

SDG 15: LIFE ON LAND

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SUMMARY

In 2015, the United Nations Member States, including the United States, unanimously approved 17 Sustainable Development Goals (SDGs) to be achieved by 2030. In a forthcoming book, leading legal scholars examine each of the SDGs and recommend a suite of government, private-sector, and civil society actions to help the United States achieve these goals. This Article is adapted from Chapter 15 of that book, *Governing for Sustainability* (John C. Dernbach & Scott E. Schang eds., ELI Press, forthcoming 2023).

Secretary Debra Haaland of the Laguna Pueblo began her role leading the Interior Department in March 2021. As the first Native American Cabinet Secretary, her confirmation signifies a new chapter for U.S. land management and confronts the United States with a decisive opportunity to re-envision its private and public lands to benefit all its people, especially historically marginalized groups. Simultaneously, COVID-19 has shown the necessity of effective biodiversity protection and ecological conservation for saving life on earth, as well as the resulting chaos if governments fumble.¹ Our food, water, and homes are all dependent upon our land management; how we transport ourselves, find energy sources, and find personal enjoyment are integrally linked with the land.

Goal 15 provides a useful indicator to help direct U.S. land and biological diversity efforts. The goal is broad, laying out 12 targets to be met by 2020 or 2030.² See Box 1 on the next page. The targets most relevant to the United States are ecosystem protection and sustainable land management;³ endangered species;⁴ invasive species;⁵ public expenditure and resource spending;⁶ and integration of these topics into government planning.⁷

To advance this goal, this Article recommends U.S. public land law incorporate a better sustainability frame-

work that integrates both biodiversity and climate impacts and threats, actively ramps down fossil fuel extraction and other industrial-scale harm, and actively serves a diversity of human long-term enjoyment. On private lands, this Article recommends that conservation easements and other incentives be promoted in a cost-effective manner in order to complement regulatory protections under the Endangered Species Act (ESA) and Clean Water Act. At the international level, this Article recommends the United States become more aggressive in combatting the trade in both wild animals and invasive species, and invest much more heavily in clean renewable energy, in addition to habitat protection and restoration, as long-term national security objectives.

I. U.S. Biodiversity Is Unique and Needs Protection: Why Goal 15 Matters to the United States

The scope of U.S. lands and waters is impressive, their protection system is robust, and the biodiversity they harbor has unique global importance. With a significant portion of land already conserved, the pressing challenge for the United States with regard to Goal 15 is not necessarily to pass new congressional statutes⁸ so much as to significantly

1. Jamie K. Reaser et al., *Economic Countermeasures for Preventing Zoonotic Disease Outbreaks: When Ecological Restoration Is a Human Health Imperative*, 29 RESTORATION ECOLOGY e13357 (2021).

2. See United Nations Department of Economic and Social Affairs, *Goal 15*, <https://sdgs.un.org/goals/goal15> (last visited June 26, 2022) (Note: references to Goal 15 targets and indicators can be found at this site.).

3. Indicators 15.1.1, 15.1.2, 15.2.1, and 15.5.1.

4. Indicator 15.4.2.

5. Target 15.8.

6. Targets 15.a and 15.b.

7. Indicator 15.9.1.

8. Congress passed a significant piece of legislation in summer 2022. Despite the “one step ahead, one step back” approach of explicitly linking more solar and wind project authorization on federal lands and waters to more fossil fuel leasing on federal lands and waters, the Inflation Reduction Act, P.L. 117-169 (August 2022), marks the biggest investment in conservation by the United States this century. In total, \$373 billion overall is spent on behalf of energy security, climate change mitigation and adaptation, and biological diversity protection. *Id.* Of this total, over \$1 billion goes to the

Box 1. Goal 15 Targets

- 15.1 Conserve and restore terrestrial and freshwater ecosystems
- 15.2 End deforestation and restore degraded forests
- 15.3 End desertification and restore degraded land
- 15.4 Ensure conservation of mountain ecosystems
- 15.5 Protect biodiversity and natural habitats
- 15.6 Protect access to genetic resources and fair sharing of the benefits
- 15.7 Eliminate poaching and trafficking of protected species
- 15.8 Prevent invasive alien species on land and in water ecosystems
- 15.9 Integrate ecosystem and biodiversity in governmental planning
- 15.a Increase financial resources to conserve and sustainably use ecosystem and biodiversity
- 15.b Finance and incentivize sustainable forest management
- 15.c Combat global poaching and trafficking

Source: SDG Tracker, *Sustainable Development Goal 15*, <https://sdg-tracker.org/biodiversity>.

improve implementing regulations, policies, and operating practices under existing legal authorities.

As aptly described by *Precious Heritage*, a comprehensive assessment of U.S. biodiversity:

[T]he United States harbors an extraordinary diversity of life, from the lush forests of Appalachia to the frozen tundra of Alaska, and from the Midwest's tallgrass prairies to Hawaii's rainforests. The United States emerges from this assessment as being far richer in species and ecosystems than previously thought, and as a global center of diversity for many life-forms . . .

A surprising number of life forms are more diverse in the United States than anywhere else on Earth. The nation is particularly rich in aquatic life, such as fishes, turtles, salamanders, and mussels. For example, more fish species are found in a single river, the Tennessee, than in all of Europe. The United States also supports a broader array of ecosystems than any other nation on Earth. Several large-scale ecosystems are especially well represented, and the United States hosts a large percentage of the world's broadleaf forests, temperate grasslands, and Mediterranean-climate vegetation.

