

NOVEMBER 2022

To Prevent the Collapse of Biodiversity, the World Needs a New Planetary Politics

Stewart Patrick

To Prevent the Collapse of Biodiversity, the World Needs a New Planetary Politics

Stewart Patrick

© 2022 Carnegie Endowment for International Peace. All rights reserved.

Carnegie does not take institutional positions on public policy issues; the views represented herein are those of the author(s) and do not necessarily reflect the views of Carnegie, its staff, or its trustees.

No part of this publication may be reproduced or transmitted in any form or by any means without permission in writing from the Carnegie Endowment for International Peace. Please direct inquiries to:

Carnegie Endowment for International Peace
Publications Department
1779 Massachusetts Avenue NW
Washington, DC 20036
P: + 1 202 483 7600
F: + 1 202 483 1840
CarnegieEndowment.org

This publication can be downloaded at no cost at CarnegieEndowment.org.

Contents

| | |
|--|----|
| Summary | 1 |
| The Human Assault on Nature: Welcome to the Anthropocene | 4 |
| A New Mindset | 7 |
| New Multilateral Policies and Institutions | 15 |
| Making Peace With Nature | 27 |
| About the Author | 28 |
| Notes | 29 |
| Carnegie Endowment for International Peace | 43 |

Summary

The planet is in the midst of an environmental emergency, and the world is only tinkering at the margins. Humanity's addiction to fossil fuels and voracious appetite for natural resources are accelerating climate change and degrading ecosystems on land and sea, threatening the integrity of the biosphere and thus the survival of our own species. Given these risks, it is shocking that the multilateral system has failed to respond more forcefully. Belatedly, the United States, the EU, the UK, and some other advanced market democracies have adopted more aggressive greenhouse gas reduction targets, but their ability to deliver is suspect, while critical emerging economies like China and India have resisted accelerating their own decarbonization.¹ Even more concerning, existing multilateral commitments, including on climate change, fail to address the other half of the planet's ecological crisis: collapsing biodiversity, which the leaders of the Group of 7 nations rightly call an "equally important existential threat."²

Preserving the natural world on which our well-being depends requires more than lofty rhetoric from national leaders. It demands bold breakthroughs in international environmental cooperation that can bridge the chasm between a global political system divided into nearly 200 independent countries and a unitary biosphere that obeys no sovereign boundaries. It is time to govern the world as if the Earth mattered.³

What is needed is a paradigm shift in foreign policy and international relations, which one might term "planetary politics."⁴ The cornerstone of this new worldview is ecological realism:

**It is time to govern the world
as if the Earth mattered.**

recognition that the integrity of the biosphere is the fundamental precondition for all that humanity hopes to accomplish.⁵ This new mindset will require governments to expand traditional definitions of national interest and international security, broaden conventional conceptions of sovereign obligations, and adopt a new approach to measuring national wealth that accounts for and values Earth's natural capital assets.

To put this new mindset into action, the world's governments must overhaul and strengthen the institutional and legal foundations of international environmental cooperation. Priorities include investing in nature-based solutions to climate change; bringing global trade rules into line with ecological imperatives; adopting a new approach to development that is truly sustainable; strengthening the Convention on Biological Diversity; finalizing agreement on the High Seas Biodiversity Treaty; and negotiating a comprehensive Global Pact for the Environment.

Summary for Policymakers

Climate change is just part of the global environmental emergency. Biological diversity is also imperiled. Human activity is driving unprecedented declines in ecosystems and species, threatening the health and integrity of the biosphere and the innumerable benefits that we obtain from the natural world.

Unfortunately, existing national policies and multilateral institutions have proven totally inadequate to address this potentially existential risk. Restoring balance between humanity and nature requires a paradigm shift toward "planetary politics," accompanied by dramatic innovations in global environmental governance.

A New Mindset

The point of departure for planetary politics is recognition that everything humanity seeks to accomplish ultimately depends on the stability and health of a unitary biosphere that does not recognize national borders. Three priorities for governments flow from this:

- Designate the survival and stewardship of the **biosphere as a core national interest** and a central objective of international cooperation.
- Bring traditional concepts of sovereignty into line with the imperatives of planetary ecological stewardship, including by endorsing a new **state responsibility to protect the global environment**.
- Work with corporations and communities to account for, invest in, and **safeguard natural capital and ecosystem services**, rather than taking them for granted and exploiting them to exhaustion.

New Multilateral Institutions and Policies

Planetary politics will require strengthening existing and creating new multilateral institutions and treaties to address the crisis of the biosphere—and backing these commitments with adequate resources.

- **Expand nature-based climate solutions.** Given the intertwined natures of the climate and biodiversity crises, parties to the UNFCCC should redouble their efforts to capture and permanently store CO₂ in natural carbon sinks.
- **Make international trade nature friendly.** To make global trade “green,” nations should adopt border carbon adjustments to penalize polluters, eliminate nature-destroying subsidies, liberalize trade in environmental goods, and crack down on illicit trafficking in wild species.
- **Make global development truly sustainable.** To reconcile the needs of humanity and the viability of nature, the international community must rein in destructive extractive industries and redesign and mobilize development financing to encourage environmental stewardship.
- **Strengthen the Convention on Biological Diversity (CBD).** At their Fifteenth Conference of Parties in December 2022, parties to the CBD must ratify a robust new global biodiversity framework, including a credible commitment to protect 30 percent of Earth’s land and ocean by 2030.
- **Bring the United States into the CBD.** Joe Biden’s administration should promptly seek the U.S. Senate’s advice and consent for ratification of the CBD, which is fully consistent with U.S. national sovereignty and U.S. national interests.
- **Conclude a High Seas Biodiversity Treaty.** UN member states should restart and conclude negotiations on this convention, to establish multilateral rules governing the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction.
- **Negotiate a Global Pact for the Environment.** Finally, the nations of the world should promptly begin negotiations on a comprehensive global convention to bring coherence to the fragmented landscape of international environmental organizations, treaties, and law.

The Human Assault on Nature: Welcome to the Anthropocene

So great is our species' collective impact on the planet that some scientists advocate designating an entirely new era, the Anthropocene (the Age of Humans), to describe the current moment.⁶ Since 1950, globalization has delivered remarkable progress, including an eleven-fold increase in global gross domestic product (GDP), adjusted for inflation.⁷ Many average citizens now enjoy material comforts unimaginable to monarchs in previous centuries.⁸ Such abundance has come at grievous cost to nature, however, fundamentally altering our relationship to the living planet.⁹ The global population has more than tripled from 2.5 billion to 8 billion over the same seventy years, and our ravenous material desires are jeopardizing the innumerable benefits we obtain from healthy ecosystems, ranging from breathable air and fertile soils to clean water and pollinated crops. Humanity has become the most powerful force shaping the Earth system.¹⁰

The scope and costs of this assault can no longer be ignored. They have been documented in a succession of stark reports from the United Nations and private groups like the World Wide Fund for Nature.¹¹ On nearly all indicators, the trajectory is dismal. Global carbon

Humanity has become the most powerful force shaping the Earth system.

dioxide (CO₂) emissions would need to drop 45 percent by 2030 to hold the rise in average global temperatures to 1.5°C, the objective to which nations agreed in Paris in 2015. Instead, they are on track to decline only 3 percent by the end of the decade, portending a future of searing heat, raging wildfires, acidifying oceans, violent storms, rising seas, and mass migration.¹² In the latest *Emissions Gap Report*, issued shortly before

the twenty-seventh Conference of Parties to the UN Framework Convention on Climate Change (COP27), the UN Environment Programme (UNEP) admitted that there is “no credible pathway to 1.5°C in place.” Indeed, current policies point to a world where temperatures rise 2.8°C, and national commitments (even if fulfilled) would only reduce this to 2.4–2.6°C.¹³ “We had our chance to make incremental changes, but that time is over,” warns Inger Andersen, UNEP’s executive director. “Only a root-and-branch transformation of our economies and societies can save us from accelerating climate disaster.”¹⁴

Climate change, moreover, is just part of Earth’s environmental plight. Biological diversity is also imperiled, and global warming is not even the primary culprit.¹⁵ Around the world, ecosystems and species are at risk of collapsing as humans degrade and despoil landscapes and seascapes, dump pollutants and toxins into the environment, introduce invasive species, and harvest timber, fish, wildlife, and other living resources unsustainably.

The figures are sobering.¹⁶ Three-quarters of the planet’s ice-free terrestrial surfaces and two-thirds of its marine environment have already been severely altered, including by agriculture,

ranching, logging, mining, urbanization, and industrial fishing.¹⁷ Ninety-three percent of global fisheries are overexploited or exploited to capacity, and fleets have reduced large ocean fish to 10 percent of their preindustrial numbers.¹⁸ Every year, the world discharges another 300–400 million tons of toxic sludge, heavy metals, and industrial poisons directly into the water, as well as 14.3 million tons of plastic into the oceans.¹⁹ Globally, fertilizer runoff has created more than 400 hypoxic (low oxygen) coastal “dead zones,” with a combined area larger than that of the United Kingdom.²⁰

One million animal and plant species face near-term extinction.²¹ Since 1970, populations of wild vertebrates have declined by 69 percent and insects by 45 percent worldwide, and 3 billion birds have vanished from North America.²² Humans and our domesticates now account for 96 percent of the planet’s mammalian biomass; 70 percent of all birds are poultry.²³ Half of all tropical forests have been destroyed since 1960, and each year the world loses another 3.36 million hectares (8.3 million acres)—an area the size of Belgium.²⁴ Globally, more than 85 percent of wetlands and 35 percent of mangroves have already been lost.²⁵

There have been five mass extinctions in Earth’s 4.5-billion-year history. Mounting evidence suggests we are on the cusp of a sixth.²⁶ This risk is particularly acute in the world’s oceans, which are warmer than they have been in recorded history and 30 percent more acidic than they were just 200 years ago—the fastest change in ocean chemistry in 50 million years.²⁷ Half of all coral reefs have disappeared since 1990, and 90 percent of those that remain are likely to die by 2050 as average sea temperatures exceed those ever recorded.²⁸ Acidic waters, meanwhile, threaten the survival of zooplankton and invertebrates and the collapse of entire food chains. Without swift and dramatic steps to reduce greenhouse gas emissions, two Princeton University scientists warned earlier this year, the loss of ocean biodiversity over the next three centuries could rival the Permian Extinction, which saw the disappearance of 90 percent of ocean life.²⁹

Our own species is suffering, too, on this degraded and crowded planet. Hundreds of millions face food insecurity, and agricultural production must rise 50 percent by midcentury to meet growing demands.³⁰ Freshwater resources are under similar strain as snowpack melts and aquifers are drained faster than they are replenished. By 2050, 40 percent of humanity could confront severe water stress.³¹

Human health is also at risk. Since 1970, some 200 pathogens have leapt from wild animals to people, often through intermediate hosts. They include among others HIV/AIDS, Ebola, SARS, Nipah, West Nile, MERS, H5N1, monkeypox, and of course SARS-CoV-2, the virus that causes COVID-19 and that came from horseshoe bats.³² While epidemiologists debate the pandemic’s proximate origins (natural transmission versus laboratory leak), they agree that we have entered a new era of infectious disease—and that our unsustainable approach to nature is partly to blame.³³ As humans and livestock encroach upon and disrupt biodiverse ecosystems, they encounter once-isolated species, exposing themselves to new viruses that can quickly spread globally.³⁴ The average annual cost of emerging zoonoses is more than \$1 trillion worldwide, with periodic pandemics capable of inflicting severe damage (in the case of COVID-19, as much as \$28 trillion in lost global growth through 2025).³⁵

Two and a half centuries after the much-maligned Thomas Malthus published his *Essay on the Principle of Population*, the good reverend merits another hearing, albeit with a twist.³⁶ While Malthus may have erred in arguing that food production could never keep pace with human fecundity, overconsumption is definitely an ecological problem. According to the Global Footprint Network, it would take almost five Earths' worth of resources for the world's 8 billion inhabitants to achieve the same living standard average Americans enjoy today.³⁷ And things are poised to get worse before they get better. Despite declining fertility, the human population will not plateau until at least 2060, and the aspirations of a rising global middle class will exacerbate ecological strains.³⁸ Contrary to the beguiling claims of techno-utopians, there is scant evidence that societies get "more from less" as they become wealthier.³⁹ Rather, the newly prosperous tend to outsource their natural resource demands to developing countries.⁴⁰

In seeking to satisfy these appetites, we risk breaching several planetary boundaries—including those related to atmospheric CO₂ concentrations, ocean acidification, species extinction, and nitrogen fixation—that define what scientists call a "safe operating space for humanity."⁴¹ Indeed, evidence is mounting that important subcomponents of the Earth system could be approaching critical thresholds that, when crossed, bring about massive, nonlinear shifts that will themselves accelerate climate change, with disastrous and potentially irreversible consequences for nature and humanity.⁴² Such potential discontinuities include a rapid die-back of the Amazon rainforest, abrupt melting of boreal permafrost, and the sudden collapse of the Atlantic Meridional Overturning Circulation, an oceanic conveyor belt that keeps Europe's climate temperate.⁴³

Short of an alien invasion from outer space, it is hard to imagine any threat warranting more global solidarity and collective action than the prospect of rendering the sole planet we have uninhabitable. Our circumstance cries out for a "present at the creation" moment, akin to the flurry of international institution-building that followed World War II.⁴⁴

Short of an alien invasion from outer space, it is hard to imagine any threat warranting more global solidarity and collective action than the prospect of rendering the sole planet we have uninhabitable.

Instead, multilateral environmental cooperation is flailing. Most nations continue to treat ecological challenges as second-tier foreign policy priorities best managed by environmental ministries, leaving their foreign, defense, finance, and trade counterparts to focus on (presumably weightier) matters like geopolitical competition, alliance politics, arms control, macroeconomic coordination, and international commerce. The results are predictable. What passes for multilateral environmental governance is a patchwork of weak, sector-specific agreements, overseen by underpowered

implementing bodies unable to enforce compliance with ostensible commitments. The annual COPs provide a case in point. The Earth may be on fire, but the planet's fate continues to depend on a hodgepodge of uncoordinated national pledges driven by short-term domestic political and economic considerations.

A New Mindset

The advent of the Anthropocene demands something more. It warrants a paradigm shift in foreign policy and international relations, in which cooperation on the shared environmental threats of climate change and collapsing biodiversity move to center stage. Planetary politics begins with the recognition that our traditional approaches to foreign policy, international security, and world order are incapable of addressing the most pressing ecological threats to human lives and livelihoods. As an initial step, all governments must designate the survival of the biosphere as a core national interest and a central objective of national security—and organize and invest accordingly.

Embracing Ecological Realism

The global environmental emergency, like the COVID-19 pandemic, has exposed the limitations of traditional political realism as a guide to statecraft in an age of planetary threats. That venerable perspective, elaborated by Thucydides, Niccolo Machiavelli, Thomas Hobbes, and Jean-Jacques Rousseau as well as more recent thinkers and practitioners like Hans Morgenthau and Henry Kissinger, still dominates the study and practice of foreign policy, not least in the United States.⁴⁵ It depicts the international system as a fundamentally anarchic, cutthroat realm in which nations must be ever vigilant of the prospect of violence and nurture military capabilities to defend themselves. Alas, any step that one state takes to enhance its power inevitably makes others feel vulnerable, producing the well-known security dilemma.⁴⁶ International institutions and alliances can dampen but never eliminate these dynamics, which are rooted in the human desire to dominate and the absence of world government.

Political realism has its uses. It helps explain Sino-American geopolitical rivalry and regional tensions among Persian Gulf nations, for instance. But it offers little insight on how to think about—much less respond to—threats without a threatener, like climate change or pandemic disease, that arise from human interactions with the environment.⁴⁷ Its blind spot is in assuming that humanity and nature exist in a steady state, when in fact the potential collapse of the living planet as we have known it is the biggest long-term existential threat we face. There is irony here. Political realists are fond of describing world politics as a Hobbesian “state of nature.”⁴⁸ But they seldom pause to consider the state of *nature* itself.

