humans have degraded the ecosystems of the Great North American Prairies.[189] Given this degradation, the 30x30 approach is inadequate; the momentum toward biodiversity collapse is already too great for a 30x30 plan to work except as "first gear" in a three-speed transmission. Using E. O. Wilson's "4th root formula,"[190] we should start with a 30x30 approach, then shift to a 50x50 approach—that is, a Half-Earth plan for protecting 50% of habitat landscapes worldwide by 2050—and thereafter hew to a "Two-Thirds" strategy as our "cruising speed" in order to save and restore 90% of the species and natural systems that make our Earth a living planet. (Even that "cruising speed" would constitute an admission that we are intentionally sending 10% of all species into extinction.)

Can this be done? Probably not without drastic measures. In the following paragraphs, I offer two types of reform proposals: (i) technical reforms revolving around land use, energy, planetary limits, and diet for our species; and (ii) legal and policy reforms. These are, in keeping with the title of this essay, "immodest proposals;" they would almost surely be *unpalatable today* to most US and Canadian leaders, but they will almost surely be *necessary soon* if the USA and Canada are to take seriously the challenge of addressing the biodiversity crisis effectively in the Great North American Prairies.

A. Setting the parameters – land use, energy, agriculture, and lifestyle

In *Half-Earth Socialism*, Vettese and Pendergrass use a cluster of variables to explain several possible future scenarios in which E. O. Wilson's Half-Earth proposal might work. All of those possible futures involve drastic changes in the way human society operates.[191] Table #1 offers a synopsis of the main alternatives that Vettese and Pendergrass foresee as plausible responses in which global temperature increase is kept to less than 2°C over pre-industrial levels. Table #2 does the same for temperature increases being kept to only 1.5°C over pre-industrial levels. In both tables, figures appearing in brackets are inferred, not stated directly in *Half-Earth Socialism*; moreover, some percentage figures do not total 100% due to rounding errors.

---

[189] *See supra* note 133 (showing nearly all of the relevant ecoregions in "critical/endangered" ecological status); *see also supra* text accompanying note 138 (noting the drastic reduction in grasslands ecoregions in North America through agricultural conversion); note 139 (noting the influence of the plow in the American prairies and declining grasslands birds populations); and notes 140–144 (noting declining grasslands birds populations).

[190] For details on the "4th root formula," see *supra* note 47 and accompanying text.

[191] *See* VETTESE & PENDERGRASS, *supra* note 47, at 103–11, 178–80.

Table #1: Details for a 2°C world striving to address the biodiversity crisis

Line	Parameters	First Scenario	Second Scenario	Third Scenario
A	per capita energy quota	1,500W	1,000W	1,500W
B	% of surface area for set-aside/rewilding	57%	[70%]	[61%]
C	% of surface area for biofuels production	26%	13%	21%
D	% of surface area for agriculture	18%	[18%]	[18%]
E	diet requirements: % vegan (versus omnivore or vegetarian)	nearly 100%	nearly 100%	nearly 100%
F	transport and industry sectors use renewables?	no; methane	yes	yes
G	other sectors use renewables?	yes	yes	yes

I offer these explanations for certain entries in Table #1, elaborating on the information provided by Vettese and Pendergrass:

- Line A – per capita energy quota. As noted above, a 2,000W allocation is favored by the 2000-Watt Society.[192] Allocating only 1,000W or 1,500W could be manageable for many currently underserved populations in the Global South but would create perceived hardship in the Global North; the US per capital average is currently about 12,000W.[193]
- Line C – land used for biofuels production. Because biofuels in their current state are relatively non-dense sources for energy generation, their benefit as renewables is partially offset by the land they use, and to some extent by the pollution they create.[194] Currently, about 4% of "agricultural lands," or less than 1% of all the world's terrestrial surface, are used to produce biofuels.[195]

[192] *See supra* note 71 and accompanying text; *see also 2000-Watt Society Vision & Mission*, 2000-WATT SOCIETY, https://www.2000-watt-society.org/what [https://perma.cc/C9RH-VFXG] ("To lower yearly global source energy demand to 2000 watts per person with 75% renewable-energy consumption.").
[193] VETTESE & PENDERGRASS, *supra* note 47, at 82.
[194] *Id.*
[195] *See* Fariss Samarrai, *Fuel or Food? Study sees increasing competition for land, water resources*, UVA TODAY (Mar. 3, 2016), https://news.virginia.edu/content/fuel-or-food-study-sees-increasing-