At least one-third of U.S. species are at risk and of conservation concern . . . More than 500 U.S. species are already extinct or missing. Of these, at least 100 plants and animals have disappeared forever and are presumed extinct,

U.S. Forest Service and U.S. National Park Service each for restoration and maintenance activities, and almost \$250 million goes to the U.S. Fish and Wildlife Service for endangered species recovery plans and national wildlife refuge restoration and maintenance. *Id.* Only time will tell if the climate benefits touted by Democrats bear fruit, but not one Republican in either chamber of Congress voted for the bill.

while another 439 are missing and feared lost. Nearly 60% of the United States outside of Alaska has lost most of its natural vegetation, and habitat destruction is the leading threat to U.S. species [see Figure 1 for the distribution of at risk species]. Alien species invasions—like zebra mussels and kudzu—are second only to habitat loss as a cause of species declines.⁹

Given the United States' lush biodiversity and vast landscape, Goal 15 is particularly critical. Despite recent political tumult, the United States could be on its way toward some of the goal's targets. This section reviews the most salient of the Goal 15 targets—ecosystem protection and sustainable land management, endangered and invasive species, public expenditure and resource spending, and government planning—and contextualizes them in relation to climate change, disease, wildfire, human activities, and advancing conservation alongside environmental justice. Five takeaways stand out:

A. More U.S. Land Area Could and Should Be Protected

Goal 15 requires that countries “ensure the conservation, restoration and sustainable use of . . . ecosystems and their services.” Progress is measured by (1) proportion of total forest area and (2) proportion of important sites for biodiversity under some conservation status.¹⁰ While ahead of the global averages,¹¹ the United States can and should do better.

Proportion of total forest area is the only target that the U.S. government has actually reported on under Goal 15,¹² the land biodiversity goal, so the authors of this Article have primarily referenced non-U.S. government sources for this discussion. Current U.S. government data reveal that the percent of U.S. land that is forest area has increased marginally, from 33.1% in 2006, to 33.8% in 2016. The U.S. government should make it a priority to continue increasing the total forest area. Well-maintained forests are a source of clean water, home to an array of wildlife, and an excellent climate mitigation tool. Despite having a relatively high percentage of U.S. forests under long-term management,¹³ these same areas are put at risk with the urgent threats of wildfire, disease, mechanized human recreation, and mineral extraction. Overall, only 12% of U.S. land is in conservation protection.¹⁴

9. See generally *PRECIOUS HERITAGE: THE STATUS OF BIODIVERSITY IN THE UNITED STATES* (Bruce A. Stein et al. eds., 2000), <https://www.natureserve.org/biodiversity-science/publications/precious-heritage-status-biodiversity-united-states>.

10. See Indicators 15.1.1, 15.1.2, and 15.4.2.

11. Globally, the proportion of forestland fell from 31.9% in 2000 to 31.2% in 2020. SDG Goal Tracker, <https://sdg-tracker.org/biodiversity>.

12. U.S. National Statistics for the U.N. Sustainable Development Goals, *Goal 15: Life on Land*, <https://sdg.data.gov/life-on-land/> (last visited June 26, 2022).

13. *Id.*

14. RYAN RICHARDS, CENTER FOR AMERICAN PROGRESS, *MEASURING CONSERVATION PROGRESS IN NORTH AMERICA* 6 fig.1 (2018), <https://americanprogress.org>.

Figure 1. Distribution of At-Risk Species Nationally



Source: U.S. Department of Agriculture, *Predicting Concentrations of At-Risk Species Nationally*, <https://www.fs.usda.gov/rmrs/projects/predicting-concentrations-risk-species-nationally> (Feb. 2015) (map data based on NatureServe conservation ranks).

Figure 2. U.S. Protected Areas



Source: U.S. Geological Survey, *PAD-US Data Overview*, <https://www.usgs.gov/programs/gap-analysis-project/science/pad-us-data-overview> (last visited Aug. 26, 2022).

The president launched an overarching conservation plan, America the Beautiful, in 2021, and asked for assistance in implementing that plan from Congress, state and local governments, and Indian tribes. It envisions funding to private landowners, cities, states, and tribes; conserving and protecting 30% of all U.S. lands and waters by 2030 (“30x30 plan”); accessible parks; scientific research; projects that create jobs; and a “voluntary and locally led” approach to conservation.¹⁵ Many tenets of Biden’s plan, as well as parts of Goal 15, were affirmed at the 2021 G7 summit, such as supporting 30x30, protecting biodiversity, and doubling down on sustainable land management.¹⁶

B. Invasive Species, Diseases, and Wildfire Are Dire and Growing Threats That Are Greatly Exacerbated by Climate Change

Restoring ecosystems requires preventing and controlling invasive non-native species, reducing the threat of disease, and effectively dealing with wildfire. By 2020, countries were to legislate and fund the prevention or control of such species.¹⁷ The United States has various laws for man-

ing pests¹⁸ but invasive species remain a serious threat.¹⁹ Impacts from invasive species and new diseases can be compounded by climate change,²⁰ and climate-related wildfires already imperil life in the western United States.

C. Human Activities Are Unsustainably Impacting U.S. Ecosystems

Roughly one-quarter of all U.S. greenhouse gas emissions is attributable to federal fossil fuel production on its own public lands.²¹ In addition, more than 70 million acres of public land and ocean—an area 55 times larger than Grand Canyon National Park—are now leased to the fossil fuel industry.²² These leases contain up to 42 billion tons of potential carbon dioxide pollution. Approximately 90% of the public land administered by the Bureau of Land Management (BLM) in the 11 western states is now available

[org/wp-content/uploads/2021/05/Measuring-Conservation-Progress.pdf](https://www.americanprogress.org/wp-content/uploads/2021/05/Measuring-Conservation-Progress.pdf); see also MATT LEE-ASHLEY, CENTER FOR AMERICAN PROGRESS, *HOW MUCH NATURE SHOULD AMERICA KEEP?* (2019), <https://americanprogress.org/wp-content/uploads/2019/08/NatureAmerica-report.pdf> (explaining the 12% of conserved land is not enough to prevent the continued decline of nature in the United States). However, presently, there exists no adequate tracking of “old growth forest” growth or decline in the United States.