The global environmental crisis requires a new statecraft grounded in ecological realism: namely, recognition that the entire human enterprise depends on a healthy, stable biosphere.⁴⁹

Political realists are fond of describing world politics as a Hobbesian “state of nature.” But they seldom pause to consider the state of *nature* itself.

Ecological realism does not discard the national interest as a concept but broadens it to encompass the preservation of Earth's life-support systems as an objective at least as important as the short-term pursuit of military, political, economic, or technological power. It likewise expands the definition of national security to encompass safeguarding the ecological foundations of human survival.⁵⁰

Foreign policy traditionalists may flinch at such a reframing, not wanting to distract diplomats and defense officials from what they call high politics. Times, however, are changing. In 1947, when then U.S. secretary of state George Marshall appointed George Kennan his first director of policy planning, he famously gave the latter just two words of advice: “avoid trivia.”⁵¹ Rather than fixate on daily minutiae, the new office should focus on the big picture and a longer time horizon. In Kennan's era, that meant containing Soviet communism. Marshall's admonition remains apt, but what counts as important has changed. While a new geopolitical rival, China, looms large, many other items on the U.S. foreign policy agenda—like the future of al-Qaeda or the fate of Nicolás Maduro's regime in Venezuela—seem trivial, at least compared to the fate of the living planet.⁵² The same is true for other national governments.

Any definition of security that does not consider Earth's long-term habitability is inherently suspect. This was something that Jessica Tuchman Mathews recognized back in 1989, when she penned an extraordinarily prescient article on “Redefining Security” for the journal *Foreign Affairs*. For the first time in history, humanity had begun to “alter the environment on a planetary scale,” rendering “the assumptions and institutions that have governed inter-

national relations in the postwar era . . . a poor fit” for policymakers.” Unfortunately, she observed, “Ignorance of the biological underpinning of human society blocks a clear view of where the long-term threats to global security lie.”⁵³

Any definition of security that does not consider Earth's long-term habitability is inherently suspect.

More than three decades later, conditions may finally be ripe for a paradigm shift in foreign policy and international affairs, including in the United States.⁵⁴ Just a week after his inauguration in January 2021,

U.S. President Joe Biden issued a historic executive order declaring climate change a top-tier threat to U.S. national security and directing his administration to lead a whole-of-government response to reduce greenhouse gas emissions and adapt to global warming.⁵⁵ Three months later, his director of national intelligence, Avril Haynes, told world leaders assembled for Earth Day that climate change “must be at the center of our country's national security and foreign policy.”⁵⁶

The challenge now is to translate these insights into practical action at the national and multilateral level to address the twin crises of climate change and biodiversity loss.⁵⁷ In the United States, that means inculcating this new worldview across U.S. diplomatic, defense, development, energy, environmental, health, intelligence, and other agencies, as well as

working with Congress to reshape a massive national security budget still weighted overwhelmingly toward countering traditional geopolitical and military threats.⁵⁸ Globally, it means collaborating with foreign partners on a multilateral response to slow and reverse the despoilation of the natural world. The United States needs a new “long telegram,” grounded in ecological realism, that spells out a comprehensive strategy to preserve the biosphere.⁵⁹

At the multilateral level, a shift to planetary politics will require national authorities of all nations to adopt a new ethic of environmental stewardship, expanding their concept of sovereign obligation to include a responsibility for protecting the global commons. In parallel, governments, businesses, and communities will need to value and account for Earth’s natural capital assets, rather than taking them for granted and exploiting them to depletion.

Reframing the Obligations of Sovereignty

A shift to planetary politics requires new, shared understandings of sovereign obligations. The world’s governments must bring traditional concepts of sovereignty into line with the imperatives of ecological stewardship by endorsing a new state responsibility to protect the global environment. The core obligation should be to refrain from national actions that might fundamentally alter or damage the Earth system.⁶⁰ No such understanding currently exists.

Consider the high-profile ruckus that erupted in August 2019 between the presidents of France and Brazil as tens of thousands of fires ravaged the Amazon rainforest. Emmanuel Macron accused his counterpart, Jair Bolsonaro, of “ecocide” in opening the forest to rapacious loggers, ranchers, farmers, and miners. The indignant Brazilian blasted Macron for treating his country “as if we are a colony or a no-man’s land.”⁶¹

The brouhaha exposed two rival conceptions of sovereignty. For Bolsonaro, Brazil had an absolute right to develop the Amazon at it saw fit. “Our sovereignty is non-negotiable,” his spokesman declared.⁶² For Macron, the rest of the world was no mere bystander but rather a stakeholder in the rainforest’s survival. It could not and would not remain silent as Brazil despoiled this indispensable carbon sink, irreplaceable oxygen source, and precious biodiversity repository. The core debate, in other words, was whether Brazil should be considered the rainforest’s owner or merely its steward.⁶³

The Bolsonaro-Macron dispute will not be the last of its kind, because the environmental policies that states adopt in national jurisdictions can affect other countries. This is most obvious when it comes to greenhouse gases, of course, as emissions anywhere influence the atmospheric total; but it also applies to air and ocean pollution, the destruction of species and ecosystems, rampant overfishing, interruption of the nitrogen cycle, and much more. The logical, if fraught, way to resolve this predicament is to expand sovereign responsibility

A shift to planetary politics requires new, shared understandings of sovereign obligations.

to include a duty to protect the biosphere. The greening of sovereignty begins with universal acknowledgement that it is does not give countries license to despoil the planet.⁶⁴

There are precedents for this sort of shift. Contrary to the mythology of Westphalia, sovereignty has never been absolute or fixed. It has been continually contested, negotiated, and adapted (as well as violated, of course).⁶⁵ The belief that sovereignty implies not just privileges but obligations, and is contingent on the fulfillment of core duties, is by now widely accepted.⁶⁶ States cannot allow terrorists to operate with impunity on their territory, for example. Similarly, governments have a responsibility to protect (R2P) their inhabitants from mass atrocities.⁶⁷ If they fail to discharge either obligation, they may forfeit a presumption against intervention. Some experts have proposed extending this logic to other cross-border harms. Former U.S. secretary of homeland security Michael Chertoff, for instance, posits that states have a sovereign “responsibility to contain” weapons and technology of mass

destruction—and that derelict governments should be held to account in a global extension of “the legal principle of nuisance.”⁶⁸

As the planet’s ecological crisis deepens, the world will likely need to articulate and eventually codify a new global norm: a responsibility to protect the Earth.

The Anthropocene warrants a similar adjustment, since short-sighted national policies can generate dangerous environmental spillovers. Under customary international law, sovereign states already have a general due diligence obligation, known as the no harm rule, not to injure the environment in areas beyond their jurisdiction.⁶⁹ Still, there is little consensus on the precise definition of transnational environmental damage, the spheres to which it should apply, the threshold at which

state obligations kick in, or how countries might be held liable for cross-border injuries.⁷⁰ Witness, for example, the fraught, ongoing debates over whether historic emitters of greenhouse gases should compensate vulnerable developing nations for loss and damage associated with climate change and its repercussions.⁷¹

These questions are becoming trickier as potential sources of damage become more complex. As the planet’s ecological crisis deepens, the world will likely need to articulate and eventually codify a new global norm: a responsibility to protect the Earth (R2PE).⁷² Under R2PE, nations would agree not only to avoid generating transboundary harms but more generally to forswear activities that threaten the biosphere’s integrity. They would open themselves to external scrutiny, allowing others to monitor and verify their compliance with multilateral commitments. As this regime develops, those guilty of egregious violations could find themselves exposed to sanctions and other penalties.

The first step, of course, is to enumerate the precise obligations accompanying this new ethic of planetary stewardship, so that mechanisms might be developed to hold sovereign states accountable. Helpful advice on where to begin comes from an unlikely source. “What is needed . . .,” Pope Francis writes in his 2015 encyclical *Laudato Si* (Praise Be to You), “is an agreement on systems of governance for the whole range of so-called ‘global commons.’”⁷³

Technically speaking, “commons” are shared pool resources, like fisheries or pasturelands, that belong to nobody but are open for use by all at no (or minimal) cost. Their inherent vulnerability is their susceptibility to overuse and degradation. In the absence of rules limiting, or charges for, access, actors are tempted to exploit such domains to exhaustion—a dilemma described by Garrett Hardin in his classic article, “The Tragedy of the Commons.”⁷⁴

Historically, international law has recognized only four such global commons: Antarctica, the atmosphere, the high seas, and outer space. Nations have consented to treat these domains as part of humanity’s shared heritage, avoid exclusive sovereignty claims in each, and encourage their sustainable use.

The Anthropocene will likely require expanding this traditional concept of the global commons to encompass a wider array of vulnerable biomes, ecosystems, and natural cycles critical to the planet’s health and resilience, regardless of whether (like the Amazon rainforest) they are contained primarily or even entirely in the territory of a single state or group of states.⁷⁵ This proposition may seem radical, but the biosphere is an integrated whole that is not easily reconciled with state frontiers. It is the complex product of dynamic interactions among the atmosphere, the cryosphere (or frozen regions), the hydrosphere (including ocean currents and chemistry), terrestrial and marine ecosystems, and the water, carbon, nitrogen, and other biogeochemical cycles.⁷⁶ The impact of human actions on these subsystems, which regulate the planet’s climate, rainfall, and temperature, is of concern to all members of our species, regardless of where they dwell.⁷⁷

Getting to agreement will not be easy. Nations will have to agree on the dimensions of the Earth system that ought to be included in this category and update this consensus periodically as scientific knowledge advances. The even more daunting task will be figuring out how to govern these various components collectively, so that humanity can benefit from relevant biomes, ecosystems, organisms, and processes without imperiling their long-term stability and resilience.

While such ambitions might seem impracticable, there are precedents for renegotiating the obligations of sovereignty. In the wake of genocide in Rwanda and the Balkans, the Canadian government sponsored an International Commission on Intervention and State Sovereignty. Its groundbreaking 2001 report, *The Responsibility to Protect*, provided the intellectual, ethical, and practical rationale for that new, eponymous norm.⁷⁸ In 2005, UN member states unanimously endorsed R2P, thanks in part to the visionary leadership of then UN secretary general Kofi Annan.⁷⁹ One could imagine the current secretary general, Antonio Guterres, or his successor launching a similar process to protect the global environment.

Putting a Price on Nature: What Is Earth Worth?

Planetary politics also implies putting a price on nature. For too long, our dominant economic models have treated the world economy as if it existed apart from the biosphere, ignoring the ecological preconditions for sustainable growth and development. We have

readily invested in produced capital—like buildings, roads, machines, and software—and human capital—such as education and healthcare—while running down the natural capital that sustains our lives and livelihoods.⁸⁰ We have assumed that the Earth would bounce back from whatever we threw at it and that technological innovation and market incentives would allow us to break free from any resource constraints of a finite planet.⁸¹

In the Anthropocene, such attitudes are no longer tenable. Nature is not just something that is nice to have, and its conservation is not merely a “personal virtue,” as then U.S. vice president Dick Cheney infamously put it in 2001.⁸² It is the ultimate foundation for prosperity, and yet we are plundering it. According to UNEP, the planet’s stock of natural capital has declined 40 percent since 1992. Reversing this trend will require governments, firms, and communities to adopt a more inclusive definition of wealth that encompasses the value of the planet’s natural assets and the myriad benefits they provide humanity.⁸³

These benefits fall into three broad categories. *Regulatory* services are the functions that healthy organisms and ecosystems play in creating conditions conducive to human life, including by controlling pests and disease, cycling nutrients, determining air quality, enriching soil, filtering water, pollinating crops, sequestering carbon, and buffering the impact of floods and storms. *Provisioning* services encompass the direct material benefits humans obtain from nature, such as from fiber, food, fuels, genetic resources, plant-based medicines, and timber. Finally, *nonmaterial* services include the multiple subjective psychological, recreational, and spiritual benefits humans derive from the living Earth.⁸⁴

Many environmentalists resist placing a monetary value on nature, citing its intrinsic worth and bristling at its perceived commodification.⁸⁵ But failing to do so encourages firms and individuals, as well as governments, to take ecosystem services for granted and, because they are underpriced (or not priced at all), to exploit them to exhaustion. The result is market failure, in the form of environmental costs borne not by the participants in any specific exchange but by society as a whole (what economists call “negative externalities”).

According to the World Economic Forum, 50 percent of all global output, worth \$44 trillion per year, is highly or moderately dependent on benefits from nature.

There is no inherent contradiction between capitalism and conservation, between the pursuit of profit and environmental stewardship. Reconciling the two, however, requires a new mindset and new approaches to valuing nature, not only on the part of ecologists but also from participants in the global marketplace who have tended to ignore the fate of the biosphere.

Belatedly, some capitalists and economists are acknowledging the inadequacy of orthodox approaches to growth. According to the World Economic Forum, 50 percent of all global output, worth \$44 trillion per year, is highly or moderately dependent on benefits from nature—benefits that are increasingly in jeopardy.⁸⁶ Another study places the total annual value of the planet’s ecosystem services between \$125 trillion and \$145 trillion.⁸⁷


In February 2021, a multischolar team led by the British economist Sir Partha Dasgupta published *The Economics of Biodiversity*. Quickly dubbed “the Stern Review for biodiversity,” this landmark study repudiated the assumption that human ingenuity and market incentives can deliver perpetual growth and development regardless of their impact on the biosphere.⁸⁸ The world economy is inextricably embedded in nature, and yet GDP, the conventional measure of wealth and progress, neither accounts for nor promotes the conservation of natural capital, making it a poor indicator of well-being and long-term productive capacity.⁸⁹

Mainstreaming natural capital accounting requires governments and businesses to track such assets, incorporate them into balance sheets, and commit to transparency regarding their stewardship.⁹⁰ In March 2021, the United Nations released an updated framework for standardized ecosystem accounting to facilitate this. Some ninety countries—including EU members and more than forty developing nations, but not yet the United States—have produced baseline natural capital accounts.⁹¹

Governments must also deploy incentives and adopt regulations to motivate or require firms to shoulder the ecological costs of their market behavior, rather than continuing to pass these along to society. Too many of nature’s goods and services are overexploited because they have no price—or even a negative price, thanks to perverse subsidies. According to the Dasgupta review, the world’s governments spend some \$4–\$6 *trillion* on environmentally damaging subsidies, including for agriculture, fisheries, fuel, and water.⁹² By contrast, they devote only \$68 billion annually to global conservation and sustainability—approximately what their citizens spend on ice cream. Exposing the true costs of these subventions could make it more likely that governments will reduce and ultimately eliminate them.

A more robust framework for natural capital accounting could also provide donor governments with empirical justification and political cover for compensating economically poorer but biodiversity-rich countries that are prepared to protect or restore ecosystems and their services. This already happens domestically, as when local authorities pay landowners to preserve watersheds. But it can also occur internationally. The Biden administration and a number of European nations have periodically indicated openness to providing Brazil with resources to help preserve its portion of the Amazon rainforest, but only if that country’s pledges to do so are credible.⁹³

Lastly, a natural capital lens has the potential to transform the global financial system to promote environmental stewardship.⁹⁴ This is most obvious for national governments, central banks, and multilateral financial institutions, which seek to correct for market failures and provide public goods. Financial regulators, including the U.S. Securities and Exchange Commission and the EU’s European Banking Authority, are already moving toward mandating corporate disclosures of exposure to climate risk so that investors are aware of the relative vulnerability of firms to environmental shocks on a warming planet.⁹⁵



Governments must also deploy incentives and adopt regulations to motivate or require firms to shoulder the ecological costs of their market behavior.