- Line D – land used for agriculture. Figures vary for this in the world today, but they cluster around 37% (of total land area) as calculated by the Food and Agriculture Organization.[196] Vettese and Pendergrass use a figure of 50% "of the planet's habitable surface."[197] The figure of 18% that Vettese and Pendergrass project in their Half-Earth scenarios—and as reflected in Line D for all three Scenarios in Table #1—reflects their proposal that most pasture areas be converted to set-aside/rewilded regions.
- Line F – renewable energy use by industry and transport. Vettese and Pendergrass explain that these sectors are difficult to convert to an all-renewable-electric basis under current technology.[198]

competition-land-waterresources#:~:text=About%204%20percent%20of%20the,the%20Nature%20journal%20Scientific%20Reports [https://perma.cc/FMM8-BD7L] (for the 4% figure); *see also* VETTESE & PENDERGRASS, *supra* note 47, at 108 (asserting that 0.4% of the world's total "habitable surface" is devoted to biofuels production).

[196] *See* Hannah Ritchie & Max Roser, *Land Use*, OUR WORLD IN DATA (Sept. 2019), https://ourworldindata.org/land-use#:~:text=The%20Land%20Area%20of%20the,%25%20of%20the%20Land%20Area [https://perma.cc/J7NJ-QN2P] (citing FAO data to give a figure of 37.6% for "agricultural area" comprising arable land, permanent crops, permanent meadows, and pastures). A chart in that document provides these details: (i) the Earth's surface is 29% land (149 million km^2), of which 71% is "habitable land" (the other 29% comprising glaciers and barren land); (ii) of the "habitable land," 46% is used for agriculture, 38% comprises forests, 14% comprises shrublands, 1% is freshwater, and 1% is "urban and built-up land;" (iii) of the land used for agriculture, 77% is used for livestock—either grazing or production of animal feed – and the other 23% is used for crops grown for human consumption and use, *id.*

[197] VETTESE & PENDERGRASS, *supra* note 47, at 108, 220 (citing a 2016 study).

[198] *Id.* at 106.

Table #2: Details for a 1.5°C world striving to address the biodiversity crisis

Line	Parameters	Fourth Scenario	Fifth Scenario
A	per capita energy quota	1,500W	2,000W
B	% of surface area for set-aside/rewilding	[57%]	81%
C	% of surface area for biofuels production	25%	[20%]
D	% of surface area for agriculture	18%	[18%]
E	diet requirements: % vegan (versus omnivore or vegetarian)	nearly 100%	76% (and 24% omnivore)
F	transport and industry sectors use renewables?	yes	no; hydrogen fuel
G	other sectors use renewables?	yes	[yes]

As shown in Table #2, the Fifth Scenario—with its 2,000W energy allocation, its 81% set-aside/rewilding figure, and its 24% omnivore figure—is achievable only by using "green" hydrogen fuel[199] in the transport and industry sectors. Vettese and Pendergrass speculate effusively: "Other options become possible with new infrastructure and technology. Perhaps there is a breakthrough in 'green' hydrogen fuels, which allows . . . total electrification" in all sectors, including transport and industry.[200] Accordingly, under this scenario, "a whopping 81 per cent of land can be left to nature (thus preserving 95 per cent of all species according to Wilson's formula)."[201]

---

[199] Extracting "green" hydrogen for use in electricity production involves separating hydrogen from oxygen through the electrolysis of water, which can be carried out with energy from renewable sources. *See Difference Between Green and Blue Hydrogen*, IBERDROLA, https://www.iberdrola.com/about-us/what-we-do/green-hydrogen/difference-hydrogen-green-blue **[**https://perma.cc/7JGL-SD5J**]**. By contrast, "blue" hydrogen requires hydrocarbons such as methane to facilitate a "reforming" chemical process that releases carbon dioxide, a greenhouse gas; besides, getting the methane in the first place typically involves some "fugitive leaks," *id; see also* Catherine Clifford, *Hydrogen power is gaining momentum, but critics say it's neither efficient nor green enough*, CNBC (Jan. 6, 2022, 3:13 PM), https://www.cnbc.com/2022/01/06/what-is-green-hydrogen-vs-blue-hydrogen-and-why-it-matters.html [https://perma.cc/C8H5-TWXF].

[200] VETTESE & PENDERGRASS, *supra* note 47, at 109–10.