15. Press Release, U.S. Department of the Interior, Biden-Harris Administration Outlines “America the Beautiful” Initiative (Oct. 7, 2021), <https://www.doi.gov/pressreleases/biden-harris-administration-outlines-america-beautiful-initiative>.
 16. Statement, The White House, Carbis Bay G7 Summit Communiqué (June 13, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/06/13/carbis-bay-g7-summit-communique/>.
 17. See Target 15.8.

18. See, e.g., Lacey Act, 16 U.S.C. §§3371-3378 (1900) (prohibiting certain “injurious” animals); Exec. Order No. 13112, 64 Fed. Reg. 6183 (Feb. 3, 1999) (creating National Invasive Species Council); Nonindigenous Aquatic Nuisance Prevention and Control Act, 16 U.S.C. §4701 (2012) (creating interagency task force); Plant Protection Act, 7 U.S.C. §§7701-7786 (2000) (prohibiting introduction of noxious weeds and pests). See also Jhoset Burgos-Rodríguez & Stanley W. Burgiel, *Federal Legal Authorities for the Early Detection of and Rapid Response to Invasive Species*, 22 *BIOLOGICAL INVASIONS* 129 (2020).
 19. National Wildlife Federation, *Invasive Species*, <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Threats-to-Wildlife/Invasive-Species> (last visited June 26, 2022).
 20. INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES, *ISSUE BRIEF: INVASIVE ALIEN SPECIES AND CLIMATE CHANGE* (2021), https://www.iucn.org/sites/dev/files/ias_and_climate_change_issues_brief_2021.pdf.
 21. MATTHEW D. MERRILL ET AL., U.S. GEOLOGICAL SURVEY, *FEDERAL LANDS GREENHOUSE GAS EMISSIONS AND SEQUESTRATION IN THE UNITED STATES: ESTIMATES FOR 2005-14* (2018), <https://pubs.usgs.gov/sir/2018/5131/sir20185131.pdf>.
 22. DUSTIN MULVANEY ET AL., ECO SHIFT CONSULTING, *THE POTENTIAL GREENHOUSE GAS EMISSIONS FROM U.S. FEDERAL FOSSIL FUELS—PREPARED FOR CENTER FOR BIOLOGICAL DIVERSITY & FRIENDS OF THE EARTH* (2015).

for oil and gas leasing.²³ While President Biden paused new leasing of fossil fuels off federal public lands at the beginning of his administration,²⁴ he has already backtracked less than a year later and is allowing extraction under existing leases.²⁵

Other activities that unsustainably impact ecosystem conservation and sustainable land management must either end or be reduced to sustainable levels. These activities include other resource extraction; mechanized recreation; renewable energy production, including dams; and human population growth, consumption, and the overall human footprint.²⁶ “As land use can be seen as the largest geo-engineering project in which mankind has engaged, land system science can act as a platform for integration of insights from different disciplines and for translation of knowledge into action.”²⁷

D. Environmental Laws Generally Lack Sufficient Implementation and Funding

Most countries, including the United States, find it challenging to fully fund and implement existing environmental laws and regulations at all levels, as required under Goal 15.²⁸ For the United States, the ESA²⁹ and the National Environmental Policy Act (NEPA)³⁰ provide important substantive standards and mandated procedures to protect wildlife species and habitat. The success of the ESA has been tangible, but limited by lack of resources for all species that need protection.³¹ As U.S. species extinction

risk has worsened by about 10% over 30 years,³² the U.S. reliance on the ESA has increased.³³ Additionally, because poaching and trafficking of protected species continue to pose a threat, more enforcement and deterrence measures and resources are a constant need.³⁴

Goal 15 also calls for integration of ecosystem and biodiversity into government planning, “development processes,” and “poverty reduction strategies” by 2020. Although the “deadline” has passed, this work is never “complete”—particularly in light of structural barriers to inclusivity in government planning, such as environmental racism. While the Clinton Administration originally examined how NEPA could better advance biodiversity goals,³⁵ the initiative lost steam and has not appreciably advanced since then.

E. Environmental Justice Is Essential to Land Biodiversity Protection

The growing U.S. notion of “environmental justice,”³⁶ an intersectional movement that focuses upon the “cumulative impacts” of overt and passive racism,³⁷ increasingly interrelates progress toward Goal 15 with progress toward other goals, including but not limited to Goal 1 (No Poverty), Goal 2 (Zero Hunger), Goal 3 (Good Health and Well-being), Goal 7 (Affordable and Clean Energy), and Goal 10 (Reduced Inequalities). Sound management of “lands” is ultimately not only an ecological issue, but also about fundamental human rights. President Biden recognizes these links by mandating that a broad set of civil society interests be included in regulatory decisions in this area.³⁸

23. *Id.* at 4; MICHAEL SAUL ET AL., CENTER FOR BIOLOGICAL DIVERSITY, GROUNDED: THE PRESIDENT’S POWER TO FIGHT CLIMATE CHANGE, PROTECT PUBLIC LANDS BY KEEPING PUBLICLY OWNED FOSSIL FUELS IN THE GROUND 3 (2015).

24. Exec. Order No. 14008, 86 Fed. Reg. 7619 (Jan. 27, 2021) (addressing climate mitigation, environmental justice, energy justice, and natural resource conservation objectives).

25. BLM’s own statistics demonstrate that the Biden Administration has already issued thousands of oil and gas permits on federal lands. BLM, *Applications for Permits to Drill*, <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/permitting/applications-permits-drill> (last visited Aug. 26, 2022). In addition, according to the Center for Western Priorities, over 9,000 issued federal oil and gas permits held by industry have not been used. Jesse Prentice-Dunn, *By the numbers: Oil industry awash in permits, leases while pushing for more drilling*, WESTWISE BLOG, March 15, 2022, at <https://westernpriorities.org/2022/03/by-the-numbers-oil-industry-awash-in-permits-leases-while-pushing-for-more-drilling%EF%BF%BC/>.