Although such proposals have generated pushback in the United States—including from conservative politicians, market fundamentalists, and some companies—many banks, insurers, and institutional investors are themselves increasingly sensitive to the dangers that climate change poses to their bottom lines.⁹⁶ Among the leaders in calling for mandatory disclosures, as well as for integrating sustainability concerns into investment decisions, is the asset management company BlackRock, which had more than \$10.5 trillion in assets in its portfolio in early 2022.⁹⁷

This fiduciary responsibility is sure to be extended to other forms of nature loss as the private sector's reliance on natural capital becomes increasingly obvious to investors.⁹⁸ Some welcome developments are already in train. In September 2020, twenty-six financial institutions signed the Finance for Biodiversity Pledge, promising to prioritize “the protection and restoration of biodiversity and ecosystems through our financing activities and investors,” including by incorporating biodiversity into environmental, social, and governance (ESG) goals, setting and disclosing targets, and issuing annual reports about the impacts of their investments on nature. The group has since grown to 111 institutional investors with collective assets of more than €16.3 trillion under management (approximately \$16.8 trillion at current exchange rates).⁹⁹

In a complementary move, a coalition of financial institutions, corporations, and market service providers in June 2021 created a Task Force on Nature-Related Financial Disclosures. It aims to help market players better understand their dependence on ecosystem services and how their impact on nature may generate long-term risks to their profitability. As the task force explains, “The ultimate aim [is] supporting a shift of global financial flows away from nature-negative outcomes and toward nature-positive outcomes.”¹⁰⁰ Consistent with this imperative, more than 330 large firms from fifty-six countries—among them Sweden's IKEA, France's BNP Paribas, and India's Tata Steel—published an open letter to world leaders under the auspices of the Business for Nature Coalition. The signatories, with combined global revenue of \$1.5 trillion, demanded that all companies be required to “assess and disclose their impacts and dependencies on nature by 2030.”¹⁰¹

When it comes to stewarding the Earth's natural capital, we are all asset managers.

These are hopeful steps. Indeed, biodiversity, which was virtually ignored several years ago, has suddenly become one of the fastest growing areas of ESG investing in capital markets.¹⁰² Still, the business community remains deeply divided over whether and how to integrate such concerns into its operations, as well as over proposed reporting requirements. Opposition is particularly strong within the traditional agricultural, fishing, forestry, mining, and oil and gas sectors. More generally, it remains challenging to distinguish credible corporate responses to the global ecological crisis from public relations–motivated greenwashing. Civic activism, including threats of consumer boycotts, will remain critical if companies, as well as governments, are to be held to account in the battle to preserve biological diversity. When it comes to stewarding the Earth's natural capital, Dasgupta reminds us, “We are all asset managers.”¹⁰³

New Multilateral Policies and Institutions

Beyond adopting a new mindset, planetary politics will require adapting existing multilateral institutions to address the crisis of the biosphere. The to-do list is enormous, but it should include the following priorities: expanding nature-based solutions to climate change; bringing World Trade Organization (WTO) rules into line with environmental stewardship; elevating sustainability concerns in development cooperation; bolstering the Convention on Biological Diversity; finalizing a new UN High Seas Biodiversity Treaty; and, ultimately, negotiating a Global Pact for the Environment.

Expand Nature-Based Climate Solutions

The most pressing near-term priority for preserving a habitable biosphere is obviously slashing greenhouse gas emissions. As the Intergovernmental Panel on Climate Change documents in its sixth round of assessments, the planet is on track to experience catastrophic warming unless the world takes immediate and dramatic steps to accelerate the clean energy transition.¹⁰⁴ Even if current national pledges are fully implemented—which is unlikely—average global temperatures will rise at least 2.4°C above preindustrial levels.¹⁰⁵

Humanity's collective failure to reduce emissions places a huge burden on carbon dioxide removal (CDR). Many observers are putting their faith in negative emissions technologies that can suck carbon directly from the atmosphere. Unfortunately, while recent technical breakthroughs hold promise, it will likely take decades for mechanical CDR to achieve the necessary scale.¹⁰⁶ This makes it urgent to invest massively in terrestrial and marine ecosystems that can serve as carbon storehouses in the short and medium term.¹⁰⁷ Indeed, there is no conceivable way for the world to limit rising temperatures to 2.0°C without nature-based approaches to capturing and permanently storing carbon dioxide.

Although climate change and biodiversity loss are often treated as separate crises, they are deeply intertwined and need to be tackled together within the UN Framework Convention on Climate Change, with nations doubling down on carbon sinks.¹⁰⁸ The natural world already attenuates many of the impacts of climate change by absorbing half of anthropogenic CO₂ emissions, through a combination of photosynthesis and subsequent storage in biomass (as well as dissolution of CO₂ in seawater). This service is at risk, however, due to continued climate change, as well as human degradation of the environment, which is itself a driver of emissions.

It is possible to turn this vicious cycle into a virtuous one, however. Ambitious efforts to protect, sustainably manage, and restore ecosystems will not only benefit

Although climate change and biodiversity loss are often treated as separate crises, they are deeply intertwined and need to be tackled together.

biodiversity but also mitigate climate change. Although estimates of the potential value of nature-based solutions vary widely, scientists agree that certain terrestrial and coastal ecosystems—such as forests, wetlands, peatlands, grasslands and savannas, mangroves, salt marshes, and kelp forests—have huge potential as carbon sinks.¹⁰⁹ Their role needs to be elevated in countries' nationally determined contributions to combat climate change.

Take Steps to Green World Trade

Saving nature also requires reforming the global economy to safeguard the ecological preconditions for growth rather than allowing private actors to plunder the biosphere for short-term profit. An immediate priority is reforming global trade rules so that countries willing to commit to decarbonization—as EU member states have done—do not expose themselves to unfair economic competition or, alternatively, run afoul of the WTO when they discriminate against commerce from countries that conduct business as usual.¹¹⁰ The most straightforward approach would be for WTO members to adopt a blanket climate waiver permitting states to implement border carbon adjustments so that they can penalize carbon-intensive imports and reward other trading partners that employ greener production

methods.¹¹¹ This would encourage the formation of “climate clubs” composed of countries committed to emissions reductions—and thus eligible for nondiscriminatory treatment. The resulting incentive structure would reduce the temptation for polluters to free ride on the efforts of nations that take the global climate crisis seriously and instead encourage positive-sum cooperation.¹¹²

Saving nature also requires reforming the global economy to safeguard the ecological preconditions for growth rather than allowing private actors to plunder the biosphere.

There are other promising proposals for greening global trade. The preamble to the Marrakech Agreement, which established the WTO in 1994, declares that the organization should promote “the optimal use of the world’s resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so.”¹¹³ Given the role that trade has played in accelerating biodiversity loss and destruction of ecosystems, the time has come to put these fine words into action. As a start, WTO members should adopt new multilateral rules to prohibit nature-destroying subsidies, liberalize trade in environmental goods, and regulate trade in wild species.¹¹⁴

On subsidies, the WTO’s progress has been halting at best. After two decades of negotiations on the elimination of fishing subsidies, members finally reached a modest agreement at their twelfth ministerial conference in June 2022, signing a four-year deal to prohibit subsidies for illegal, unreported, and unregulated (IUU) fishing. They also agreed to ban subsidies that support exploitation of overfished stocks, as well as of vulnerable species on the high seas. The accord marked the first time that the WTO had negotiated rules focused on

sustainability.¹¹⁵ At the same time, it did nothing to end more general subsidies that contribute to overcapacity and overfishing.

WTO members should similarly promote trade in environmental goods and services, including by abolishing tariffs and other barriers on them, as envisioned in the Doha Declaration of 2001. Formal negotiations on a plurilateral agreement on trade in environmental goods began in 2014, ultimately involving forty-six WTO members responsible for 90 percent of such commerce. Unfortunately, these talks collapsed in December 2016 when parties failed to agree on the precise goods that should be covered.¹¹⁶ This definitional challenge remains daunting. Nevertheless, restarting these talks—and expanding their scope to cover trade in services—must be a priority, given the gravity of the global ecological crisis.

Lastly, nations must tackle illicit trade in wild fauna and flora, commerce that threatens both global public health and the extinction of endangered species.¹¹⁷ Globally, wild species are disappearing at 1,000 times the historical background rate, and illicit trafficking compounds their plight. The World Bank reckons that illicit trade in animals, fish, and timber costs the global economy \$1–\$2 trillion, if one includes lost ecosystem services like carbon sequestration and genetic resources.¹¹⁸ Fortunately, a practical, two-pronged response is there for the taking, courtesy of the Global Initiative to End Wildlife Crime. The first step would be to amend the Convention on the International Trade in Endangered Species of Wild Fauna and Flora, known as CITES, to tighten regulations on the capture, transport, trade, and sale of endangered species that can harm both human and animal health. The second would involve adding a fourth protocol to the UN Convention Against Transnational Organized Crime, or Palermo Convention, to criminalize illicit trafficking in wild animals and plants.¹¹⁹

Make Global Development Truly Sustainable

In parallel, the world must adopt a new approach to development tailored to the Anthropocene.¹²⁰ For decades, humanity has pursued a development model that is heedless of its impact on the natural world in which we are inextricably embedded and, moreover, posits a false trade-off between investing in “people vs. trees.”¹²¹ The material gains of this model have been undeniable, bringing billions out of poverty and bettering the human condition, but such progress has often come at catastrophic cost to nature, and the bill is coming due. We cannot afford to continue on this same path, because the planet cannot sustain the massive ecological footprint that will result. Today, the wealthiest 1 percent of humanity—some 80 million people—emits 100 times as much carbon dioxide per capita as the poorest 50 percent—comprising about 4 billion.¹²² The challenge is to bring prosperity to those still mired in poverty without destroying the biosphere.

Reconciling the needs of humanity with the viability of nature requires a commitment to ecological stewardship. In 2015, UN member states unanimously approved the Sustainable Development Goals (SDGs)—seventeen objectives intended to guide international efforts to

advance economic, social, and environmental well-being through 2030.¹²³ Achieving these goals will only be possible if developing country governments, supported by international donors, formulate public policies and deploy incentives that persuade private actors and communities to conserve nature, out of their own enlightened self-interest. This applies not

Environmental degradation has become one of the biggest barriers to international development and is among the most important factors in rising global inequality.

only to those goals explicitly focused on the environment—including those related to climate action (SDG13), the preservation of life below water (SDG14), and the conservation of life on land (SDG15)—but also to other goals heavily reliant on natural capital—such as those focused on alleviating poverty (SDG1) and hunger (SDG2), ensuring access to reliable water and sanitation (SDG6) and clean energy (SDG7), and promoting responsible consumption and production (SDG12).

Environmental degradation has become one of the biggest barriers to international development and is among the most important factors in rising global inequality, because the world's poor bear its heaviest brunt.¹²⁴ Reversing this dynamic will require formulating public policies, incentivizing behaviors, encouraging norms, and empowering communities to ensure that market behaviors contribute to sustainable rather than rapacious development.

One of the top global priorities should be reining in extractive industries like timber and mining that damage the ecosystems of commodity-exporting developing nations. The costs of such activities are typically borne by local inhabitants and communities rather than being incorporated into the operations of relevant companies or passed on to consumers at the end of supply chains.

Well-intentioned developing country governments can take a number of steps to correct such market failures and capture market externalities. National authorities can implement robust systems of natural capital accounting that place an appropriate value on ecosystem services, adopt laws that restrict or punish environmentally damaging actions, and implement financing schemes that support a clean energy transition. They can also harness nature itself to promote human development by investing in reforestation, the restoration of wetlands, the replanting of mangroves, and other environmental initiatives that advance social progress even as they help restore balance between people and the planet.¹²⁵

The Bretton Woods institutions, as well as the regional multilateral development banks, can advance this agenda by elevating concerns about environmental stewardship in their lending and grantmaking activities and their provision of technical assistance, directing more of their funds to biodiversity conservation as a global public good and helping developing country governments obtain a clear picture of the full costs their societies are incurring as a result of environmental degradation. In parallel, the aid agencies of wealthy nations that are members of the Organisation for Economic Co-operation and Development (OECD)

can reinforce nature-friendly development by devoting a greater share of their bilateral and multilateral assistance to conservation efforts and helping partner countries hold corporate perpetrators to account.¹²⁶ More generally, OECD donors can condition a larger proportion of their aid on sustainable environmental policies—much as the U.S. Millennium Challenge Corporation makes access to its financial resources conditional on good governance.

Finally, the international donor community can help close the yawning gap between what the world actually spends on biodiversity conservation and what is needed, including by leveraging the private sector. The Paulson Institute, established by former U.S. treasury secretary Henry Paulson, estimates total current biodiversity funding at \$124–\$143 billion a year, whereas the world needs to spend \$722–\$967 billion per year over the next decade. In other words, the annual biodiversity financing gap amounts to \$598–\$824 billion (or \$711 billion, on average). Closing it will require multiple lines of attack involving both public and private sectors, ranging from phasing out harmful subsidies to improving supply chain sustainability, generating new revenues, expanding biodiversity offsets, increasing official development assistance for biodiversity, investing in natural infrastructure, and expanding nature-based solutions and carbon markets.¹²⁷

Strengthen the Convention on Biological Diversity

Simultaneously, nations need to bolster the international legal framework for biodiversity conservation, particularly the Convention on Biological Diversity (CBD).¹²⁸ The CBD, which was approved along with the UN Framework Convention on Climate Change and the Desertification Convention at the Rio Earth summit of 1992, created a flexible multilateral framework intended to advance three objectives: conserve diversity within and among species and ecosystems; promote the sustainable use of living natural resources; and ensure the “fair and equitable” sharing of any benefits obtained from exploiting genetic resources.¹²⁹

Unfortunately, the CBD has failed miserably to slow the loss of ecosystems and species.¹³⁰ This was not the plan back in 2010, when its parties met in Nagoya, Japan, and endorsed the so-called Aichi targets, pledging to protect fragile habitats, lower extinction rates, preserve genetic diversity, reduce pollution, eliminate invasive species, adopt sustainable agriculture and fisheries practices, and generally elevate biodiversity in their national development plans.¹³¹ The world failed to deliver on any of these aspirations, in part because the targets were vague, lacked quantifiable indicators against which to assess progress, and were poorly aligned to specific national commitments for which governments could be held accountable.¹³² In the intervening decade, the state of global biodiversity has gone from bad to worse, thanks to the continued degradation of landscapes and seascapes, quickening climate change, overexploitation of animals and plants, massive nutrient and other forms of pollution, and the introduction of invasive species.

The CBD has failed miserably to slow the loss of ecosystems and species.

Some hope is on the horizon, however. After multiple delays related to the COVID-19 pandemic, the second phase of the fifteenth conference of parties (COP15) to the CBD will convene in Montreal on December 7–19, 2022, and governments are slated to approve an action plan to guide global conservation efforts through 2030.¹³³ This Post-2020 Global Biodiversity Framework is intended to inform urgent policy action to stabilize biodiversity loss by 2030 and facilitate its steady recovery over the subsequent twenty years, to achieve the CBD’s vision of “living in harmony with nature by 2050.”¹³⁴ The framework as currently drafted includes twenty-one unique targets. They include proposals to reduce current rates of extinction by 90 percent, halve the incidence of invasive species, eliminate plastic pollution, end \$500 billion worth of nature-destroying subsidies, reduce pesticide use by two-thirds, and mobilize financial resources of at least \$200 billion annually for biodiversity conservation.

The most headline-grabbing target is a commitment to permanently protect 30 percent of Earth’s terrestrial and marine surface by 2030. The bold proposal was the brainchild of nineteen prominent scientists who in April 2019 called for a “global deal for nature.” This so-called 30x30 proposal captured the imaginations of governments and civil society.¹³⁵ In late 2020, France and Costa Rica joined forces to establish a high ambition coalition for nature and people, which they launched at the One Planet Summit in Paris in January 2021.¹³⁶ More than one hundred governments have since endorsed 30x30.¹³⁷ They include the United States and, at the subnational level, multiple U.S. states, including California.¹³⁸

The most headline-grabbing target is a commitment to permanently protect 30 percent of Earth’s terrestrial and marine surface by 2030.