[201] *Id.* For reasons that they explain at length, Vettese and Pendergrass rule out any reliance on technological innovations involving bioenergy and carbon capture and sequestration ("BECCS") or involving nuclear energy production. The prospects for BECCS are dismal, they say, because it "devour[s] land" due to its low power density, *id.* at 77–78. Similarly, they say that nuclear-powered energy cannot provide a feasible substitute for the fossil-carbon-based sources humans have become addicted to in the past century because (i) nuclear is a "stock energy" source rather than a "flow energy" source and (ii) although its proponents claim that it is safe, "carbon-free," and effective (especially in the new "fast-breeder" reactors), in fact "[n]one of these claims holds up under scrutiny, *id.* at 64.

Drawing from the information in Tables #1 and #2, I offer in Table #3 my own Sixth Scenario, which shares the enthusiasm that Vettese and Pendergrass exhibit for certain types of new technology but introduces several new factors to achieve a Two-Thirds-Earth goal:

Table #3: A Sixth Scenario for a 1.5°C world striving to address the biodiversity crisis

Line	Parameters	Sixth Scenario
A	per capita energy quota	2,000W
B	% of surface area for set-aside/rewilding	67% (two-thirds, up from the current figure of roughly 15%[202])
C	% of surface area for biofuels production	8% (up from the current figure of less than 1%[203])
D	% of surface area for agriculture	20% (down from the current figure of 37%-50%)[204]
E	diet requirements: % vegan (versus omnivore or vegetarian)	15% (and 75% vegetarian and 10% omnivore)
F	transport and industry sectors use renewables?	no; methane at first, then "green" hydrogen fuel, plus more effective wind & solar technology and batteries
G	other sectors use renewables?	yes
H	% of surface area for other uses	5%

[202] *Id.* at 108.
[203] For details on which calculations may be made for current use of "habitable land" or "agricultural lands" for biofuel production, see *supra* notes 195–197 and accompanying text.
[204] *See supra* note 197 and accompanying text.

I offer these explanations for certain entries in Table #3:

- Line A – per capita energy quota. This Sixth Scenario provides 2,000W instead of the more extreme 1,500W or 1,000W allocations of the First through Fourth Scenarios.
- Line B – areas for set-aside/rewilding. This "Two-Thirds World" strategy would, according to E. O. Wilson's formula, save about 90% of the world's species.[205] This, along with other favorable aspects of my Sixth Scenario, is possible in part because of improved technology and agricultural practices described below.
- Line C – areas for biofuels production. Unlike the five Scenarios from Vettese and Pendergrass (shown in Tables #1 and #2), my Sixth Scenario would involve a doubling of surface areas devoted to biofuels production (rather than much bigger increases for this in the First through Fifth Scenarios) because of improved technology and agricultural practices.
- Line D – areas for agriculture. With improved agricultural practices described below, some regions could be more productive for cropping; other regions currently unsuitable for any agricultural production could be made productive for certain crops.
- Line E – human diet. Although definitions of "vegan" and "vegetarian" vary widely, the figure of 15% vegan would probably constitute about a 10-fold increase from current figures, and the figure of 75% vegetarian would probably represent at least a tripling of current figures.[206] As in the five Scenarios in Tables #1 and #2, meat production and consumption would be almost entirely eliminated, probably freeing up some land for agriculture and the rest for set-aside/rewilding.
- Lines F and G – technology and energy. My Sixth Scenario depends on an aggressive pace of improvements in energy technology, including "green" hydrogen fuel, methane use in transition to a post-carbon world, better

---

[205] *See supra* note 48 and accompanying text.

[206] For some statistics on veganism worldwide, see Jen Flatt Osborn, *How Many Vegans Are in the World? Exploring the Global Population of Vegans*, WORLD ANIMAL FOUND. (Sept. 16, 2023), https://worldanimalfoundation.org/advocate/how-many-vegans-are-in-the-world/ [https://perma.cc/38SA-ZREZ] (citing a figure of 1%-2%); *see also Vegan Statistics – What is the Status?* REDEFINE MEAT (Dec. 15, 2021), https://www.redefinemeat.com/blog/vegan-statistics/#:~:text=What%20percentage%20of%20the%20world,Is%20veganism%20growing%20in%202021%3F [https://perma.cc/9CNK-QFBQ] ("[L]ess than one percent."). For some statistics on vegetarianism, see Darko Jacimovic, *20 Remarkable Vegetarian Statistics for 2023*, DEALS ON HEALTH (Jan. 18, 2022), https://dealsonhealth.net/vegetarian-statistics/#global-vegetarian-statistics [https://perma.cc/U4QJ-8G7P] (citing a figure of 22%).

battery storage, and wind and solar energy infrastructure with a much lighter carbon footprint. This pace of improvements would require robust public-sector funding, as discussed below in subsection VIB.