26. See generally CENTER FOR SUSTAINABLE SYSTEMS, UNIVERSITY OF MICHIGAN, U.S. ENVIRONMENTAL FOOTPRINT (2021), https://css.umich.edu/sites/default/files/u.s.%20environmental%20footprint_css08-08_e2021.pdf (compiling statistics on human impacts on the environment). One example of unsustainable behavior is the use of public and private land for biofuels production, which can devastate habitats and threaten birds, mammals, and freshwater ecosystems. See, e.g., Christopher K. Wright et al., *Recent Grassland Losses Are Concentrated Around U.S. Ethanol Refineries*, 12 ENV’T RSCH. LETTERS 044001 (2017). See also *In Search of Wildlife-friendly Biofuels: Are Native Prairie Plants the Answer?*, SCIENCE DAILY (Oct. 8, 2009), <https://www.sciencedaily.com/releases/2009/10/091001081307.htm>.

27. Peter Verburg et al., *Land System Science and Sustainable Development of the Earth System*, 12 ANTHROPOCENE 29 (2015).

28. See Target 15.a.

29. 16 U.S.C. §§1531 et seq.

30. 42 U.S.C. §§4321 et seq.

31. See, e.g., KIERAN SUCKLING ET AL., CENTER FOR BIOLOGICAL DIVERSITY, ON TIME ON TARGET: HOW THE ENDANGERED SPECIES ACT IS SAVING AMERICA’S WILDLIFE (2012).

32. United Nations Economic and Social Council Progress Towards the SDGs Report of the Secretary-General, High-level Political Forum on Sustainable Development (E/2020/57) (Apr. 28, 2020).

33. See ESA §§4(f) (recovery plans), 7 (interagency consultation and general agency conservation mandates), 10 (habitat conservation plans). 16 U.S.C. §§1533, 1536, 1539.

34. See Target 15.7. The United States is a major market for live reptiles and big cats as well as ivory from other countries, areas that are lightly regulated. UNITED NATIONS OFFICE ON DRUGS AND CRIME, WORLD WILDLIFE CRIME REPORT: TRAFFICKING IN PROTECTED SPECIES (2020), https://www.unodc.org/documents/data-and-analysis/wildlife/2020/World_Wildlife_Report_2020_9July.pdf.

35. COUNCIL ON ENVIRONMENTAL QUALITY, INCORPORATING BIODIVERSITY CONSIDERATIONS INTO ENVIRONMENTAL IMPACT ANALYSIS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT (1993).

36. The U.S. Environmental Protection Agency (EPA) website’s definition of “environmental justice” is “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” U.S. EPA, *Learn About Environmental Justice*, <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> (last updated Sept. 22, 2021).

37. Kimberlé Crenshaw on Intersectionality, *More Than Two Decades Later*, COLUM. L. SCH., June 8, 2017, <https://www.law.columbia.edu/news/archive/kimberle-crenshaw-intersectionality-more-two-decades-later>.

38. See, e.g., Exec. Order No. 13990, §2(e), 86 Fed. Reg. 7037, 7038 (Jan. 25, 2021) (“In carrying out the actions directed in this section, heads of agencies shall seek input from the public and stakeholders, including State[,] local, Tribal, and territorial officials, scientists, labor unions, environmental advocates, and environmental justice organizations.”).

II. Rethinking U.S. Public and Private Lands Conservation Through Goal 15

The U.S. land conservation framework, enviable in comparison to many countries, provides a solid foundation by which to make improvements at both the legislative and administrative levels. President Biden's laudable if vague 30x30 plan, an Aichi placeholder of sorts under the Convention on Biological Diversity (CBD),³⁹ by definition must include public and private lands. Meeting this ambitious goal is attainable if the United States draws on the strengths of its legal system, fully implements and funds its conservation laws, and tangibly transitions away from policies that are contrary to long-term sustainability.⁴⁰ What follows is a list of major statutory, regulatory, and policy amendments to shift U.S. land management toward a more sustainable future.

A. Management of Public Lands

Recommendation: The Forest Service and BLM should define “multiple-use sustained yield” in terms of sustainability.

Public lands must be better protected. More than two-thirds of U.S. public lands are held by two agencies: the Forest Service and BLM. Unlike the smaller National Park Service (NPS)⁴¹ and National Wildlife Refuge System, these two agencies are generally subject to the unhelpful legal mantra of “multiple-use sustained yield” (MUSY) to guide their planning and actions.⁴² This MUSY mandate is further contained in each of the two agencies' organic statutes.⁴³ A fair summary—with limited exceptions under the Wilderness Act,⁴⁴ Antiquities Act,⁴⁵ and other authority—is that MUSY generally allows almost any use at any time on these 436 million acres. When economic users such as oil drilling, forest clearing, hard mineral extraction, or renewable energy production come calling,⁴⁶ short shrift is

often given to land conservation and sometimes irreversible damage occurs. These two agencies' outdated regulations and policies must be adjusted to define the term “MUSY” with greater precision on the sustainability side, for both biodiversity conservation and climate change mitigation.

For example, BLM's “sustained yield” definition⁴⁷ itself weighs the “yield” component tangibly more than the “sustained” portion. Under the current definition, “sustained yield” is defined as “the achievement and maintenance in *perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.*”⁴⁸ Similarly, the U.S. Forest Service currently defines its action mission this way: “for public benefit through programs initiated by the State, county, and other Federal agencies . . . directed at the protection, development, and sustained production of all forestry resources, both public and private.”⁴⁹ Linking sustainable “use” and “yield,” as defined above, with “production” would be a very helpful clarification for BLM and the Forest Service.

The Forest Service and BLM should redefine “sustained yield” in their regulations as follows:

Sustained yield requires sustainable use, meaning the production and use of components of biological diversity and resources in such a way and at such a rate that does not lead to an appreciable decline of biological diversity, including all native species and habitats, thereby maintaining the potential to meet the needs and aspirations of present and future generations. Sustainable use applies to all natural resources, including air, water, land, flora and fauna, and representative samples of natural ecosystems, regardless of perceived present economic value.