The goal has also been included in the draft strategic plan to be approved in Montreal.¹³⁹ Achieving this objective on a global scale, scientists argue, will advance four critical, interrelated aims: preventing biodiversity loss, preserving vital carbon sinks, conserving natural capital assets required for sustainable economic growth, and reducing the risks of future pandemics.¹⁴⁰

As a communications tool, 30x30 has been a resounding success. Still, there is a long way to go. Globally, about 15 percent of the planet’s land enjoys some official protection, but many designated areas are fragmented, and some of the most biodiverse are ignored. Meanwhile, only 7.5 percent of the world’s oceans are protected, and just 3 percent strongly so.¹⁴¹ Achieving 30x30 will cost money—by one estimate, \$140 billion, equivalent to 0.16 percent of global GDP.¹⁴² That may sound like a lot, but it is less than 5 percent of what the world spends on nature-destroying subsidies.¹⁴³

It will also require creative thinking about *which* 30 percent of land and ocean merits protection. Governments must balance several conservation priorities, including protecting all major ecosystem types, preventing species extinction, preserving essential ecosystem services, maximizing carbon sequestration, and dampening climate-induced environmental changes.¹⁴⁴ National authorities must resist the temptation to expand protections to low-value ecosystems or those already well-represented at the expense of biodiversity hotspots or underrepresented habitats and species, and they must be prepared to help preserve ecosystems in

other countries that are more important to the biosphere than their domestic equivalents.¹⁴⁵ Finally, the parties to the CBD will need to negotiate instruments to monitor compliance with 30x30 and the twenty other new targets—and agree on how to apportion the burden of paying for them.

End the U.S. Outlier Status by Ratifying the Treaty of Life

Three decades after it emerged from the Rio de Janeiro Earth summit in 1992, the CBD has been ratified by 196 countries. The United States is the sole remaining holdout.¹⁴⁶ This failure of global leadership is embarrassing, unconscionable, and self-defeating. As a non-party, the United States can participate only as an observer in CBD negotiations, diluting its diplomatic leverage. Accordingly, the Biden administration should promptly submit the CBD to the U.S. Senate for its advice and consent, while refuting several misconceptions that continue to underpin domestic political resistance to the convention. Contrary to what critics allege, the convention poses no threat to U.S. sovereignty, requires no change in America's environmental laws, imposes no onerous financial burdens, and poses no risk to U.S. commercial interests.¹⁴⁷

At first blush, the U.S. failure to ratify the CBD seems inexplicable. The United States was a global pioneer in domestic environmental conservation, including through measures like the Endangered Species Act (1973), and it spearheaded the early push for a global biodiversity treaty during the 1980s.¹⁴⁸ In a 1991 message to Congress, then president George H. W. Bush lauded America's domestic environmental legacy while reminding legislators that “environmental threats do not stop at a line on a map.” Indeed, he continued, “In the months and years ahead, we need to broaden our dialogue with other nations and international institutions and together address environmental issues that know no boundaries.”¹⁴⁹

Although the CBD that emerged from Rio was the handiwork of U.S. negotiators, Bush declined to sign it during a heated election year. Former president Bill Clinton signed it in June 1993 and submitted it to the Senate that November. The next year, the Senate Foreign Relations Committee endorsed it on a bipartisan basis by a 16-3 vote. Unfortunately, the treaty then died, as Senate minority leader Bob Dole mobilized a blocking minority to oppose it. None of the next three presidents—George W. Bush, Barack Obama, or Donald Trump—resubmitted it for Senate reconsideration.¹⁵⁰

To secure Senate consent to the CBD, the Biden administration will need to forcefully challenge several specious arguments made by treaty opponents. The most ludicrous is that the CBD threatens American sovereignty.¹⁵¹ In fact, Article 3 of the CBD explicitly reaffirms the principle of national jurisdiction: “States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own natural resources pursuant to their own environmental policies.”¹⁵² The sole caveat, consistent with the legal principle of nonharm, is a responsibility to ensure that any such activities do not damage the environment of other parties or the global environmental commons. Moreover, as the CBD was being drafted, U.S. negotiators

insisted on protections for national sovereignty. The Clinton administration subsequently drafted seven “understandings” that reinforced U.S. prerogatives and delimited U.S. legal obligations under the treaty.¹⁵³ Thanks to U.S. clarifications, the United States would retain *all* of its sovereign authorities.¹⁵⁴

Ratifying the CBD would also not impose changes in U.S. laws and policies nor run athwart the U.S. federal system. As a framework convention, the CBD offers a practical platform for multilateral cooperation, but its parties retain wide discretion in how they meet its conservation, sustainable use, and benefit-sharing provisions. The United States is already in compliance with the treaty’s substantive terms: it possesses a highly developed system of protected areas, policies to reduce biodiversity loss in sensitive areas, and procedures to consider the environmental impacts of its commercial activities. The treaty would not compel any new U.S. environmental legislation, alter the authorities that the fifty U.S. states enjoy under the Constitution to manage and protect natural resources, or authorize any legal actions in U.S. federal or state courts. Nor would becoming party to the convention impose onerous financial burdens on U.S. taxpayers.¹⁵⁵

Finally, the CBD contains adequate protections for the intellectual property rights (IPR) of U.S. corporations while safeguarding their access to biodiversity in other countries. Like many multilateral treaties, the CBD embodies a bargain between developed and developing countries. Its benefit-sharing provisions are intended to provide rich-but-relatively-biodiversity-poor countries with access to genetic resources, in return for providing financial resources

and technology to poor-but-biodiversity-rich countries. Fortunately, these equity provisions are carefully worded to emphasize the “mutually agreed terms” of such arrangements.¹⁵⁶ These safeguards help explain why so many U.S. corporations, including in the agriculture and biotechnology sectors, strongly support CBD ratification.

By remaining a nonparty, the United States undercuts its claims to international leadership on biodiversity issues, sacrifices influence over the global conservation agenda, and forfeits an opportunity to protect U.S. interests under the CBD’s consensus-based decision-making procedures. Failure to ratify also prevents the

United States from becoming party to the Nagoya Protocol to the CBD, which establishes rules regarding access to and the fair and equitable sharing of benefits from genetic resources.¹⁵⁷ This puts U.S. scientists, as well as pharmaceutical, biotechnology, agricultural, and other firms, at a potential disadvantage.¹⁵⁸

The U.S. failure to ratify the CBD is a classic case of American “exemptionalism”—the tendency of the United States to seek to make rules for the world, only to defect in the end from a treaty it initially spearheaded.¹⁵⁹ The Biden administration and the Senate have a chance to break this pattern and advance U.S. interests by ratifying the so-called Treaty of Life.¹⁶⁰

The U.S. failure to ratify the CBD is a classic case of American “exemptionalism”—the tendency of the United States to seek to make rules for the world, only to defect in the end from a treaty it initially spearheaded.

Conclude a High Seas Biodiversity Treaty

In parallel, the world's governments must finalize the UN High Seas Biodiversity Treaty, which has been under negotiation since December 2017.¹⁶¹ As the quintessential global commons, the high seas comprise the portion of the oceans that exists outside the national jurisdiction and exclusive economic zone (EEZ) of any nation. They encompass 43 percent of the planet's surface and the entire water column below—about 90 percent of the ocean by volume. The purpose of this multilateral convention is to establish rules governing the exploitation and sustainable management of the living marine resources and ecosystems within this zone.¹⁶²

Although not entirely lawless, the high seas are poorly governed by an incomplete patchwork of bodies and treaties covering everything from migratory birds and regional fisheries to deep-sea mining and pollution from ships.¹⁶³ The UN Convention on the Law of the Sea (UNCLOS) is the closest thing to a constitution for the ocean.¹⁶⁴ While it provides valuable rules, including on freedom of navigation and the extent of territorial seas, UNCLOS offers minimal guidance on environmental conservation. A high seas pact would plug this gaping hole.¹⁶⁵

Time is of the essence. Though once considered lifeless, the high seas are a storehouse of remarkable biodiversity, from mid-ocean seamounts to deep-sea coral fields.¹⁶⁶ But their benefits extend well beyond healthy fisheries and yet-to-be-discovered genetic resources. Oceans absorb half of the carbon dioxide generated from the burning of fossil fuels, buffering the planet from the full effects of climate change—an ecosystem service that economists value between \$74 billion and \$222 billion per year.¹⁶⁷ That does not count the incalculable worth of ocean phytoplankton in generating half of the oxygen we breathe.¹⁶⁸

Unfortunately, their health is declining precipitously, as technological advances permit their unprecedented exploitation.¹⁶⁹ Already, some 40 percent of the oceans have been severely altered by human activity; only 3 percent can be considered pristine.¹⁷⁰ They stand to suffer even more as nations and corporations ramp up their marine activities and exploitation. Without a high seas agreement, for instance, there is little to stop a nation (or private actor operating under a flag of convenience) from undertaking ecologically destructive mining operations on the deep seabed, launching freelance climate remediation efforts at sea, or even creating floating cities mid-ocean, heedless of the impacts on marine life.¹⁷¹

Reaching agreement on a high seas treaty is a precondition for achieving the 30x30 target for the oceans. Unfortunately, negotiations are stuck in the doldrums. Despite a deadline to finalize an agreed text by the end of 2022, governments failed to reach agreement at their fifth round of negotiations in August, suspending their talks indefinitely.¹⁷² To bring this treaty into port, diplomats must overcome major sticking points, including on multilateral

Though once considered lifeless, the high seas are a storehouse of remarkable biodiversity.

rules to govern the sharing of benefits from marine genetic resources, the designation of marine protected areas (MPAs), the conduct of environmental impact assessments, and the transfer of marine technology to poor countries.¹⁷³ Underlying many specific disagreements is a broader philosophical divide: developing nations insist that the high seas and their resources constitute the “common heritage of mankind,” whereas developed nations tend to invoke the “freedom of the seas” and resist being bound by international obligations.¹⁷⁴

The topic of marine genetic resources is especially divisive.¹⁷⁵ Parties disagree whether benefit-sharing should be voluntary or mandatory and whether it should apply only to specimens collected in situ or also to genetic sequence data subsequently derived from them. Poorer nations want maximal benefit-sharing; wealthy ones prioritize IPR protections for private companies.¹⁷⁶

Countries are similarly divided on the rules that should govern the collective management of fragile, biodiverse zones, as well as the mechanisms by which the world will identify, establish, regulate, and monitor MPAs and other area-based management tools.¹⁷⁷ Likewise, while there is broad support for governments and companies to conduct environmental impact assessments before undertaking major activities on the high seas, nations differ on the threshold that should trigger them and the technical standards that should inform them, as well as whether they should be mandated and/or reviewed by a treaty body.¹⁷⁸ In the case of both MPAs and impact assessments, governments face pressure from powerful economic interests—including shipping, fishing, and seabed mining industries—to adopt a light regulatory touch.

Finally, negotiators need agreement on fraught institutional questions. They must create a secretariat to implement the treaty and establish multilateral mechanisms to resolve disputes, monitor compliance, and finance activities. They must also clarify the relationship between any new arrangements and existing multilateral bodies, not least the dozen-odd regional fisheries management organizations and the International Seabed Authority (ISA). More pointedly, nations need to conduct a thorough review of the ISA, which is failing to balance its twin responsibilities of facilitating resource exploitation and ensuring ocean conservation.¹⁷⁹ Indeed, mounting evidence suggests it has become the victim of regulatory capture by mining interests seeking to capitalize on the surging global demand for cobalt, nickel, rare earth elements, and other minerals required to produce the batteries that, ironically enough, will power our clean energy future.¹⁸⁰

Negotiate a Global Pact for the Environment

Finally, nations should open formal negotiations on a Global Pact for the Environment, which has been the subject of UN discussions since 2018.¹⁸¹ Such a treaty would bring much-needed coherence to the fragmented legal order of international environmental protections.¹⁸² In contrast to the global trading system, which grants the WTO pride of place as a rule-setter and adjudicator, there is no overarching international legal framework

or organization to govern global environmental matters.¹⁸³ Instead, a collage of hundreds of multilateral treaties promotes cooperation on specific areas, such as biodiversity, climate change, desertification, endangered species, hazardous waste, marine pollution, the ozone layer, wetlands, and the like—as if environmental concerns could be effectively tackled one at a time. There is little clarity about how legal principles and rules should translate from one sphere to another, much less how the various treaty-implementing bodies, which are typically underpowered, should relate to one another.¹⁸⁴

A global pact would help bring coherence to this fragmented legal order. Beyond establishing a fundamental human right to a clean and healthy environment, as endorsed overwhelmingly within the UN General Assembly and UN Human Rights Council, it would codify a sovereign obligation to ensure that state and private actions do not harm other countries or the global commons.¹⁸⁵ The pact would elevate prevention by endorsing the precautionary principle and provide a measure of restorative justice through the principle that polluters should pay for environmental degradation. To hold governments accountable, the convention should include provisions for periodic reporting, establish rules for liability, and provide mechanisms for the peaceful resolution of transboundary environmental disputes.¹⁸⁶

Despite overwhelming international support, multilateral negotiations on a global pact within the United Nations Environment Assembly (UNEA) collapsed in spring 2019, in part due to opposition from the Trump administration. In the end, the UNEA agreed only to pursue a nonbinding political declaration, timed to coincide with the fiftieth anniversary of the Stockholm Conference on the Human Environment and the creation of UNEP. The UNEA approved that declaration in March 2022.¹⁸⁷

Although this outcome frustrated many governments, jurists, and environmental activists, it is unlikely to be the final word. Momentum toward a binding treaty will surely increase as Earth's ecological crisis deepens. Moreover, the history of international law shows that even informal declarations can foreshadow more formal instruments. The Universal Declaration of Human Rights (1948), which laid the normative foundations for more than a dozen human rights treaties, is a case in point. This precedent may provide solace for those seeking a stronger international legal framework to protect our finite and fragile planet.¹⁸⁸

One should have no illusions, of course, about the enormous hurdles standing in the way of eventual ratification of a global pact—as well as of the CBD and the High Seas Biodiversity Treaty—by the United States itself. The nation has a venerable history of opting out of treaties, even those that it spearheaded and drafted. Moreover, ratification depends on support of two-thirds of the U.S. Senate, which is aptly known as the graveyard of treaties. Today's intense partisan ideological divisions will only complicate matters.

In contrast to the global trading system, there is no overarching international legal framework or organization to govern global environmental matters.

Despite these obstacles, the Biden administration should seize this opportunity to exercise global leadership in biodiversity conservation, because it could pay significant dividends. The experience of UNCLOS is instructive. Although the United States never ratified that convention, it treats it for the most part as customary international law and benefits from provisions that U.S. treaty negotiators helped to draft. The Biden administration has a similar chance to shape the evolving framework of international environmental cooperation.

Moreover, the preservation of biodiversity is a rare topic (like the struggle against human trafficking) that boasts significant bipartisan political support on Capitol Hill. More than a third of the members of the House of Representatives and the Senate participate in a robust International Conservation Caucus—the largest such grouping in Congress. Its members “share a conviction that the United States has the opportunity, the obligation, and the interests to advance the conservation of natural resources for this and future generations.”¹⁸⁹ This caucus could offer a promising forum in which to discuss and build support for a global pact, as well as to the CBD and the High Seas Biodiversity Treaty. To increase prospects for U.S. accession, the instrument of ratification in each case should include specific reservations, understandings, and declarations to reassure conservative Senators who fear that the conventions might otherwise undermine U.S. sovereignty.¹⁹⁰

Making Peace With Nature

“Making peace with nature is the defining task of the [twenty-first] century,” U.N. Secretary General Antonio Guterres has declared.¹⁹¹ Indeed, it poses the greatest collective action challenge humanity has ever faced. Preserving the ecological foundations for human civilization requires above all a change of mindset: recognizing that our species must live in harmony with, and become wise stewards of, a biosphere in which we are deeply and inescapably embedded. Success in this endeavor will require not only arresting climate change but safeguarding biological diversity and the innumerable benefits we obtain from healthy ecosystems. As the late, famed evolutionary biologist E. O. Wilson wrote, “Biodiversity as a whole forms a shield protecting each of the species that compose it, ourselves included.”¹⁹² We ignore it—and abuse it—at our peril.