- Line H – other uses of land. The scenarios offered by Vettese and Pendergrass seem to leave out urban areas, which currently occupy between 1% and 3% of the Earth's terrestrial surface.[207] This Sixth Scenario accounts for urban and other densely-settled areas with the figure of 5%, which also can accommodate some new forms of energy-production facilities.

Would the Sixth Scenario explained above actually work? It depends on developments both (i) in technology and (ii) in attitudes or values. As for technology, improvements in the efficiency and cleanliness of energy technology are needed in the areas noted above: hydrogen fuel, battery storage, and wind-turbine and solar equipment. However, the bigger improvements must come in attitudes or values. I have written about this elsewhere, emphasizing the need to develop and apply principles of inter-species equity and deep agroecology.

In a 2023 article, I offered a definition of inter-species equity that explained its connection to the related principle of intergenerational equity:

> [Inter-species equity] gives consideration to nonhuman animals based on their inherent value and interests [and] 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. 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

[207] *See supra* note 196 (citing sources indicating that 1% of the Earth's "habitable land" is "urban and built-up land").

> dominance to deprive successor generations of their opportunities for well-being or even survival."[208]

The Sixth Scenario that I describe above also requires an adoption of "deep agroecology." Indeed, agriculture stands at the centerpiece of the Sixth Scenario. My definition of "deep agroecology," developed in a 2021 book, has these elements:

> - . . . the embrace of ethical, legal, and institutional innovations
> - . . . that will result in a *system of producing food* for humans (as well as feed and fiber, the other usual outputs attributable to agriculture more generally)
> - . . . that gives highest and non-negotiable *priority to ecological realities and restoration*,
> - . . . so that the food crops we produce—with special attention to grains and legumes, which are so important to today's human diet—are drawn from and are *complementary to the Earth's natural ecosystems* rather than working in opposition to such ecosystems
> - . . . with the consequence of *dramatically reducing agriculture's contribution to climate disruption* and simultaneously helping our system of food production brace itself against the severe ecological perturbations that have already begun, and that we know will inevitably accelerate with global climate change.[209]

I have also developed these concepts of inter-species equity and deep agroecology in other writings urging a new agricultural revolution that would involve a transformation from annual-monoculture food production to a perennial-polyculture model.[210] That transformation, if it comes fast enough, can make the Sixth Scenario feasible because perennial-polyculture crops would have many ecological benefits. They can dramatically reduce the required amount of agricultural fertilizer and chemical pesticides, which draw heavily from fossil carbon; they can dramatically reduce the fossil-carbon fuels needed to power farm equipment; they can arrest the degradation that traditional agriculture causes to soil; they can reduce the loss of water compared with annual grain crops; they can better resist attacks by pests and pathogens; they can sequester carbon; they would probably reduce emissions of nitrous oxide (an

---

[208] Head, *supra* note 5, at 287.
[209] DEEP AGROECOLOGY, *supra* note 130, at 4.
[210] *See generally* JOHN W. HEAD, INTERNATIONAL LAW AND AGROECOLOGICAL HUSBANDRY: BUILDING LEGAL FOUNDATIONS FOR A NEW AGRICULTURE (1st ed. 2017).

extremely potent greenhouse gas); they can in some cases reduce emissions of methane; they can reduce groundwater contamination.[211]

All of the Scenarios sketched out above, including my Sixth Scenario, involve uncertainty and invite debate. For now, I embrace the Sixth Scenario and believe that a Great North American Prairies Restoration Initiative should proceed briskly along its lines, with the ultimate aim of placing two-thirds of the Earth's landscapes in ecologically protected status while keeping global temperature increases below 1.5°C over pre-industrial levels and providing adequate food and energy supplies to all human populations.

B. Shifting gears to a Two-Thirds-Earth approach – legal reforms

In my view, US, Canadian, and indigenous leaders should establish a Great North American Plains Restoration Initiative ("GNAP Restoration Initiative") that draws from the experience built up thus far in the context of other North American environmental-cooperation programs. Several of these were described and evaluated in an article that a co-author and I published in 2022.[212] In applying that prior experience to the restoration of the Great North American Prairies, authorities from both countries and from indigenous groups should give primacy to indigenous rights, interests, claims, sovereignty, access, technology, and values.