Implicit in this recommendation is another; namely to track these necessary improvements, the United States should gather and report official data for more than one of its sustainability and biodiversity targets.⁵⁰

Recommendation: The Forest Service should define “ecological integrity” to ensure that lands under its control are not utilized in excess of their natural capacity.

39. See CBD, *Aichi Biodiversity Targets*, <https://www.cbd.int/sp/targets/> (last visited June 26, 2022).

40. See generally Philippe D. Tortell, *Earth 2020: Science, Society, and Sustainability in the Anthropocene*, 117 PNAS 8683 (2020).

41. The NPS Organic Act of 1916 mandates that park resources be conserved and that the Park Service provide for their use and enjoyment “in such a manner and by such means as will leave them unimpaired” for future generations. 16 U.S.C. §1. The National Wildlife Refuge System Improvement Act of 1997 requires the Fish and Wildlife Service to ensure that any allowed actions on national wildlife refuges be “compatible” with the wildlife mission of the refuge. 16 U.S.C. §668dd.

42. See Multiple-Use Sustained-Yield Act of 1960, Pub. L. No. 86-517, 74 Stat. 215 (16 U.S.C. §§528-531). In addition to essentially ignoring biodiversity and climate sustainability goals, MUSY also is unable to address growing threats such as wildfires and human recreation overload in many important areas. See, e.g., Marshall Burke et al., *The Changing Risk and Burden of Wildlife in the United States*, 118 PNAS e2011048118 (2021), <https://www.pnas.org/content/118/2/e2011048118> (more than 50 million U.S. homes at risk).

43. National Forest Management Act, 16 U.S.C. §§472a, 1600-1614; Federal Land Policy and Management Act (FLPMA), 43 U.S.C. §§1701-1785. Both passed in 1976.

44. 16 U.S.C. §1131.

45. 54 U.S.C. §§320301-320303.

46. See, e.g., DOUGLAS S. OUREN, U.S. GEOLOGICAL SURVEY, ENVIRONMENTAL EFFECTS OF OFF-HIGHWAY VEHICLES ON BUREAU OF LAND MANAGEMENT LANDS (2007) (detailing considerable damage to BLM lands due to motorized recreational vehicles).

47. 43 C.F.R. §2400.0-5(p) (Land resource management—Land classifications—Definitions).

48. *Id.* (emphasis added).

49. 36 C.F.R. §200.3 (Forest Service functions).

50. See, e.g., FLPMA, 43 U.S.C. §1711 (“The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values (including, but not limited to, outdoor recreation and scenic values), giving priority to areas of critical environmental concern.”); National Forest System Land Management Planning; Final Rule and Record of Decision, 77 Fed. Reg. 21162, 21163 (Apr. 9, 2012) (“This final planning rule requires that land management plans provide for ecological sustainability and contribute to social and economic sustainability, using public input and the best available scientific information to inform plan decisions.”). See also Press Release, U.S. Department of the Interior, Biden-Harris Administration Invites Public Comment on Development of New Conservation and Stewardship Tool (Jan. 3, 2022) (proposal regarding “the development of the American Conservation and Stewardship Atlas, a new tool that will be used to reflect baseline information on the lands and waters that are conserved or restored”).

Forest Service land management plans, under Part 219 of the regulations, are required to “promote the ecological integrity of national forests and grasslands and other administrative units of the Forest Service” and “guide management of Forest Service lands so that they . . . consist of ecosystems and watersheds with ecological integrity and diverse plant and animal communities.”⁵¹ The Forest Service should define “ecological integrity” as follows:

Ecological integrity mandates the preservation and protection of natural systems and resources, including air, water, land, flora and fauna, and representative samples of natural ecosystems, to ensure that they shall not be utilized in excess of their natural capacity. “Ecological integrity” shall be based on the best available science, and recognize that integrity of natural resources depends upon mitigating consequences and contributions of climate change and upon maintaining a global temperature rise less than 1.5°C above pre-industrial standards.

Recommendation: Federal agencies should end leasing of fossil fuels on their public lands, including offshore lands under water.

As the executive branch has acknowledged, it possesses legal authority to drastically curtail fossil fuel development under three existing statutes: (1) the Federal Land Policy and Management Act, allowing the Administration to withdraw BLM and Forest Service lands from fossil fuel extraction;⁵² (2) the Outer Continental Shelf Lands Act, enabling the president to withdraw offshore submerged lands from such leasing, and to deny permit and lease applications;⁵³ and (3) the Mineral Leasing Act, giving the Administration considerable discretion not to issue new onshore fossil fuel leases and placing conditions on new permits.⁵⁴ Federal fossil fuels in the United States, which include coal, oil, gas, oil shale, and tar sands, are publicly owned and held in the public’s trust by federal agencies. Federal fossil fuels underlie federal public land, nonfederal land, and submerged federal public land beneath the Outer Continental Shelf. Federal public lands span 650 million acres and the Outer Continental Shelf includes 1.7 billion acres.⁵⁵

Recommendation: The Forest Service and BLM should strive to have as much as possible of their nearly one-half billion acres of land conserved and protected under the U.S. 30x30 plan.

By themselves, Forest Service and BLM lands constitute about one-fifth of the entire U.S. land acreage (not including NPS lands, National Wildlife Refuge System lands, state lands, and private lands, which also significantly contribute to the U.S. total). According to the U.S. Geological Survey (USGS), the following land and water

designations are already conserved for wildlife and natural resources: national parks, national monuments, national wildlife refuges, national preserves, national conservation areas, national scenic/botanical/volcanic areas, wilderness, national seashores or lakeshores, national scenic or historic trails, research or educational areas, wild and scenic rivers, and wilderness study areas.⁵⁶

B. Implementation of the ESA and Other Acts Relevant to Species Protection

Recommendation: The U.S. Fish and Wildlife Service and National Marine Fisheries Service should prioritize ESA recovery plans not only because they are the central goal of the national endangered species program, but also because the recovery planning process is an opportunity to bring together stakeholders at the federal, state, and private levels.⁵⁷

The ESA is a fairly powerful tool, but it is still underutilized. Section 7 requires *all* federal action agencies to conserve federally listed species and also to “consult” with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS). But the process has been shown to be very biased toward economic activities that can harm imperiled species.⁵⁸ Recovery plans and their requirements remain an aspiration for most species.⁵⁹

Recommendation: The U.S. Environmental Protection Agency should reduce the devastating impacts of pesticides and other toxic chemicals upon federally listed species of plants and animals, including pollinators.