The predicament we confront is encapsulated in the dueling cartographies that have vied for our attention ever since we opened our first atlas as children. It likely began with two distinct maps. The first, geophysical one, captured the world in its natural state, revealing a startling array of biomes and ecosystems—rainforests and savannas, steppe and taiga, mountains and glaciers, river valleys and deserts, icecaps and tundra, remote atolls and barrier reefs, continental shelves and deep-sea trenches—shading into one another in often jagged and overlapping ways. The second, geopolitical one, depicted Earth’s terrestrial surface carved into precise lines demarcating independent territorial units, each colored distinctly from its neighbors, with a star indicating its capital.¹⁹³

These dueling cartographies have always been jarring, and it’s not always clear how they shape and relate to one another. The first, like the famous “Earthrise” photograph taken by astronauts aboard Apollo 8, is clearly the more authentic representation of our planet.¹⁹⁴ The second, with its artificially imposed borders, is akin to a work of fiction—and yet people tend to treat it as more important. The crisis of the biosphere has forced a collision of these two maps, exposing the tension between an integrated natural world and a divided world polity, demanding that we reconcile the two.¹⁹⁵

National sovereignty is here to stay, but a new worldview grounded in ecological realism could help close the distance between the political and natural worlds. While paradigm shifts are rare in world politics, the arrival of the Anthropocene is a transformative moment, underlining humanity’s common destiny. Our predicament cries out for new thinking about our relationship to the Earth and how new forms of international cooperation might permit us to survive and even repair the damage we have done to our common home. It cries out for planetary politics.

The crisis of the biosphere has forced a collision of these two maps, exposing the tension between an integrated natural world and a divided world polity, demanding that we reconcile the two.

About the Author

Stewart Patrick is senior fellow and director of the Global Order and Institutions Program at the Carnegie Endowment for International Peace. His primary areas of research focus are the shifting foundations of world order, the future of American internationalism, and the requirements for effective multilateral cooperation on transnational challenges. He is particularly interested in the international governance dilemmas posed by emerging technologies, the planetary ecological crisis, and growing competition in the global commons, including the oceans and outer space.

An expert in the history and practice of multilateralism, Patrick is the author of three books, including *The Sovereignty Wars: Reconciling America with the World*; *Weak Links: Fragile States, Global Threats, and International Security*; and *The Best Laid Plans: The Origins of American Multilateralism and the Dawn of the Cold War*. He has written hundreds of articles, essays, chapters, and reports on problems of world order, U.S. global engagement, the United Nations and other international organizations, and the management of global issues.

A member of the Council on Foreign Relations, Patrick has served on the policy planning staff at the U.S. Department of State. He helped establish the Council of Councils, a global think tank network, and served on the steering committee of the Paris Peace Forum. He appears regularly as an expert commentator in major media, including television, radio, print, and online.

Notes

- 1 Stewart M. Patrick, “COP 26 Exposed the Sorry State of Climate Diplomacy,” World Politics Review, November 22, 2021, <https://www.worldpoliticsreview.com/to-reach-mitigation-climate-change-diplomacy-must-do-better>.
- 2 Stewart M. Patrick, “Biden’s Environmental Agenda Must Go Beyond Climate Change,” World Politics Review, November 30, 2020, <https://www.worldpoliticsreview.com/biden-s-environmental-agenda-must-go-beyond-climate-change>.
- 3 Stewart M. Patrick, “The International Order Isn’t Ready for the Climate Crisis: The Case for a New Planetary Politics,” *Foreign Affairs* (November/December 2021), <https://www.foreignaffairs.com/articles/world/2021-10-19/climate-crisis-international-order-isnt-ready>.
- 4 Ibid.
- 5 Stewart M. Patrick, “The Case for Ecological Realism,” World Politics Review, July 20, 2020, <https://www.worldpoliticsreview.com/the-case-for-ecological-realism>.
- 6 The Anthropocene label was first suggested by Nobel Prize-winning scientist Paul Crutzen and his colleague Eugene Stoermer in 2001. This proposed new epoch would replace the Holocene, which began just under 12,000 years ago, at the end of the last glaciation. See Will Steffen, Paul J. Crutzen, and John R. McNeill, “The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?,” Royal Swedish Academy of Sciences, 2007, https://www.pik-potsdam.de/news/public-events/archiv/alter-net/former-ss/2007/05-09.2007/steffen/literature/ambi-36-08-06_614_621.pdf.
- 7 Hans Rosling, *Factfulness: Ten Reasons We’re Wrong about the World—and Why Things are Better than You Think* (Flatiron Books, 2018).
- 8 Robert Engelman, “Beyond Sustainababble,” *State of the World 2013* (Washington, DC: Worldwatch Institute, 2013), 3–16.
- 9 Will Steffen, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig, “The Trajectory of the Anthropocene: The Great Acceleration,” *Anthropocene Review* 2, no. 1 (January 16, 2015), <https://journals.sagepub.com/doi/10.1177/2053019614564785>; J. R. McNeill and Peter Engelke, *The Great Acceleration: An Environmental History of the Anthropocene Since 1945* (Cambridge: Harvard University Press, 2016), <https://www.hup.harvard.edu/catalog.php?isbn=9780674545038>.

- 10 Ferris Jabr, “The Earth Is Just as Alive as You Are,” *New York Times*, April 20, 2019, <https://www.nytimes.com/2019/04/20/opinion/sunday/amazon-earth-rain-forest-environment.html>.
- 11 UN Environment, “Global Biodiversity Outlook 5,” September 15, 2020, <https://www.cbd.int/gbo5>; and World Wide Fund for Nature, “Living Planet Report 2022,” <https://livingplanet.panda.org/en-US>.
- 12 David Wallace-Wells, *The Uninhabitable Earth: Life After Warming* (New York: Tim Duggan, 2019); Stewart M. Patrick, “The Long-Awaited Climate Emergency Is Now,” *World Politics Review*, August 16, 2021, <https://www.worldpoliticsreview.com/even-with-mitigation-climate-change-will-remake-the-planet>; and Stewart M. Patrick, “How Should the World Respond to the Coming Wave of Climate Migrants?,” *World Politics Review*, March 16, 2020, <https://www.worldpoliticsreview.com/how-should-the-world-respond-to-the-coming-wave-of-climate-migrants>.
- 13 UNEP, “Emissions Gap Report 2022,” October 27, 2022, <https://www.unep.org/resources/emissions-gap-report-2022>; Sarah Kaplan, “World Falls ‘Pitifully Short’ of Meeting Climate Goals, U.N. Report Says,” *Washington Post*, October 27, 2022, <https://www.washingtonpost.com/climate-environment/2022/10/27/emissions-climate-change-temperature-rise>.
- 14 Andersen cited in Damian Carrington, “Climate Crisis: UN Finds ‘No Credible Pathway to 1.5°C in Place,’” *Guardian*, October 27, 2022, <https://www.theguardian.com/environment/2022/oct/27/climate-crisis-un-pathway-1-5-c#:~:text=There%20is%20%E2%80%9Cno%20credible%20pathway.%E2%80%9Crapid%20transformation%20of%20societies%E2%80%9D>.
- 15 Stewart M. Patrick, “How Biden Can Embrace Environmental Stewardship,” *World Politics Review*, February 22, 2021, <https://www.worldpoliticsreview.com/it-s-time-to-take-biodiversity-threats-more-seriously>. The leading causes of biodiversity loss are (in order): degradation of land and seascapes, climate change, unsustainable exploitation, pollution, and invasive species. See Eduardo Brondizio, Sandra Díaz, Josef Settele, and Hien T. Ngo (eds.), *Global Assessment Report on Biodiversity and Ecosystem Services* (IPBES: 2019), <https://ipbes.net/global-assessment>.
- 16 The premier global authority on the state of global biodiversity is the ungainly-titled Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), established in April 2012. The IPBES, which draws on the work of thousands of scientists, plays a role analogous to the Intergovernmental Panel on Climate Change (IPCC). See “About,” IPBES, <https://ipbes.net/about>.
- 17 Robert Scholes et. al., *The Assessment Report on Land Degradation and Restoration: Summary for Policymakers* (IPBES: March 24, 2018), <https://zenodo.org/record/3237411#.Y1q3a3bMKUm>; and IPBES, “Media Release: Worsening Worldwide Land Degradation Now ‘Critical’, Undermining Well-Being of 3.2 Billion People,” March 23, 2018, <https://seca.un.org/content/media-release-worsening-worldwide-land-degradation-now-%E2%80%98critical%E2%80%99-undermining-well-being-32>.
- 18 “Towards Blue Transformation: A Vision for Transforming Aquatic Food Systems,” Food and Agriculture Organization of the United Nations, 2022, <https://www.fao.org/state-of-fisheries-aquaculture; and> “Global Assessment Report on Biodiversity and Ecosystem Services,” IPBES, 2019, <https://ipbes.net/global-assessment>.
- 19 Erik Solheim, “The Planet Is on the Edge of a Global Plastic Calamity,” *Guardian*, June 5, 2018, <https://www.theguardian.com/environment/2018/jun/05/the-planet-is-on-edge-of-a-global-plastic-calamity>.
- 20 One Ocean, “Marine Pollution,” <https://www.oceanprotect.org/resources/issue-briefs/marine-pollution/#:~:text=Taking%20an%20average%20of%208,4%20per%20minute%20by%202050>. UN Environment, “The First Integrated Marine Assessment: Ocean Assessment I,” (2016), <https://www.unep.org/resources/report/first-global-integrated-marine-assessment-world-ocean-assessment-i>.
- 21 Sandra Diaz et. al., *The Global Assessment Report on Biodiversity and Ecosystem Services: Summary for Policymakers* (IPBES: 2019), https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf.

- 22 World Wide Fund for Nature, “Living Planet Report 2022”; David L. Wagner et. al., “Insect Decline in the Anthropocene: Death by a Thousand Cuts,” *PNAS* 118, no. 2, January 11, 2021, [https://www.pnas.org/doi/10.1073/pnas.2023989118#:~:text=Dirzo%20et%20al.'s%20,in%20the%20last%20four%20decades](https://www.pnas.org/doi/10.1073/pnas.2023989118#:~:text=Dirzo%20et%20al.'s%20,in%20the%20last%20four%20decades;); Ben Guarino, “‘Hyperalarming’ Study Shows Massive Insect Loss,” *Washington Post*, October 15, 2018, <https://www.washingtonpost.com/science/2018/10/15/hyperalarming-study-shows-massive-insect-loss/>; and Kenneth V. Rosenberg et. al., “Decline of the North American Avifauna,” *Science* 366, no. 6461 (September 19, 2019), 120–124, <https://www.science.org/doi/10.1126/science.aaw1313#:~:text=Integration%20of%20range%2Dwide%20population,a%20recent%2010%2Dyear%20period.>
- 23 Yinon M. Bar-On, “The Biomass Distribution on Earth,” *PNAS* 115, no. 25 (May 21, 2018), 6506–6511, <https://www.pnas.org/doi/10.1073/pnas.1711842115>.
- 24 Conservation International, “Deforestation: 11 Facts You Need to Know,” <https://www.conservation.org/stories/11-deforestation-facts-you-need-to-know>; Erik Stokstad, “New Global Study Reveals the ‘Staggering’ Loss of Forests Caused by Industrial Agriculture,” *Science*, September 13, 2018, <https://www.science.org/content/article/scientists-reveal-how-much-world-s-forests-being-destroyed-industrial-agriculture>; and Philip G. Curtis et. al., “Classifying Drivers of Global Forest Loss,” *Science* 361 (2018), 1108–1111, <https://www.science.org/doi/10.1126/science.aau3445>.
- 25 Kate Poole, “IPBES and the Threats to the World’s Fresh Water,” Natural Resources Defense Council, May 6, 2019, [https://www.nrdc.org/experts/kate-poole/ipbes-and-threats-worlds-fresh-water#:~:text=More%20than%2080%25%20of%20wastewater,times%20faster%20than%20forest%20loss](https://www.nrdc.org/experts/kate-poole/ipbes-and-threats-worlds-fresh-water#:~:text=More%20than%2080%25%20of%20wastewater,times%20faster%20than%20forest%20loss;); Ilka C. Feller, Daniel A. Friess, Ken W. Krauss, and Roy R. Lewis III, “The State of the World’s Mangroves in the 21st Century Under Climate Change,” *Hydrobiologia* 803 (2017), 1–12, <https://link.springer.com/article/10.1007/s10750-017-3331-z>.
- 26 Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York: Henry Holt, 2014).
- 27 Bradley Dennis, “Oceans Are Warming Faster Than Ever: Here’s What Could Come Next,” *Washington Post*, October 18, 2022, <https://www.washingtonpost.com/climate-environment/2022/10/19/oceans-warming-climate-change/>; and “Ocean Acidification,” Smithsonian Institution, <https://ocean.si.edu/ocean-life/invertebrates/ocean-acidification#:~:text=Even%20though%20the%20ocean%20is,the%20last%2050%20million%20years.> The oceans absorb 90 percent of the heat from global warming. See “Ocean Warming,” NASA, <https://climate.nasa.gov/vital-signs/ocean-heat>.
- 28 Elena Becatoros, “More Than 90 Percent of World’s Coral Reefs Will Die by 2050,” *Independent*, March 13, 2017, <https://www.independent.co.uk/climate-change/news/environment-90-percent-coral-reefs-die-2050-climate-change-bleaching-pollution-a7626911.html>; and World Economic Forum, “2021 Ocean Temperatures Were Warmest on Record,” January 18, 2022, <https://www.weforum.org/agenda/2022/01/2021-ocean-temperatures-were-warmest-on-record-climate-change>.
- 29 Justin L. Penn and Curtis Deutsch, “Avoiding Mass Extinction From Climate Warming,” *Science* 376, no. 6592 (April 28, 2022), 524–526, <https://www.science.org/doi/10.1126/science.abe9039>; and Catrin Einhorn, “Warning on Mass Extinction on Sea Life: ‘An Oh My God’ Moment,” *New York Times*, April 28, 2022, <https://www.nytimes.com/2022/04/28/climate/global-warming-ocean-extinctions.html>.
- 30 “Creating a Sustainable Food Future,” World Resources Institute, July 2019, <https://research.wri.org/wri-food>.
- 31 World Bank Group, *High and Dry: Climate Change, Water, and the Economy* (World Bank, Washington, DC: 2016), <https://www.worldbank.org/en/topic/water/publication/high-and-dry-climate-change-water-and-the-economy#:~:text=A%20new%20World%20Bank%20reports,use%20water%20resources%20more%20efficiently.>
- 32 Stewart M. Patrick, “The Coronavirus Pandemic Is the Shape of Things to Come,” *World Politics Review*, February 24, 2020, <https://www.worldpoliticsreview.com/the-coronavirus-outbreak-is-the-shape-of-things-to-come>.
- 33 United Nations Environment Programme and International Livestock Research Institute, *Preventing the Next Pandemic: Zoonotic Diseases and How to Break the Chain of Transmission* (2020), <https://www.unep.org/resources/report/preventing-future-zoonotic-disease-outbreaks-protecting-environment-animals-and>.