In establishing such a GNAP Restoration Initiative, US and Canadian authorities, working together with Native American and First Nations authorities, should adopt not just a 30x30 goal but rather a "progressive" goal that regards 30x30 as just a step to 50x50 and ultimately a Two-Thirds-Earth approach. To do that, the GNAP Restoration Initiative will need to address legal and policy issues in several categories. One category would be *land ownership* issues. In this regard:

- Statutes and regulations would be needed to provide for, and to expand, *the rights of indigenous peoples (Native American / First Nations) for community-oriented land occupation and management* according to traditional knowledge as confirmed and expanded by publicly-funded scientific support, and subject to evidence of competence in applying indigenous & traditional knowledge for landscape management and restoration. Most of these landscapes would fall within the category of set-aside/rewilding regions.

---

[211] *Id.* at 183–185, 34–35.

[212] *See* John W. Head & Emily Otte, *More than Friends? U.S.-Canada Cooperative Frameworks on Agriculture and the Environment*, 70 KAN. L. REV. 447 (2022).

- Statutes and regulations would need to provide for the *continued ownership of land by private-sector title-holders subject to strict conditions* under which the impact of such landowners would be reduced to the point that they had no material negative impact on the ecosystems under their responsibility. This would typically disallow any residency by non-indigenous people on set-aside land except for extremely low-impact and temporary encampments, and it would require some certification of the competence of the owners to carry out the restoration initiatives necessary to the ecosystems involved.
- In cases where the existing landowners are unable to meet competency requirements referred to above as set-aside regions, statutes and regulations would be needed to facilitate the *voluntary transfer of property titles* and claims from existing private-sector landowners to other entities—presumably government or government-authorized entities—*with some form of compensation* financed by public funds.
- In other cases, statutes and regulations would be needed to handle the *involuntary transfer of property titles* and claims over set-aside regions from existing private-sector landowners to other entities—presumably government or government-authorized entities—also *with some form of compensation*.

A second category of issues to be addressed in the GNAP Restoration Initiative—as a move beyond land ownership reforms—would be *land clean-up* issues. In that respect:

- Legislative and fiscal enactments would be needed in order to muster funds, or create subsidies or other incentive structures, for ensuring that most *privately-owned property to be placed in set-aside status is cleared of human residue* (buildings, fences,[213] metal and plastic objects, etc.), which would constitute unusable trash from the perspective of non-human species and could retard the process of natural restoration of the ecoregions being rewilded.
- Analogous legislative and fiscal enactments would be needed to muster funds needed for *decommissioning most*

[213] For an account of fence-removal work carried out by American Prairies staff and volunteers, see *Habitat Connectivity*, *supra* note 108 and accompanying text.

or all existing forms of public infrastructure within set-aside regions—roads, bridges, power lines, wind turbines, and the like—at least to the extent necessary for jump-starting a rewilding process (and subject to "human transport corridors" as mentioned below).

A third category of GNAP Restoration Initiative issues would revolve around *non-interference by humans*—that is, by all humans other than those that would be remaining in set-aside regions for purposes of management as noted above. For this:

- Legislative and regulatory measures would be needed to prevent non-management humans from remaining in the set-aside regions—including enactments to buy out lease agreements and pay for relocation elsewhere. These measures must provide protections for those who may lose homes and livelihoods due to moving (for example, moving from the Midwest to the coasts might cause major financial and social issues, especially when done en masse).
- Likewise, legislative and regulatory measures would be needed to *prevent non-management humans from entering* the set-aside regions, whether for tourism or hunting or recreation or other activities, without permission.
- In that respect, there would need to be *exceptions created for transport corridors* (a mirror image to "wildlife corridors") for humans crossing through protected set-aside areas for necessary travel or transport.
- Naturally, there would need to be legislative measures put in place to *criminalize transgressions* of the rules enumerated above (on non-interference by unauthorized humans on set-aside areas) and to provide effective enforcement.

A fourth category of GNAP Restoration Initiative issues would revolve around the process of *"powering down" and relocating economically-essential productive activities*. For this,

- Legislative and regulatory measures would be needed to facilitate the *decommissioning of manufacturing, farming,*

grazing, mining, and other operations contributing to economic production in all set-aside/rewilded regions.