The U.S. Environmental Protection Agency (EPA) has the authority to reduce and eliminate deadly chemicals as the lead agency under the Federal Insecticide, Fungicide, and Rodenticide Act.⁶⁰ FWS and NMFS should also be more vigilant in safeguarding imperiled wildlife and habitat during the consultation process.⁶¹

51. 36 C.F.R. pt. 219.

52. 43 U.S.C. §1701.

53. 45 U.S.C. §1301.

54. 30 U.S.C. §181.

55. SAUL ET AL., *supra* note 23.

56. USGS, *Protected Areas*, <https://www.usgs.gov/programs/gap-analysis-project/science/protected-areas> (last visited June 26, 2022).

57. See ESA, 16 U.S.C. §1533(f).

58. See, e.g., Megan Evansen et al., *Same Law, Diverging Practice: Comparative Analysis of Endangered Species Act Consultations by Two Agencies*, 15 PLoS ONE e0230477 (2020) (“Our study reveals several critical shortfalls in the current process of conducting Section 7 consultations . . .”).

59. See, e.g., *Friends of Blackwater v. Salazar*, 691 F.3d 428, 437 (D.C. Cir. 2012). The appellate court held that FWS could delist the species without revising the recovery plan, even though the criteria in its recovery plan were not satisfied. *Id.* at 436. The court stressed, however, “as long as a species is listed as endangered, the agency is obligated to work towards the goals set in its recovery plan” *Id.* at 437.

60. See, e.g., Nathan Donley & Tari Gunstone, *Pesticides Are Killing the Organisms That Keep Our Soils Healthy*, SCI. AM., June 1, 2021, <https://www.scientificamerican.com/article/pesticides-are-killing-the-worlds-soils/>.

61. See, e.g., Morgan Conley, *FWS Sued for Delayed Review of Pesticides’ Species Impacts*, LAW360, Feb. 24, 2022, <https://www.law360.com/articles/1468126/fws-sued-for-delayed-review-of-pesticides-species-impacts>.

Recommendation: FWS should more aggressively implement the Migratory Bird Treaty Act.⁶²

Many endangered species are also migratory birds. Failure to fully implement this Act only increases pressure on the ESA and its ecosystem protection goals.

Recommendation: The president should issue Executive Orders directing federal agencies to protect scientifically endangered species not yet legally listed, require all federal agencies to develop proactive conservation plans including identifiable critical habitat, implement an ecosystem approach to all conservation efforts, and incentivize conservation actions by states and private actors.

Such a series of executive directives would stem the loss of biodiversity in the United States and put the overwhelming majority of imperiled species on a road to recovery. While funding and resource shortfalls are the primary reason that animals and plants continue declining, the ESA has been weakened over the years through actions from the executive branch, including most recently the Trump Administration's efforts to weaken the regulations that implement the listing and consultation provisions of the law.⁶³ Since the passage of the ESA, very few presidents have used Executive Orders to further conservation.

Recommendation: Advocates and government officials at all levels must work closely to prevent damaging and unsustainable actions at the state and local levels.

States possess the primary responsibility for wildlife management and protection.⁶⁴ Frequently, the pressure for unsustainable development occurs at the local level.⁶⁵ These almost infinite frontline battles are crucial in the effort to protect biological diversity on a national scale.⁶⁶

Recommendation: The president should propose, and Congress should appropriate, at least \$20 billion over the next decade in order to stabilize endangered species and other declining wildlife and plant populations around the nation.⁶⁷

This level of funding is needed to fully implement the ESA and other statutes relevant to species and biodiversity protection.

C. Conservation Easements on Private Lands

Recommendation: The Internal Revenue Service should make it simpler and easier to put private land in a conservation easement while simultaneously ensuring there is no financial abuse of the system as has sometimes occurred in the past.

About 1.3 billion acres, or roughly 60%, of all land in the United States is privately held. Most U.S. environmental laws do not directly regulate private property and the two that do are used sparingly. First, §9 of the ESA allows any person to enforce an alleged "taking"⁶⁸ of a listed species, even if that species is on private property, if the property owner does not possess an incidental take permit under §10 of the ESA.⁶⁹ Similarly, §404 of the Clean Water Act allows the federal government to prohibit the filling of wetlands without a permit, though frequently projects can proceed with agreed-upon mitigation.⁷⁰ The ESA also possesses incentive programs for private landowners with listed species on their property.⁷¹

Because so many important species are found on private property, other legal tools are necessary to protect them. One prominent legal mechanism is called a conservation easement. While a traditional easement generally allows a person to use another's land for a specified purpose, conservation easements restrict a landowner from taking certain actions to protect a natural resource. Conservation easements exist in many forms,⁷² both at the federal and state levels, but perhaps the fastest-growing kind are those easements encouraged by Congress through the enactment of §170(h) of the U.S. Internal Revenue Code. Section 170(h) allows landowners to claim a federal tax deduction if they donate their easement to a qualifying organization such

62. See, e.g., *Natural Res. Def. Council v. U.S. Dep't of the Interior*, No. 1:18-cv-04596-VEC, 2020 U.S. Dist. Lexis 143920 (S.D.N.Y. Aug. 11, 2020) (rejecting Trump Administration attempt to significantly narrow the definition of "prohibitive take" under the Migratory Bird Treaty Act).

63. See, e.g., Ben Lefebvre, *Biden Administration Plans Roll Backs of Trump-Era Endangered Species Act Rules*, POLITICO, Oct. 27, 2021, <https://www.politico.com/news/2021/10/27/biden-trump-endangered-species-act-517345>.