- 34 Stewart M. Patrick, “Earth Day’s New Urgency in the Era of COVID-19,” *World Politics Review*, April 20, 2020, <https://www.worldpoliticsreview.com/earth-day-s-new-urgency-in-the-era-of-covid-19>.
- 35 Peter Daszak et. al., “IPBES Workshop on Biodiversity and Pandemics: Workshop Report,” IPBES, 2020, https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf.
- 36 Thomas Malthus, *An Essay on the Principle of Population* (London: J. Johnson, 1798), <https://math.uchicago.edu/~shmuel/Modeling/Malthus.%20An%20essay%20on%20the%20principle%20of%20population.pdf>.
- 37 “Our Work,” Global Footprint Network, <https://www.footprintnetwork.org/our-work>.
- 38 Demographers offer widely divergent estimates about when and at what level global population will peak. The UN Department of Economic and Social Affairs anticipates that it will level off at nearly 11 billion in 2100, while another authoritative study predicts a peak of 9.7 billion in 2064. See “Growing at a Slower Pace, World Population Is Expected to Reach 9.7 Billion in 2050, and Could Peak at Around 11 Billion in 2100,” United Nations, June 17, 2019, <https://www.un.org/development/desa/en/news/population/world-population-prospects-2019.html>; and Stein Emil Vollset, et. al., “Fertility, Mortality, Migration, and Population Scenarios for 195 Countries and Territories from 2017 to 2100: A Forecasting Analysis for the Global Burden of Disease Study,” *The Lancet* 396, 10258 (October 17, 2020), [https://www.thelancet.com/article/S0140-6736\(20\)30677-2/fulltext](https://www.thelancet.com/article/S0140-6736(20)30677-2/fulltext).
- 39 A classic example of this optimistic argument is Andrew McAfee, *More From Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources—and What Happens Next* (Scribner, 2019).
- 40 For a pointed critique of McAfee’s thesis, see Jason Hickel, “The Myth of America’s Green Growth,” *Foreign Policy*, June 18, 2020, <https://foreignpolicy.com/2020/06/18/more-from-less-green-growth-environment-gdp>.
- 41 Johan Rockstrom et. al., “A Safe Operating Space for Humanity,” *Nature* 461 (September 23, 2009), 472–475, <https://www.nature.com/articles/461472a>; Will Steffen et. al., “Planetary Boundaries: Guiding Human Development on a Changing Planet,” *Science*, 347, 6223 (January 15, 2015), <https://www.science.org/doi/10.1126/science.1259855>; and Anthony D. Barnosky et. al., “Approaching a State Shift in Earth’s Biosphere,” *Nature* 486 (June 7, 2012), <https://www.nature.com/articles/nature11018>.
- 42 Timothy M. Lenton, “Climate Tipping Points—Too Risky to Bet Against,” *Nature* (November 27, 2019), <https://www.nature.com/articles/d41586-019-03595-0>; and “The Growing Risk of Climate ‘Tipping Points’: Scientific Evidence and Policy Responses,” Council on Foreign Relations webinar, February 4, 2022, <https://www.cfr.org/event/growing-risk-climate-tipping-points-scientific-evidence-and-policy-responses>.
- 43 David I. Armstrong McKay et. al. “Exceeding 1.5°C Global Warming Could Trigger Multiple Climate Tipping Points,” *Science* 377, 6611 (September 9, 2022), <https://www.science.org/doi/10.1126/science.abn7950>; Stewart M. Patrick, “Tipping Points Make Climate Inaction Even More Catastrophic,” *World Politics Review*, February 14, 2022, <https://www.worldpoliticsreview.com/as-the-world-nears-tipping-points-climate-action-can-t-be-ignored>.
- 44 Stewart Patrick, *The Best Laid Plans: The Origins of American Multilateralism and the Dawn of the Cold War* (Lanham, MD: Rowman and Littlefield, 2009).
- 45 “Political Realism in International Relations,” *Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/entries/realism-intl-relations>; Stephen M. Walt, “The World Wants You to Think Like a Realist,” *Foreign Policy*, May 30, 2018, <https://foreignpolicy.com/2018/05/30/the-world-wants-you-to-think-like-a-realist>.
- 46 Robert Jervis, “Cooperation Under the Security Dilemma,” *World Politics* 30, 2 (January 1978), 167–214, <https://www.jstor.org/stable/2009958?seq=1>; and Stephen M. Walt, “Does Anyone Still Understand the ‘Security Dilemma?’,” *Foreign Policy*, July 26, 2022, <https://foreignpolicy.com/2022/07/26/misperception-security-dilemma-ir-theory-russia-ukraine>.
- 47 Gregory F. Treverton, Erik Nemeth, and Sinduja Srinivasan, *Threats Without Threateners? Exploring Intersections of Threats to the Global Commons and National Security* (Santa Monica, CA: RAND Corporation, 2012), https://www.rand.org/pubs/occasional_papers/OP360.html; Stewart M. Patrick, “COVID-19, and Climate Change, Will Change the Definition of National Security,” *World Politics Review*, May 18, 2020, <https://www.worldpoliticsreview.com/covid-19-and-climate-change-will-change-the-definition-of-national-security>.

- 48 Kenneth Waltz, *Man, the State, and War: A Theoretical Analysis* (New York: Columbia University Press, 1959); and Jan Niklas Rolf, “The State of Nature Analogy in International Relations Theory,” *International Relations* 28, no. 2 (2014), <https://journals.sagepub.com/doi/abs/10.1177/0047117813502502?journalCode=ireb>.
- 49 Patrick, “The Case for Ecological Realism.”
- 50 For a similar argument, see R. Schoonover, C. Cavallo, and I. Caltabiano, *The Security Threat That Binds Us: The Unraveling of Ecological and Natural Security and What the United States Can Do About It* (Washington, DC: Council on Strategic Risks: 2021), <https://councilonstrategicrisks.org/the-security-threat-that-binds-us>.
- 51 Daniel W. Drezner, ed., *Avoiding Trivia: The Role of Strategic Planning in American Foreign Policy* (Washington, DC: Brookings Institution Press, 2009).
- 52 Patrick, “The Case for Ecological Realism.”
- 53 Jessica Tuchman Mathews, “Redefining Security,” *Foreign Affairs* (Spring 1989), <https://www.foreignaffairs.com/usa/united-states/redefining-security>.
- 54 For a thoughtful if more skeptical take, including on this author’s writings, see Daniel W. Drezner, “Is a Planetary Grand Strategy Possible? A Few Thoughts on Non-Traditional Grand Strategies,” *Washington Post*, November 16, 2021, <https://www.washingtonpost.com/outlook/2021/11/16/is-planetary-grand-strategy-possible>.
- 55 White House, “Executive Order on Tackling the Climate Crisis at Home and Abroad,” January 27, 2021, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad>.
- 56 Office of the Director of National Intelligence, “DNI Haines Remarks at the 2021 Leaders Summit on Climate,” April 23, 2021, <https://www.dni.gov/index.php/newsroom/speeches-interviews/speeches-interviews-2021/item/2208-dni-haines-remarks-at-the-2021-leaders-summit-on-climate>.
- 57 For one take on what a policy of “natural security” might look like, see Schoonover, Cavallo, and Caltabiano, *The Security Ties that Bind Us*.
- 58 Patrick, “The International Order Isn’t Ready for the Climate Crisis.”
- 59 Katrina vanden Heuvel, “We Need a ‘Long Telegram’ about the Climate Crisis—Not Conflict with China or Russia,” *Washington Post*, November 9, 2021, <https://www.washingtonpost.com/opinions/2021/11/09/why-we-need-long-telegram-about-climate-crisis-not-conflict-with-china-or-russia>.
- 60 Stewart M. Patrick, “A Responsibility to Protect the Earth? Reframing Sovereignty in the Anthropocene,” *World Politics Review*, March 2, 2020, <https://www.worldpoliticsreview.com/a-responsibility-to-protect-the-earth-reframing-sovereignty-in-the-anthropocene-2>.
- 61 Carl Pires, “The Trump Ally Who Is Allowing the Amazon to Burn,” *New Yorker*, August 28, 2019, <https://www.newyorker.com/news/news-desk/the-trump-ally-who-is-allowing-the-amazon-to-burn>; and Aurelian Breeden and Megan Specia, “Dispute Over Amazon Gets Personal for Bolsonaro and Macron,” *New York Times*, August 26, 2018, <https://www.nytimes.com/2019/08/26/world/europe/bolsonaro-macron-g7.html>.
- 62 Rohan Silva, “Amazon Inferno Is a Threat to Us All—and the UN Must Lead the Intervention,” *Evening Standard*, August 30, 2019, <https://www.standard.co.uk/comment/comment/amazon-inferno-is-a-threat-to-us-all-and-the-un-must-lead-the-intervention-a4225006.html>.
- 63 Marko Mavrovic, “The Amazon Fires: Responsibility, Obligation, and the Limitations of the State,” *Prindle Post*, August 30, 2019, <https://www.prindleinstitute.org/2019/08/the-amazon-fires-responsibility-obligation-and-the-limitations-of-the-state>; and Stewart M. Patrick, “The International Order Isn’t Ready for the Climate Crisis.”
- 64 Patrick, “A Responsibility to Protect the Earth?”
- 65 Stephen D. Krasner, *Sovereignty: Organized Hypocrisy* (Princeton: Princeton University Press, 1999); and Robert H. Jackson, *Sovereignty: The Evolution of an Idea* (Cambridge, MA: Polity Press, 2007).

- 66 Richard N. Haass, “Sovereignty: Existing Rights, Evolving Responsibilities,” Remarks to the School of Foreign Service and the Mortara Center for International Studies, January 14, 2003, <https://2001-2009.state.gov/s/p/rem/2003/16648.htm>; and Bruce D. Jones, Carlos Pascual, and Stephen John Stedman, *Power and Responsibility: Building International Order in an Era of Transnational Threats* (Brookings Institution Press, 2009).
- 67 Gareth Evans, *The Responsibility to Protect: Ending Mass Atrocity Crimes Once and For All* (Washington, DC: Brookings Institution Press, 2008), <https://www.jstor.org/stable/10.7864/j.ctt4cg7fp>.
- 68 Michael Chertoff, “The Responsibility to Contain: Protecting Sovereignty Under International Law,” *Foreign Affairs* (January/February 2009), <https://www.foreignaffairs.com/world/responsibility-contain>.
- 69 Ian Brownlie, *Principles of Public International Law, Seventh Edition* (Oxford: Oxford University Press, 2008), 275–285; and Patricia Birnie, Alan Boyle, and Catherine Redgwell, *International Law & the Environment, Third Edition* (Oxford: Oxford University Press, 2009), 143–152.
- 70 Owen McIntyre, “The Current State of Development of the No Significant Harm Principle: How Far Have We Come?,” *International Environmental Agreements: Politics, Law and Economics* 20, no. 4 (December 2020), https://ideas.repec.org/a/spr/ieaple/v20y2020i4d10.1007_s10784-020-09501-8.html.
- 71 Abhinav Chugh, “Loss and Damage: Why Climate Reparations Are Top of the Agenda at COP27,” World Economic Forum, October 27, 2022, <https://www.weforum.org/agenda/2022/10/cop27-why-climate-reparations-are-one-of-the-biggest-issues>.
- 72 Patrick, “A Responsibility to Protect the Earth?”
- 73 “Encyclical Letter Laudato Si of the Holy Father Francis on Care for Our Common Home,” May 24, 2015, https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html.
- 74 Garrett Hardin, “The Tragedy of the Commons,” *Science* 162, no. 3859 (December 3, 1968), 1243–1248, <https://www.jstor.org/stable/1724745?origin=JSTOR-pdf>.
- 75 N. Nakicenovic et. al., “Global Commons in the Anthropocene: World Development on a Stable and Resilient Planet,” International Institute for Applied Systems Analysis Working Paper (October 2016), <https://pure.iiasa.ac.at/id/eprint/14003/>; and Paulo Magalhaes et. al., “Redefining Global Commons in the Anthropocene,” *Solutions* (December 1, 2020), <https://thesolutionsjournal.com/2020/12/01/redefining-global-commons-in-the-anthropocene>.
- 76 Naoko Ishi et. al., “Safeguarding the Global Commons for Human Prosperity and Environmental Sustainability: The Global Commons Stewardship Framework,” Center for Global Commons, University of Tokyo, May 2022, <https://irp.cdn-website.com/be6d1d56/files/uploaded/Safeguarding-the-Global-Commons-v1.3.pdf>.
- 77 Global Commons Alliance, <https://globalcommonsalliance.org/global-commons>; and Andrew Milner, “Interview: Professor Johan Rockström, Global Commons Alliance,” Alliance for Philanthropy and Social Investment Worldwide, October 22, 2019, <https://www.alliancemagazine.org/interview/science-and-philanthropy-join-forces-to-protect-the-global-commons/>.
- 78 ICISS, *The Responsibility to Protect: Report of the International Commission on Intervention and State Sovereignty* (International Development Research Center, 2001), <https://www.idrc.ca/en/book/responsibility-protect-report-international-commission-intervention-and-state-sovereignty>.
- 79 Ivan Simonovic, “The Responsibility to Protect,” *UN Chronicle* LIII, no. 4 (December 2016), <https://www.un.org/en/chronicle/article/responsibility-protect>.
- 80 The concept of natural capital was pioneered in particular by Stanford University professor Getchen C. Daily. See Gretchen C. Daily, *Nature’s Services: Societal Dependence on Natural Ecosystems* (Island Press, 1997). See also Peter Kareiva, ed., *Natural Capital: Theory and Practice of Mapping Ecosystem Services* (Oxford: Oxford University Press, 2011), <https://academic.oup.com/book/26318>.
- 81 Stewart M. Patrick, “To Save the Natural World, Put a Price on It,” *World Politics Review*, May 3, 2021, <https://www.worldpoliticsreview.com/ecological-realism-is-the-key-to-conserving-biodiversity>.

- 82 Martin Kettle, “Cheney Tells US To Carry On Guzzling,” *Guardian* (May 10, 2001), <https://www.theguardian.com/world/2001/may/10/dickcheney.martinkettle>.
- 83 UN Environment, *Inclusive Wealth Report 2018*, <https://www.unep.org/resources/inclusive-wealth-report-2018>.
- 84 Sandra Diaz et. al., “Assessing Nature’s Contributions to People,” *Science* 359, 6373 (January 19, 2018), 270–272, <https://science.sciencemag.org/content/sci/suppl/2018/01/18/359.6373.270.DC1/aap8826-Diaz-SM.pdf>.
- 85 Ehsan Masoon, “A Battle for the Soul of Biodiversity,” *Nature*, August 22, 2018, <https://www.nature.com/articles/d41586-018-05984-3>. For a thoughtful commentary on the topic, see Tom Oliver, “Nature: How Do You Put a Value on Something That Has Infinite Worth,” *The Conversation*, February 5, 2021, <https://theconversation.com/nature-how-do-you-put-a-price-on-something-that-has-infinite-worth-154704>.
- 86 World Economic Forum, “Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy,” January 19, 2020, <https://www.weforum.org/reports/nature-risk-rising-why-the-crisis-engulfing-nature-matters-for-business-and-the-economy>.
- 87 Robert Costanza et. al., “Changes in the Global Value of Ecosystem Services,” *Global Environmental Change* 26 (May 2014), 152–158, <https://www.sciencedirect.com/science/article/abs/pii/S0959378014000685>.
- 88 Sir Partha Dasgupta, *The Economics of Biodiversity: The Dasgupta Review*, abridged version (London: HM Treasury, 2021), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957292/Dasgupta_Review_-_Abridged_Version.pdf. The Stern Review was a landmark study of the economic consequences of climate change, published in 2006. See “Stern Review Final Report,” UK National Archives, archived on April 7, 2010, accessible at https://webarchive.nationalarchives.gov.uk/ukgwa/20100407172811/https://www.hm-treasury.gov.uk/stern_review_report.htm.
- 89 UN Environment Programme, “Beyond GDP: Making Nature Count in the Shift to Sustainability,” February 7, 2022, <https://www.unep.org/news-and-stories/story/beyond-gdp-making-nature-count-shift-sustainability>.
- 90 See the Natural Capital Protocol developed by the Capitals Coalition, accessible at https://capitalscoalition.org/capitals-approach/natural-capital-protocol/?fwp_filter_tabs=guide_supplement.
- 91 UN Statistics Division, “Global Assessment of Environmental-Economic Accounting and Supporting Statistics 2020,” March 2021, https://unstats.un.org/unsd/statcom/52nd-session/documents/BG-3f-2020_GA_report_%20draft_%20ver7_nomap-E.pdf.
- 92 Dasgupta, *The Economics of Biodiversity*, 39–41.
- 93 Manuela Andreoni and Ernesto Londoño, “Bolsonaro’s Sudden Pledge to Protect the Amazon Is Met With Skepticism,” *New York Times*, April 21, 2021, <https://www.nytimes.com/2021/04/21/world/americas/bolsonaro-climate-amazon.html>; Paulo Trevisani and Timoty Puko, “Brazil’s Climate Overture to Biden: Pay Us Not to Raze Amazon,” *Wall Street Journal*, April 21, 2021, <https://www.wsj.com/articles/brazils-climate-overture-to-biden-pay-us-not-to-raze-amazon-11618997400>; and Ciara Nugent, “Lula’s Victory in the Brazilian Elections Is a Win for the Planet,” *Time*, October 31, 2022, <https://time.com/6226932/lula-win-amazon-climate-change-brazil>.
- 94 Sarah Murray, “Investors Grapple with Complexities of Biodiversity,” *Financial Times*, July 18, 2022, <https://www.ft.com/content/da6ddb23-ae10-4fd6-9e45-3af15e5a0c1e>.
- 95 “SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors,” U.S. Securities and Exchange Commission, March 21, 2022, <https://www.sec.gov/news/press-release/2022-46>. Starting in December 2023, banks operating in the EU will need to disclose information on their exposure to climate risks and their plans for addressing them. See “EBA Publishes Binding Standards on Pillar 3 Disclosures on EST Risks,” European Banking Authority, January 24, 2022, <https://www.eba.europa.eu/eba-publishes-binding-standards-pillar-3-disclosures-esg-risks>; <https://www.spglobal.com/esg/insights/eu-banking-regulator-puts-spotlight-on-climate-disclosures#:~:text=The%20European%20Banking%20Authority%2C%20or,need%20to%20manage%20climate%20risks>.