- Legislative and budgetary enactments would be needed to *compensate operators of businesses* engaged in the above economic-production activities for relocating their operations outside the set-aside/rewilded region.
- Legislative and regulatory measures would be needed to *shift human diets largely to vegetarian* and vegan, with meat being produced and consumed only in exceptional circumstances.
- Legislative and regulatory measures would be needed to impose and manage a system of *rationing of goods*, to absorb the shortfall in production caused by the powering down and relocation of economically productive activities.
- Legislative and regulatory measures would likewise be needed to impose and manage a system of *rationing of energy*, to absorb the shortfall in energy production caused by the powering down. This rationing, modeled on the proposals of the 2,000-Watt Society,[214] would reflect a transition to renewable energy sources and would actually yield an increase of energy available to some currently under-served populations and regions.

A fifth category of GNAP Restoration Initiative issues would revolve around mustering financial resources for *stimulating technological research and development* on an urgent basis, particularly in the sectors emphasized above (energy and agriculture). For this,

- Legislative and regulatory measures should be put in place to further incentivize private-sector research into "green" hydrogen-fuel technology as well as improved systems and equipment for biofuel, wind power, solar power, and battery design.
- Massive publicly-funded budget allocations should be approved for the same purpose, so that the energy-sector technological improvements come not just from private-sector incentives but also from the public fisc.
- Similar legislative, regulatory, and funding measures should be put in place to spur further development of agroecological innovations of the sort referred to above in

[214] *See supra* note 71 and accompanying text.

> subsection VIA—perennial polyculture crop systems—along with other food-supply technology.

Although all of the above bullet-points could warrant extensive elaboration, I will focus on only a few of them. First, the *land-ownership issues* listed above would have the effect of a massive transfer of both the rights and the responsibilities relating to a great many ecoregions. Existing private landowners would remain in place if they could show evidence—suitable for some sort of certification process—that they are able and willing to undertake drastic restoration efforts aimed at "building through unbuilding"—that is, building habitat suitable for native species (some of which would need to be reintroduced and nurtured) by removing trash and deconstructing existing human structures. Correspondingly, responsibility for managing some lands would transfer from those existing landowners leaving the area to a new cadre of managers suitable for those management responsibilities. Many of the new managers would be indigenous peoples with traditional knowledge and values that are enhanced and supported by scientific research. The result in some areas would be a return of lands to Native American and First Nations control, after many generations of intrusion upon those lands by persons of predominantly European descent. This process would undoubtedly be difficult for many persons both in concept and in implementation.

The same caliber of difficulties would arise regarding the steps involved in *"powering down" and relocating economically-essential productive activities*. With 30%, then 50%, and ultimately two-thirds, of the Earth's terrestrial surface placed in protected status for use predominantly by non-human species, the remaining landscapes could not support the same types and levels of energy production and use; nor could they support the existing levels of pasturage and feed production for livestock raised for human food. Many forms of rationing would be necessary.

Stan Cox has written incisively about rationing. In his book *Any Way You Slice It*, Cox offers a broad rationale for rationing:

> [S]tudies on inequality, happiness, work, and growth suggest that firm limits on economy-wide consumption and production, accompanied by a closing of the gap between rich and poor, would improve overall well-being. Interventions that restrain consumption society-wide while reducing inequality of consumption would dampen economic activity but could also increase overall satisfaction and well-being.[215]

---

[215] STAN COX, ANY WAY YOU SLICE IT 258 (2013).

Cox then explains that climate activists "urg[e] a reduction in agriculture's carbon footprint" and assert "that for one class of food in particular—meat—rationing by quantity could have a beneficial climate impact."[216] Cox explains: "Through release of carbon dioxide, methane, and nitrogen oxides, as well as destruction of vegetation and desertification, global livestock production has been estimated to make an annual contribution to atmospheric warming equal to that of 7.3 billion tons of carbon dioxide."[217]

As noted above in subsection VIA, Vettese and Pendergrass in their book *Half-Earth Socialism* also urge several forms of rationing, especially of energy and meat. Indeed, they say that any Half-Earth approach is workable only with rationing. Their form of food rationing features veganism, and their form of energy rationing embraces caps of 2,000, 1,500, or even 1,000 watts per capita. For Vettese and Pendergrass, imposing such quotas could be possible only if the existing system of market capitalism were replaced wholesale, and quickly, by a socialist economic system designed to manage expectations, demand, usage, and conflicts in ways that earlier experiments in socialism were unable to do.