64. *Hughes v. Oklahoma*, 441 U.S. 322 (1979) (affirming broad state powers over native wildlife within its borders).

65. Efforts to conserve urban wildlands in California is indicative of the larger challenges facing the United States as a whole. See, e.g., *Settlement Agreement by and Between Conservation Groups and Newhall Land and Farming Co. & Stevenson Ranch Venture, LLC* (Sept. 22, 2017), https://www.biologicaldiversity.org/programs/urban/pdfs/Newhall_Settlement_Agreement.pdf.

66. The struggle to protect the greater sage-grouse is indicative of the importance and perils of local conservation efforts; the "threat" of federally listing this species has tangibly incentivized coordination of local actions. See, e.g., Wyoming Game and Fish Department, *Sage-Grouse Working Groups*, <https://wgfd.wyo.gov/Habitat/Sage-Grouse-Management/Sage-Grouse-Local-Working-Groups> (last visited June 26, 2022).

67. SEE CENTER FOR BIOLOGICAL DIVERSITY, *SAVING LIFE ON EARTH: A PLAN TO HALT THE GLOBAL EXTINCTION CRISIS 5* (2020); see also Press Release,

U.S. House Natural Resources Committee, *Committee Approves \$25.6 Billion Reconciliation Measure to Fund Climate Corps, Coastal Protection, Wildfire Management, Tribal & Territorial Needs* (Sept. 9, 2021).

68. 16 U.S.C. §1538. The U.S. Supreme Court, however, has made it clear that any development-based action that "takes" a listed species by "habitat harm" must have been the "proximate cause" of the death or serious injury to an individual species. *Babbitt v. Sweet Home Chapter of Communities for a Great Or.*, 515 U.S. 687 (1995) (concurring opinion of Justice O'Connor explains the causation requirements).

69. 16 U.S.C. §1539.

70. 33 U.S.C. §1344.

71. See, e.g., FWS, *Partners Program*. <https://www.fws.gov/program/partners-fish-and-wildlife>

72. The federal government also funds conservation easements (and similar transactions through a large and dizzying number of private property aid programs, mostly under four primary mechanisms: the Land and Water Conservation Fund (mixture of state and federal funding), the Forest Legacy Program (through the Forest Service), the North American Wetlands Conservation Act (through the Department of the Interior), and the "Farm Bill" (through the Natural Resources Conservation Service). These programs, while generally effective, are not easily monitored and their overall cost efficiency are not known with much specificity. See, e.g., Federico Cheever & Nancy A. McLaughlin, *An Introduction to Conservation Easements in the United States: A Simple Concept and a Complicated Mosaic of Law*, 1 J.L. PROP. & Soc'y 107, 175-79 (2015), available at https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1033&context=law_facpub.

as a not-for-profit land trust.⁷³ Land trusts are required to ensure that the restrictions contained in the conservation easement deed are honored in perpetuity.

To claim this federal tax deduction, donations are authorized for any of the four following conservation purposes: (1) outdoor recreation and/or education for the general public; (2) protection of habitat; (3) preservation of delineated open space; and (4) historic preservation. As these categories indicate, not all §170(h) conservation easements are directed at wildlife or biodiversity conservation. However, recent studies have shown that most of these easements possess significant and/or direct benefits to the protection of biological diversity, including wildlife and habitat.⁷⁴ According to statistics compiled by the National Conservation Easement Database, which holds data to roughly half of all the country's conservation easements, there are approximately 400,000 conservation easements (including but not limited to §170(h) easements) in the United States, covering more than 60 million acres—now probably larger than the state of Oregon.⁷⁵

Further, unlike the federal land estate, land protected by conservation easements continues to increase at a steady rate. This is a very important growth area for U.S. conservation, though it must be done correctly so as not to waste resources on biologically marginal lands. Because of transparency challenges at the Internal Revenue Service (IRS), it is frequently difficult to assess effectiveness of individual conservation easements or their cumulative impacts.⁷⁶ The IRS should work more closely with USGS to ensure all conservation easements actually possess conservation value.⁷⁷

D. The 1872 Mining Act Is Outdated

Recommendation: Congress should amend the 1872 Mining Act⁷⁸ to allow federal land agencies to deny a claimant's current "right" to mine based on legitimate land conservation, clean water, and other public considerations.

If Congress were to do just one thing to advance land sustainability, updating the relic U.S. Mining Act might be it. There also exist potential administrative improve-

ments.⁷⁹ Every day, substantial damage is done to the U.S. landscape by largely unregulated mining of hard minerals. Admittedly, the demand for precious metals to advance renewable energy is a new modern demand on land conservation in the United States and around the world.⁸⁰ The demand for these metals, however, along with gold, silver, and valuable ore, must be regulated in a more comprehensive and holistic fashion, including for national security reasons.⁸¹

E. Reassert U.S. Leadership Globally

The United States plays a crucial role worldwide for biodiversity conservation, land protection, and climate mitigation. The U.S. influence touches all corners of the earth, both physically and politically.

Recommendations: The president should press the U.S. Senate to give its advice and consent on joining the CBD.⁸² The president should direct the Department of the Interior to lead with regard to the illegal and/or dangerous trade of wildlife under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).⁸³

The president should direct the Department of State to resuscitate the Western Hemisphere Convention on Nature Protection and Wildlife Preservation.⁸⁴

The president should direct development aid toward sustainable actions advancing land conservation.⁸⁵

73. I.R.C. §170(h); 26 U.S.C. §170(h).

74. See, e.g., William J. Snape III et al., *Conservation Easements as a Tool for Nature Protection*, TAX NOTES FED., May 10, 2021, at 875.