- 96 Andrew Ramonas and Amanda Iacone, “SEC Climate Rules Pushed Back Against Bureaucratic, Legal Woes,” *Bloomberg*, October 6, 2022, <https://news.bloomberglaw.com/securities-law/sec-climate-rules-pushed-back-amid-bureaucratic-legal-woes>.
- 97 “Climate Risk and the Global Energy Transition: Investment Stewardship,” BlackRock, February 2022, <https://www.blackrock.com/corporate/literature/publication/blk-commentary-climate-risk-and-energy-transition.pdf>; and Justin Baer, “BlackRock Now Manages Over \$10 Trillion in Assets,” *Wall Street Journal*, January 14, 2022, <https://www.wsj.com/articles/blackrock-now-manages-over-10-trillion-in-assets-11642162013>.
- 98 See, for instance, the groundbreaking report from the World Economic Forum, “The Future of Nature and Business,” 2020, https://www3.weforum.org/docs/WEF_The_Future_Of_Nature_And_Business_2020.pdf.
- 99 Finance for Biodiversity Pledge, <https://www.financeforbiodiversity.org>.
- 100 Task Force on Nature-Related Financial Disclosures website, <https://tnfd.global/about/>.
- 101 “More Than 300 Businesses Call on Heads of State to Make Nature Assessment and Disclosure Mandatory at COP 15,” Business for Nature Coalition, October 26, 2022, <https://www.businessfornature.org/news/business-call-for-mandatory-nature-assessment-and-disclosure-at-cop15>; and Ananya Bhattacharya, “Businesses Must First Admit Their Part in the Biodiversity Loss to Be Able to Fight It,” Quartz, October 26, 2022, <https://qz.com/businesses-must-first-admit-their-part-in-the-biodivers-1849703541>.
- 102 Harriet Agnew, “Biodiversity Quickly Rises Up the ESG Investing Agenda: Species Loss Is Now Seen as a Problem as Big as Climate Change,” *Financial Times*, September 19, 2022, <https://www.ft.com/content/abbcec95-0154-40cd-83b9-d988bd3271b9>.
- 103 Dasgupta, *The Economics of Biodiversity*.
- 104 IPCC, Sixth Assessment Report, updated April 2, 2022, <https://www.ipcc.ch/assessment-report/ar6>.
- 105 Current policies and actions have the world on course for about 2.7°C warming. If net-zero targets are achieved, in addition to current nationally determined contributions (NDCs), warming could be limited to about 2.1°C. See Climate Action Tracker, “Temperatures,” accessed November 9, 2022, <https://climateactiontracker.org/global/temperatures>.
- 106 Ben Panko, “World’s Largest Carbon Capture Plant Opens in Iceland,” *Smithsonian Magazine*, September 9, 2021, <https://www.smithsonianmag.com/smart-news/worlds-largest-carbon-capture-plant-opens-iceland-180978620>.
- 107 The categorization of nature-based and technology-based solutions is not always clear-cut. See, for example, National Academies of Sciences, Engineering, and Medicine, *A Research Strategy for Ocean-Based Carbon Dioxide Removal and Sequestration* (Washington, DC: National Academies Press, 2021), <https://www.nationalacademies.org/our-work/a-research-strategy-for-ocean-carbon-dioxide-removal-and-sequestration>; and Stewart M. Patrick, “Ocean-Based Carbon Removal Deserves a Closer Look,” *World Politics Review*, December 20, 2021, <https://www.worldpoliticsreview.com/in-the-oceans-climate-solutions-are-promising-but-thorny>.
- 108 In belated recognition of the multiple linkages and mutual feedback between biodiversity and climate, and the need to address both crises in a simultaneous and holistic manner, the IPBES and IPCC in 2021 held their first ever joint collaboration. The resulting workshop report outlines powerful synergies, as well as trade-offs, between the conservation and stewardship of nature, on one hand, and the battle against climate change, on the other. See Hans-Otto Portner, Robert Scholes, et. al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Roundtable on Biodiversity and Climate Change,” IPBES, June 24, 2021, <https://zenodo.org/record/5101125#.Y16VJ3bMI2w>.
- 109 *Ibid.*, 17.
- 110 James Bacchus, “Legal Issues With the European Carbon Border Adjustment Mechanism,” *Cato Briefing Paper* 125 (August 9, 2021), <https://www.cato.org/sites/cato.org/files/2021-08/briefing-paper-125.pdf>.

- 111 The WTO Treaty permits parties to waive their obligations under “exceptional circumstances,” and climate change surely fits the bill. See James Bacchus, “The Case for a WTO Climate Waiver,” Centre for International Governance Innovation, 2017, <https://www.cigionline.org/sites/default/files/documents/NEWEST%20Climate%20Waiver%20-%20Bacchus.pdf>. Ideally, carbon border adjustments would be accompanied by domestic carbon taxes. See Jennifer Hillman, “To Address Climate Change While Protecting Workers, the United States Needs a Border-Adjusted Carbon Tax,” Council on Foreign Relations, November 13, 2020, <https://www.cfr.org/blog/address-climate-change-while-protecting-workers-united-states-needs-border-adjusted-carbon-tax>; and Shutung Pomerleau, “Carbon Border Adjustments,” Niskanen Center, January 24, 2022, <https://www.niskanencenter.org/carbon-border-adjustments>.
- 112 William Nordhaus, “The Climate Club: How to Fix a Failing Global Effort,” *Foreign Affairs* (May/June 2020), <https://www.foreignaffairs.com/articles/united-states/2020-04-10/climate-club>.
- 113 Preamble, Marrakech Agreement Establishing the World Trade Organization, https://www.wto.org/english/docs_e/legal_e/04-wto_e.htm.
- 114 James Bacchus, *Trade Links: New Rules for a New World* (Cambridge: Cambridge University Press, 2022).
- 115 Inu Manak, “The WTO Hangs On,” Council on Foreign Relations, June 22, 2022, <https://www.cfr.org/article/wto-hangs>.
- 116 China, for instance, sought the inclusion of bicycles. James Bacchus, *Trade Links*.
- 117 Stewart M. Patrick, “To Prevent Pandemics and Protect Biodiversity, Combat Wildlife Crime,” *World Politics Review*, January 25, 2021, <https://www.worldpoliticsreview.com/to-prevent-pandemics-and-protect-biodiversity-combat-wildlife-crime>.
- 118 World Bank, “Illegal Logging, Fishing, and Wildlife Trade: The Costs and How to Combat It,” October 2019, <https://thedocs.worldbank.org/en/doc/482771571323560234-0120022019/original/WBGReport1017Digital.pdf>; and Benoit Blarel, “The Real Costs of Illegal Logging, Fishing, and Wildlife Trade: \$1 Trillion-\$2 Trillion Per Year,” World Bank blog, October 29, 2019, <https://blogs.worldbank.org/voices/real-costs-illegal-logging-fishing-and-wildlife-trade-1-trillion-2-trillion-year>.
- 119 “Addressing Serious Gaps in International Law,” End Wildlife Crime, accessed November 9, 2022, <https://endwildlifecrime.org>; “What Is CITES?,” CITES, accessed November 9, 2022, <https://cites.org/eng/disc/what.php>; and “United Nations Convention Against Transnational Organized Crime and the Protocols Thereto,” UNOTC, entered into force September 29, 2003, <https://www.unodc.org/unodc/en/organized-crime/intro/UNTOC.html>.
- 120 Stewart M. Patrick, “It’s Time for a New Concept of Development Tailored to the Anthropocene,” *World Politics Review*, December 21, 2020, <https://www.worldpoliticsreview.com/it-s-time-for-a-new-concept-of-development-adapted-to-the-anthropocene>; and United Nations Development Programme, “The Next Frontier: Human Development and the Anthropocene,” in “Overview: Human Development Report 2020,” https://hdr.undp.org/system/files/documents/hdr2020overviewenglishpdf_1.pdf.
- 121 Ibid. In 1990, the UN’s first Human Development Report declared, “It is people, not trees, whose future choices have to be protected.” Thirty years later, the 2020 version explicitly rejected that oppositional framing, which puts nature in the background.
- 122 Fiona Harvey, “World’s Richest 1% Cause Double CO₂ Emissions of Poorest 50%, Says Oxfam,” *Guardian*, September 20, 2020, <https://www.theguardian.com/environment/2020/sep/21/worlds-richest-1-cause-double-co2-emissions-of-poorest-50-says-oxfam>.
- 123 See the Sustainable Development Goals at “The 17 Goals,” United Nations Department of Economic and Social Affairs, <https://sdgs.un.org/goals>.
- 124 United Nations Development Programme, “The Next Frontier.”
- 125 Ibid.
- 126 OECD, *Mainstreaming Biodiversity for Sustainable Development* (Paris: OECD Publishing, 2018), <https://www.oecd.org/dac/environment-development/mainstreaming-biodiversity-for-sustainable-development-9789264303201-en.htm>.

- 127 Andrew Deutz et al., “Financing Nature: Closing the Global Biodiversity Financing Gap,” Paulson Institute, September 17, 2020, <https://www.paulsoninstitute.org/conservation/financing-nature-report>.
- 128 Treaty text available at “Convention on Biological Diversity,” United Nations, 1992, <https://www.cbd.int/doc/legal/cbd-en.pdf>.
- 129 The 1992 Earth Summit was formally known as the UN Conference on Environment and Development. See “United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June 1992,” United Nations Conferences, <https://www.un.org/en/conferences/environment/rio1992>.
- 130 Katarina Zimmer, “The World Missed a Critical Deadline to Safeguard Biodiversity, UN Report Says,” *National Geographic*, September 15, 2020, <https://www.nationalgeographic.com/science/article/world-missed-critical-deadline-to-safeguard-biodiversity-un-report>.
- 131 “Aichi Targets,” Convention on Biological Diversity, <https://www.cbd.int/aichi-targets>.
- 132 Patrick Greenfield, “World Fails to Meet a Single Target to Stop Destruction of Nature—UN Report,” *Guardian*, September 15, 2020, <https://www.theguardian.com/environment/2020/sep/15/every-global-target-to-stem-destruction-of-nature-by-2020-missed-un-report-aoe>; and Secretariat of the Convention on Biological Diversity, “Global Biodiversity Outlook 5: Summary for Policymakers,” 2020, <https://www.cbd.int/gbo/gbo5/publication/gbo-5-spm-en.pdf>.
- 133 Patrick Greenfield and Phoebe Weston, “What Is COP 15 and Why Does It Matter to All Life on Earth?,” *Guardian*, October 24, 2022, <https://www.theguardian.com/environment/2022/aug/30/what-is-cop15-and-why-does-it-matter-for-all-life-on-earth-aoe>.
- 134 Convention on Biological Diversity, “First Draft of the Post-2020 Global Biodiversity Framework,” July 5, 2021, <https://www.cbd.int/doc/c/abb5/591f/2e46096d3f0330b08ce87a45/wg2020-03-03-en.pdf>; and “New Deal for Nature and People,” World Wide Fund for Nature, <https://explore.panda.org/newdeal/why>.
- 135 E. Dinerstein et al., “A Global Deal for Nature: Guiding Principles, Milestones, and Targets,” *Science Advances* 5, issue 4, April 19, 2019, <https://www.science.org/doi/10.1126/sciadv.aaw2869#abstract>.
- 136 Patrick Greenfield and Fiona Harvey, “More Than 50 Countries Commit to Protection of 30% of Earth’s Land and Oceans,” *Guardian*, January 11, 2021, <https://www.theguardian.com/environment/2021/jan/11/50-countries-commit-to-protection-of-30-of-earths-land-and-oceans>.
- 137 Campaign for Nature, “Heads of State and Ministers Announce New Support for 30x30 Targets, Bringing 112 Countries Now Committed to Protecting At Least 30% of Land and Ocean by 2030,” November 7, 2022, <https://www.campaignfornature.org/heads-of-state-ministers-announce-new-support-for-30x30-targets-bringing-112-countries-now-committed-to-protecting-at-least-30-of-land-and-ocean-by-2030>.
- 138 “Fact Sheet: President Biden to Take Action to Uphold Commitment to Restore Balance on Public Lands and Waters, Invest in Clean Energy Future,” Department of the Interior, January 27, 2021, <https://www.doi.gov/pressreleases/fact-sheet-president-biden-take-action-uphold-commitment-restore-balance-public-lands>. The Biden administration outlines its domestic 30x30 plans in U.S. Department of the Interior, “America the Beautiful: Spotlighting the Work to Restore, Connect and Conserve 30 Percent of Lands and Waters by 2030,” <https://www.doi.gov/priorities/america-the-beautiful>. In October 2020, California Governor Gavin Newsom signed an historic executive order committing the largest U.S. state to the 30x30 goal. See Stewart M. Patrick, “California’s Bold Conservation Push is Part of a Hopeful Global Trend,” *World Politics Review*, August 3, 2020, <https://www.worldpoliticsreview.com/california-s-bold-conservation-push-is-part-of-a-hopeful-global-trend>.
- 139 Convention on Biological Diversity, “First Draft of the Post-2020 Global Biodiversity Framework.” See also Campaign for Nature, accessible at <https://www.campaignfornature.org>.
- 140 Olivia Rosane, “50 Countries Join Ambitious Plan to Protect 30% of Earth by 2030,” *Treehugger*, January 28, 2021, <https://www.treehugger.com/50-countries-protect-30-percent-earth-2030-5100866>.