I do not embrace that call for socialism; I reserve judgment on that point. However, I do know that the form of capitalism we see today in North America, and in the Global North more generally, creates such a mandate for growth that it has contributed mightily to the ecological degradation that I bemoan in this essay. I also know, though, that rationing does not itself automatically require socialism. Surely the rationing that Stan Cox writes about in *Any Way You Slice It*[218] occurred in the USA and Britain in the midst of economic systems that were fundamentally capitalist, not socialist. Those experiences with rationing came in response to wartime emergencies and demonstrated that in such emergencies a communitarian spirit can motivate a society to cooperate while still embracing freedom and democracy. Humans have now created a global emergency that might likewise provide that same motivation.

There is little question that the reforms outlined above—involving massive land-control shifts, the imposition of 2,000-watt quotas, and all the rest—would be exceptionally difficult to achieve in North America, particularly among the non-indigenous populations that dominate political and economic policy. Indeed, at the outset of this Section VI, I wrote that the legal and policy measures I propose would almost surely be *unpalatable today* to most US and Canadian leaders but that would almost surely be *necessary soon* if the USA and Canada were to take seriously challenge of addressing the biodiversity crisis in the Great North American Prairies.

Those same factors—unpalatability today but necessity soon—apply globally as well. This fact is important because the biodiversity crisis is global in scope and hence cannot be addressed by only one country or a few countries. It is instead an issue that international law and institutions would need to grapple

---

[216] *Id.* at 193.
[217] *Id.* Cox also discusses water rationing: "humanity has no choice but to decide collectively how to protect water and how to guarantee everyone a fair share of it," *id.* at 149.
[218] *See id.* at 18–26.

with, so as to facilitate drastic action by regional, national, and sub-national authorities—and most importantly, by individuals and other private-sector actors whose actions those authorities would support.

I will save for another time my observations about the *global* implementation of a progressive 30x30 proposal that would shift into a Two-Thirds Earth strategy. Those observations would touch on (i) the need for the USA to accede to the Biodiversity Convention and to adopt the Montreal 30x30 pledge, (ii) the need for US and Canadian authorities to take a lead role lead in establishing the Global Corporate Trust for Agroecological Integrity I proposed in my 2019 book[219] (because of the global importance of the Great North American Prairies to agricultural production), and (iii) the need for US and Canadian authorities to expand their own efforts to support indigenous rights and interests in North America and worldwide.

VII. CONCLUDING OBSERVATIONS

In writing his *Modest Proposal*, Jonathan Swift was in effect goading his readers to respond to his suggestion that Irish children be eaten in order to solve problems of overpopulation and poverty. Not surprisingly, the response involved gasps and condemnations. The moral depravity reflected in such a "modest proposal" was evident to all, as was the scorching effectiveness of Swift's satire.

In this essay, I have made a different kind of proposal: that dramatic changes, especially legal changes, be made in the approach to biodiversity degradation in the Great North American Prairies. Putting the 30x30 commitment into implementation there, or following a Half-Earth strategy there, would seem to involve moving heaven and earth. Property issues, rationing, "powering-down," enforcement challenges—all these and more would seem insurmountable. Accordingly, mine is an *immodest* proposal; I fully acknowledge this fact. However, taking the steps that my proposal would involve—that is, building from the 30x30 commitment toward a Two-Thirds Earth reality—would *not* involve moral depravity of the sort that Swift's proposal involved. Indeed, the whole premise of the Biodiversity Convention, and of the 30x30 commitment announced in late 2022, is that humans would put their moral depravity on full display by *failing* to take drastic action to reverse the current course toward natural collapse.

Like Swift's essay, though, my own essay is intended to elicit responses. If the proposals in this essay (like those in Swift's) are unacceptable, then *what alternative courses of action are both acceptable and effective?* Surely it lies

---

[219] *See* JOHN W. HEAD, A GLOBAL CORPORATE TRUST FOR AGROECOLOGICAL INTEGRITY: NEW AGRICULTURE IN A WORLD OF LEGITIMATE ECO-STATES (2019).

within the responsibility of legislative and executive leaders in the USA and Canada to answer that question in respect of the already-degraded Great North American Prairies, and it lies within the responsibility of leaders worldwide to answer that question at a global level. Their responsibility—our responsibility—runs not just to us as humans but also to the other species whose existence we have endangered.