75. See National Conservation Easement Database, which includes both private and public conservation easements (including §170(h) easements) but is still significantly incomplete (*FAQ*, <https://www.conservationeasement.us/about/faqs/> (last visited June 26, 2022)); it is run by Ducks Unlimited and the Trust for Public Land. See also Gap Analysis Project, *Major Update for America's Inventory of Parks and Other Protected Areas: Protected Areas Database of the United States*, USGS, July 9, 2019, <https://www.usgs.gov/news/major-update-americas-inventory-parks-and-other-protected-areas-protected-areas-database>.

76. See, e.g., News Release, U.S. Senate Committee on Finance, Grassley, Wyden Launch Probe of Conservation Tax Benefit Abuse (Mar. 27, 2019), <https://www.finance.senate.gov/chairmans-news/grassley-wyden-launch-probe-of-conservation-tax-benefit-abuse>.

77. See USGS, *supra* note 56.

78. 30 U.S.C. §§22-42.

79. See, e.g., BIDEN-HARRIS ADMINISTRATION FUNDAMENTAL PRINCIPLES FOR DOMESTIC MINING REFORM (2022), <https://www.doi.gov/sites/doi.gov/files/biden-harris-administration-fundamental-principles-for-domestic-mining-reform.pdf>.

80. See, e.g., Ernest Scheyder & Trevor Hunnicutt, *Exclusive: Biden Looks Abroad for Electric Vehicle Metals, in Blow to U.S. Miners*, REUTERS, May 25, 2021, <https://www.reuters.com/business/energy/biden-looks-abroad-electric-vehicle-metals-blow-us-miners-2021-05-25/>.

81. In general, mining claims under the Mining Act cannot be denied by BLM or the Forest Service on lands not withdrawn from such activity. Sometimes, mitigation under the ESA or other statutes may slow down, shrink, and sometimes even practically end an otherwise valid mining claim. See, e.g., *Center for Biological Diversity v. Fish & Wildlife Serv.*, 441 F. Supp. 3d 843 (D. Ariz. 2020) (Rosemont copper mine must assess and mitigate for impact upon the listed jaguar and its critical habitat; the case is currently on appeal).

82. CBD, June 5, 1992, 1760 U.N.T.S. 79.

83. CITES, Mar. 3, 1973, 27 U.S.T. 1087, 993 U.N.T.S. 243. Advocates have already urged the United States to take a tougher stance against wet animal markets and trade under CITES. See, e.g., Tanya Sanerib, *Coronavirus Shows Exploiting Wildlife Poses Risk to Human Health*, HILL, Mar. 24, 2020, <https://thehill.com/opinion/energy-environment/489299-coronavirus-shows-exploiting-wildlife-poses-risks-to-human-health/>. The same concerns ring true with regard to the trade in species already at risk. See, e.g., Eyal G. Frank & David S. Wilcove, *Long Delays in Banning Trade in Threatened Species*, 363 SCIENCE 686 (2019).

84. The United States has already ratified this vastly underutilized treaty. Oct. 12, 1940, 56 Stat. 1354, T.S. No. 981. The United States should seek to rejuvenate the Western Hemisphere Convention, of which it is a Member, as a hemispheric link to the global CBD, with a focus on hemispheric migratory species.

85. Agencies such as the Export-Import Bank and the U.S. International Development Finance Corporation continue to fund fossil fuel projects as well as actions that harm habitat and biological diversity. See, e.g., KATE DEANGELIS & BRONWEN TUCKER, FRIENDS OF THE EARTH & OIL CHANGE

The executive branch should more actively lead and participate in existing multilateral frameworks, even when the United States is not formally a Member.⁸⁶

To be sure, the U.S. Senate holds the key to ratifying the CBD and other treaties. But the executive branch, primarily through the State Department with assistance from Interior, Commerce, and EPA, possesses the authority to provide biodiversity conservation data—from an array of federal, state, and private partners—to the CBD as provided by that treaty.⁸⁷

III. Conclusion

The United States must actively rethink its public and private land management through both a biodiversity and a climate change lens. Public lands regulations should be revised to embrace true sustainability. Laws that protect

private lands must be enforced, and opportunities for easements and other private land conservation incentives should be more transparently embraced. Although the United States possesses the legal and civil infrastructure to protect 30% of its land by 2030, and to meet other Goal 15 targets, the economic and political power of extractive industries is strong, and both time and ground were lost during the Trump Administration.

The United States finds itself at a crossroads on a number of fundamental governance issues—including how we look at the lands, waters, and natural resources that have made our country so vibrant from the beginning.⁸⁸ Perhaps with Secretary Haaland, we have come full circle, ready for both a reconciliation and a rejuvenation of a new and improved U.S. conservation ethic—grounded in history and guided by modern light.⁸⁹

INTERNATIONAL, ADDING FUEL TO THE FIRE: EXPORT CREDIT AGENCIES AND FOSSIL FUEL FINANCE (2020).

86. For example, the Convention on the Conservation of Migratory Species of Wild Animals, Nov. 6, 1979, 19 I.L.M. 15, allows non-Parties such as the United States to sign memoranda of understanding with Member Parties to conserve migratory species. The United States has occasionally signed these memoranda, but the executive branch could prioritize them even more.

87. See CBD art. 7:
Each Contracting Party shall, as far as possible and as appropriate . . . (a) Identify components of biological diversity important for its conservation and sustainable use having regard to the indicative list of categories set down in Annex I; (b) Monitor, through sampling and other techniques, the components of biological diversity identified pursuant to subparagraph (a) above, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use; (c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and (d) Maintain and organize, by any mechanism data, derived from identification and monitoring activities pursuant to subparagraphs (a), (b) and (c) above.

88. ALDO LEOPOLD, A SAND COUNTY ALMANAC 239 (1949) (“All ethics so far evolved upon a single premise; that the individual is a member of a community of interdependent parts . . . [t]he land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land”).

89. See, e.g., David Treuer, *Return the National Parks to the Tribes*, ATLANTIC, May 2021, <https://www.theatlantic.com/magazine/archive/2021/05/return-the-national-parks-to-the-tribes/618395/>; E.O. WILSON, HALF-EARTH (2016) (recommending that 50% of the planet be returned to nature).