- 141 Hans-Otto Portner, Robert Scholes, et. al., “Scientific Outcome of the IPBES-IPCC Co-Sponsored Roundtable on Biodiversity and Climate Change.” Other sources place the proportion of terrestrial land protected at 17 percent. See “Fact Sheet for the Media: Official Launch Event,” High Ambition Coalition for Nature and People, January 11, 2021, <https://static1.squarespace.com/static/5c77fa240b77bd5a7ff401e5/t/5ffc8d3077fe842dd15e4b6e/1610386736614/HAC+Launch+Fact+Sheet+Draft.pdf>; and Gloria Dickie, “World Leaders Pledge More Support for Nature Ahead of UN Summit,” Reuters, September 21, 2022, <https://www.reuters.com/business/environment/world-leaders-pledge-more-support-nature-ahead-un-summit-2022-09-21>.
- 142 “Economic Benefits of Protecting 30% of Planet’s Land and Ocean Outweigh the Costs at Least 5-to-1,” Campaign for Nature press release, July 8, 2020, <https://www.campaignfornature.org/protecting-30-of-the-planet-for-nature-economic-analysis>.
- 143 Dasgupta, *The Economics of Biodiversity*, 39–41.
- 144 Dinerstein et. al., “A Global Deal for Nature.”
- 145 “What Are Biodiversity Hotspots?” Conservation International, <https://www.conservation.org/priorities/biodiversity-hotspots#:~:text=To%20qualify%20as%20a%20biodiversity,in%20other%20words%2C%20is%20irreplaceable>; The Nature Conservancy, “30x30: Eight Steps to Protect the Best on Earth,” <https://www.nature.org/en-us/what-we-do/our-insights/perspectives/thirty-percent-protect-best-biodiversity-on-earth>; and Stewart M. Patrick, “The ‘30x30’ Campaign to Save the Biosphere,” *World Politics Review*, April 12, 2021, <https://www.worldpoliticsreview.com/the-30x30-campaign-to-save-the-planet-from-biodiversity-threats>.
- 146 Gloria Dickie, “The US Is the Only Country That Has Not Signed on to a Key International Agreement to Save the Planet,” *Quartz*, December 25, 2016, <https://qz.com/872036/the-us-is-the-only-country-that-hasnt-signed-on-to-a-key-international-agreement-to-save-the-planet>.
- 147 Stewart M. Patrick, “It’s Long Past Time for the U.S. To Ratify the ‘Treaty of Life’,” *World Politics Review*, March 1, 2021, <https://www.worldpoliticsreview.com/to-confront-biodiversity-threats-the-u-s-must-finally-ratify-the-cbd>.
- 148 Endangered Species Act, enacted December 28, 1973, available at U.S. Fish and Wildlife Service, [https://www.fws.gov/law/endangered-species-act#:~:text=Endangered%20Species%20Act&text=The%20Endangered%20Species%20Act%20\(ESA,threatened%20species%20and%20their%20habitats](https://www.fws.gov/law/endangered-species-act#:~:text=Endangered%20Species%20Act&text=The%20Endangered%20Species%20Act%20(ESA,threatened%20species%20and%20their%20habitats).
- 149 Catherine Klein, “The Leadership Needed: The Convention on Biological Diversity,” *Emory International Law Review* 31, no. 1 (2016), <https://scholarlycommons.law.emory.edu/eilr/vol31/iss1/5>.
- 150 Guri Bang, “Signed But Not Ratified: Limits to U.S. Participation in International Environmental Agreements,” *Review of Policy Research* 28, no. 1 (January 2011): <https://doi.org/10.1111/j.1541-1338.2010.00479.x>.
- 151 Steven Groves, “Key Treaties That Threaten American Sovereignty, Which the Senate Must Oppose During the Biden Presidency,” *Heritage Foundation*, January 28, 2021, <https://www.heritage.org/global-politics/report/key-treaties-threaten-american-sovereignty-which-the-senate-must-oppose>.
- 152 “Article 3, Principle,” *Convention on Biological Diversity*, <https://www.cbd.int/kb/record/article/6873?RecordType=article>.
- 153 Defenders of Wildlife and the Center for Biological Diversity, “The United States and the Convention on Biological Diversity: Fact Sheet,” accessed November 9, 2022, https://defenders.org/sites/default/files/publications/the_u.s._and_the_convention_on_biological_diversity.pdf.
- 154 “Sovereignty is fully retained by the United States on all issues, with no exceptions,” writes William J. Snape of the Center for Biological Diversity, in an excellent summary of the legal issues. “There is no plausible scenario where the United States, the states, or any citizens would be forced to take any action or refrain from an action because of the treaty itself.” William J. Snape III, “Joining the Convention on Biological Diversity: A Legal and Scientific Overview of Why the United States Must Wake Up,” *Sustainable Law and Policy* 10, no. 3 (Spring 2010), <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1043&context=sdlp>.

- 155 The main global funding source for implementing the CBD is the Global Environmental Facility (GEF). The “seven understandings” underscore that U.S. financial commitments to the GEF must be explicitly “agreed” to by the United States; the CBD cannot not dictate the amount of resources to be made available; nor can a majority of CBD parties impose funding levels on the United States. Stewart M. Patrick, “It’s Long Past Time for the U.S. To Ratify the ‘Treaty of Life.’”
- 156 Snape, “Joining the Convention on Biological Diversity.”
- 157 Alex Philippides, “Nagoya Protocol’s Rules for Genetic Resources Pose Challenges for U.S. Drug Developers,” Genetic Engineering and Biotechnology News, August 24, 2011, <https://www.genengnews.com/insights/nagoya-protocols-rules-for-genetic-resources-pose-challenges-for-u-s-drug-developers>.
- 158 Patrick, “It’s Long Past Time for the U.S. To Ratify the ‘Treaty of Life.’”
- 159 Patrick, *The Sovereignty Wars*.
- 160 Patrick, “It’s Long Past Time for the U.S. To Ratify the ‘Treaty of Life.’”
- 161 The High Seas Biodiversity Treaty is also known as the BBNJ treaty, since it pertains to “biodiversity beyond national jurisdiction.” Its formal name is the “Internationally Legally Binding Instrument on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction.” See “Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction,” United Nations, <https://www.un.org/bbnj/>.
- 162 Stewart M. Patrick, “Bringing the High Seas Biodiversity Treaty Into Port,” World Politics Review, March 15, 2021, <https://www.worldpoliticsreview.com/how-the-u-s-and-the-world-can-deal-with-biodiversity-threats-at-sea>.
- 163 “Mapping Governance Gaps on the High Seas,” Pew Charitable Trusts, August 17, 2016, <https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/08/mapping-governance-gaps-on-the-high-seas>.
- 164 “United Nations Convention on the Law of the Sea of 10 December 1982: Overview and Full Text,” United Nations Division for Ocean Affairs and the Law of the Sea, last updated July 13, 2022, https://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm.
- 165 The treaty would be an implementing agreement under UNCLOS. Jennifer Silver, Leslie Acton, Lisa Campbell, and Noella Gray, “How A Global Ocean Treaty Could Protect Biodiversity in the High Seas,” The Conversation, June 4, 2020, <https://theconversation.com/how-a-global-ocean-treaty-could-protect-biodiversity-in-the-high-seas-139552>; and Palitha Kohoma, “Law of the Sea Convention Expands to Cover Marine Biological Diversity,” Inter Press Service, September 11, 2018, <http://www.ipsnews.net/2018/09/law-sea-convention-expands-cover-marine-biological-diversity>.
- 166 Liz Karan, “High Seas Protections Could Help Reverse Loss of Biodiversity,” Pew Charitable Trusts, June 7, 2019, <https://www.pewtrusts.org/en/research-and-analysis/articles/2019/06/07/high-seas-protections-could-help-reverse-loss-of-biodiversity>.
- 167 A. D. Rogers, U.R. Sumaila, S. S. Hussain, and C. Baulcomb, “The High Seas and Us: Understanding the Value of High-Seas Ecosystems,” Global Ocean Commission, March 2016, http://www.otceanunite.org/wp-content/uploads/2016/03/High-Seas-and-Us.FINAL_FINAL_high_spreads.pdf.
- 168 “Why Should We Care About the Ocean?,” National Ocean Service, National Oceanic and Atmospheric Administration, February 26, 2021, <https://oceanservice.noaa.gov/facts/why-care-about-ocean.html>.
- 169 Stewart M. Patrick, “Why the U.N. Pact on High Seas Biodiversity Is Too Important to Fail,” World Politics Review, July 8, 2019, <https://www.worldpoliticsreview.com/why-the-u-n-pact-on-high-seas-biodiversity-is-too-important-to-fail>.
- 170 Fran Humphries and Harriet Harden-Davies, “Practical Policy Solutions for the Final Stage of BBNJ Treaty Negotiations,” *Marine Policy* 122 (December 2020), <https://doi.org/10.1016/j.marpol.2020.104214>; and “Pristine Seas,” National Geographic Society, <https://www.nationalgeographic.org/projects/pristine-seas>.

- 171 Steven H. D. Haddock and C. Angela Choy, “Treasure and Turmoil in the Deep Sea,” *New York Times*, August 14, 2020, <https://www.nytimes.com/2020/08/14/opinion/deep-ocean-mining-pollution.html>; and Stewart M. Patrick, “Ocean-Based Carbon Removal Deserves a Closer Look,” *World Politics Review*, December 20, 2021, <https://www.worldpoliticsreview.com/in-the-oceans-climate-solutions-are-promising-but-thorny>.
- 172 Minna Epps, “Key Takeaways From Treaty Negotiations for Biodiversity Beyond National Jurisdiction (BBNJ),” United Nations HQ New York, IUCN, August 31, 2022, <https://www.iucn.org/blog/202208/key-takeaways-treaty-negotiations-biodiversity-beyond-national-jurisdiction-bbnj-united>; and “Media Statement: Latest Round of UN High Seas Treaty Talks Ends Without Resolution in New York City,” The Nature Conservancy, August 27, 2022, <https://www.nature.org/en-us/newsroom/statement-on-igc-bbnj>.
- 173 Fran Humphries and Harriet Harden-Davies, “Practical Policy Solutions for the Final Stage of BBNJ Treaty Negotiations”; “Summary Report, 15-26 August 2022,” *IISD Earth Negotiations Bulletin*, <https://enb.iisd.org/marine-biodiversity-beyond-national-jurisdiction-bbnj-igc5-summary>.
- 174 Elizabeth M. De Santo, Elizabeth Mendenhall, Elizabeth Nyman, and Rachel Tiller, “Stuck in the Middle with You (and Not Much Time Left): The Third Intergovernmental Conference on Biodiversity Beyond National Jurisdiction,” *Marine Policy* 117 (July 2020), <https://www.sciencedirect.com/science/article/pii/S0308597X19308334?via%3Dihub>; Prue Taylor, “The Common Heritage of Mankind: A Broad Doctrine Kept Within Strict Boundaries,” in David Bollier and Silke Helfrich, *The Wealth of the Commons: A World Beyond Market and State* (Levellers Press, 2012).
- 175 Muriel Rabone et. al., “Access to Marine Genetic Resources (MGR): Raising Awareness of Best-Practice Through a New Agreement for Biodiversity Beyond National Jurisdiction (BBNJ),” *Frontiers in Marine Science* 12 (September 2019), <https://www.frontiersin.org/articles/10.3389/fmars.2019.00520/full>.
- 176 “Digital Sequence Information—Clarifying Concepts,” Deep-Ocean Stewardship Initiative policy brief, March 2020, <https://www.dosi-project.org/wp-content/uploads/070-DSI-Policy-brief-V4-WEB.pdf>; and “Intellectual Property Rights: Implications for Deep-Ocean Stewardship,” Deep-Ocean Stewardship Initiative policy brief, July 2020, <https://www.dosi-project.org/wp-content/uploads/070-DOSI-Policy-brief-Intellectual-Property-Rights-V2-web1.pdf>.
- 177 Liz Karan, “As United Nations Weighs High Seas Treaty, Study Shows Areas That Merit Protection Now,” Pew Charitable Trusts, March 31, 2020, <https://www.pewtrusts.org/en/research-and-analysis/articles/2020/03/31/as-united-nations-weighs-high-seas-treaty-study-shows-areas-that-merit-protection-now>.
- 178 Elizabeth M. De Santo, Elizabeth Mendenhall, Elizabeth Nyman, and Rachel Tiller, “Stuck in the Middle With You.”
- 179 International Seabed Authority, accessible at <https://www.isa.org.jm>.
- 180 In June 2021, several hundred marine scientists and oceans policy experts from forty-four nations signed a petition demanding a moratorium on any commercial mining leases until the potential environmental impacts on these fragile deep sea ecosystems has been studied. See “Marine Expert Statement Calling for a Pause to Deep-Sea Mining,” Deep-Sea Mining Science Statement, <https://www.seabedminingsciencestatement.org>; Aryn Baker, “A Climate Solution Lies Deep Under the Ocean—But Accessing It Could have Huge Environmental Costs,” *Time*, September 10, 2021, <https://time.com/6094560/deep-sea-mining-environmental-costs-benefits>; and Todd Woody and Evan Halper, “A Gold Rush in the Deep Sea Raises Questions About the Authority charged With Protecting It,” *Los Angeles Times*, April 19, 2022, <https://www.latimes.com/politics/story/2022-04-19/gold-rush-in-the-deep-sea-raises-questions-about-international-seabed-authority>.
- 181 Global Pact for the Environment, accessible at <https://globalpactenvironment.org/en>. On May 10, 2018, the UN General Assembly adopted Resolution 72/277, establishing an ad hoc, open-ended working group to identify, assess, and close gaps in international environmental law and treaties. “Resolution Adopted by the General Assembly on 10 May 2018: 72/277—Towards a Global Pact for the Environment,” <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N18/143/66/PDF/N1814366.pdf?OpenElement>.

- 182 Stewart M. Patrick, “As Negotiations Stumble, the Rationale for a Global Environmental Pact Grows,” *World Politics Review*, September 30, 2019, <https://www.worldpoliticsreview.com/even-as-negotiations-stumble-the-rationale-for-a-global-environmental-pact-grows>.
- 183 Report of the UN Secretary-General, “Gaps in International Environmental Law and Environment-Related Instruments: Towards a Global Pact for the Environment,” United Nations General Assembly, A/73/419, <https://wedocs.unep.org/bitstream/handle/20.500.11822/27070/SGGaps.pdf>.
- 184 Patrick, “The International Order Isn’t Ready for the Climate Crisis.”
- 185 See A/RES/76/300, “Resolution adopted by the UN General Assembly on 28 July 2022: The Human Right To a Clean, Healthy, and Sustainable Environment,” United Nations General Assembly, August 1, 2022, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/442/77/PDF/N2244277.pdf?OpenElement>; and A/HRC/RES/48/13, “Resolution Adopted by the Human Rights Council on 8 October 2021: The Human Right to a Clean, Healthy and Sustainable Environment,” UN Human Rights Council, October 18, 2021, <https://undocs.org/Home/Mobile?FinalSymbol=A%2FHRC%2FRES%2F48%2F13&Language=E&DeviceType=Desktop&LangRequested=False>.
- 186 Patrick, “As Negotiations Stumble, the Rationale for a Global Environmental Pact Grows.”
- 187 “Where Are We Now?,” Global Pact for the Environment, <https://globalpactenvironment.org/en/the-pact/where-are-we-now>; and Lucien Chabason and Elisabeth Hege, “Failure of the Global Pact for the Environment: A Missed Opportunity or a Bullet Dodged?” IDDRI, May 28, 2019, <https://www.iddri.org/en/publications-and-events/blog-post/failure-global-pact-environment-missed-opportunity-or-bullet>.
- 188 Patrick, “As Negotiations Stumble, the Rationale for a Global Environmental Pact Grows.”
- 189 International Conservation Caucus Foundation, “U.S. Congressional International Conservation Caucus,” accessed November 9, 2022, <https://www.internationalconservation.org/where-we-work/united-states/icc>.
- 190 Patrick, *The Sovereignty Wars*.
- 191 “U.N. Secretary General: ‘Making Peace with Nature Is the Defining Challenge of the Twenty-First Century,’” United Nations Climate Change, December 2, 2020, <https://unfccc.int/news/un-secretary-general-making-peace-with-nature-is-the-defining-task-of-the-21st-century#:~:text=Pointing%20out%20the%20dire%20current,task%20of%20the%2021st%20century>.
- 192 Edward O. Wilson, *Half-Earth: Our Planet’s Fight for Life* (New York: W. W. Norton, 2016).
- 193 Patrick, “The International Order Isn’t Ready for the Climate Crisis.”
- 194 Stewart Patrick and Kyle F. Evanoff, “50 Years after ‘Earthrise,’ We Are Racing Toward ‘Earthset,’” CNN, December 23, 2018, <https://www.cnn.com/2018/12/23/opinions/earthrise-racing-toward-earthset-patrick-evanoff/index.html>.
- 195 Patrick, “The International Order Isn’t Ready for the Climate Crisis.”

Carnegie Endowment for International Peace

The Carnegie Endowment for International Peace is a unique global network of policy research centers in Russia, China, Europe, the Middle East, India, and the United States. Our mission, dating back more than a century, is to advance peace through analysis and development of fresh policy ideas and direct engagement and collaboration with decision-makers in government, business, and civil society. Working together, our centers bring the inestimable benefit of multiple national viewpoints to bilateral, regional, and global issues.

Global Order and Institutions

The rules-based world order is under unprecedented strain, buffeted by geopolitical competition, populist nationalism, technological innovation, transnational threats, and a planetary ecological emergency. Carnegie's Global Order and Institutions Program analyzes the shifting landscape of international cooperation and identifies promising new multilateral initiatives and institutions to advance a more peaceful, prosperous, just, and sustainable world.



 **CARNEGIE**
ENDOWMENT FOR
INTERNATIONAL PEACE

CarnegieEndowment.org