Wildlife Conservation Society (WCS) Recommendations
Executive Order 14072
Strengthening the Nation's Forests, Communities, and Local Economies
Section 2 & Section 4

Below are recommendations from the Wildlife Conservation Society (WCS) on Executive Order 14072, *Strengthening the Nation's Forests, Communities, and Local Economies*, focusing on Section 2, *Restoring and Conserving the Nation's Forests,* and Section 4*, Deploying Nature-Based Solutions to Tackle Climate Change and Enhance Resilience.*

WCS saves wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature. To achieve our mission, WCS, based at the Bronx Zoo, harnesses the power of its Global Conservation Program in nearly 60 nations and in all the world's oceans and its five wildlife parks in New York City, visited by 4 million people annually. WCS combines its expertise in the field, zoos, and aquarium to achieve its conservation mission.

WCS has worked on forests, both domestically and worldwide, for most of our 125 year history. In North America today, much of our work focuses on conserving its boreal forests. Stretching from Alaska through Northern Canada, the region's size, remoteness, and the diversity of landscapes found within it allow for an incredible array of wildlife, including caribou, wolverines, bison, hundreds of migratory bird species, and numerous types of freshwater fish. The North American Boreal is also the world's largest source of unfrozen freshwater, with millions of lakes and other bodies of water, and a huge storehouse of global carbon. Further, this biome is the homeland of many indigenous peoples whose history of survival here for thousands of years (since the last continental glaciation) can provide cultural and ethical lessons for the modern world.

Globally, WCS has worked extensively on forest and climate programs since 2005, including facilitation, capacity building, and technical support for national governments developing REDD+ strategies across the tropics. Our Intact Forests initiative seeks to establish the scientific consensus, policy models, practices, and incentive structures that will end the loss of intact forests (i.e. forests free from significant anthropogenic degradation, including fragmentation) by 2030. WCS has also developed the "Forest First Approach," a risk-based framing for action on deforestation that prioritizes efforts towards the farm and forests frontier. This approach has the potential to aggressively address current deforestation risks before they are heavily embedded within supply chains, while also protecting against future conversion of adjacent intact or primary forests.[1]

[1] Leggett, M. & Lawrence, L. (2021, Feb.) *The forest first approach. A new framing that addresses supply chain risk and reduces deforestation at the forest and farm frontier.* Wildlife Conservation Society.

As the Administration implements this Executive Order, it is important to remember that not all forests are equal in how they sequester carbon or how they provide ecological functions. Similarly, not all solutions are equal, either. Actions taken by the U.S. government must be both climate-smart, in that they are adapted to expected changes in climate, and "nature-positive", meaning that they will directly contribute to helping to halt or reverse the loss of natural ecosystems. The recommendations below are intended to provide the Administration with guidance on how the actions taken pursuant to this Executive Order can be both.

Section 2: Restoring and Conserving the Nation's Forests, Including Mature and Old-Growth Forests

Within Section 2 of the Executive Order, WCS urges the Administration to consider the integrity of a forest and its ecosystem as it prepares its inventory of old growth and mature forests. As agencies plan reforestation efforts and determine what seeds, cones, and seedlings to produce, WCS encourages the Administration to focus on species that are able to thrive under conditions as they are projected to be. In this regard, WCS can provide substantial expertise, based on more than a decade of work with our Climate Adaptation Fund, which provides grant awards to conservation non-profits across the United States to catalyze innovative, science-driven projects responding to the impacts of climate change on wildlife and people. Lastly, as the federal government develops recommendations for community-led local and regional economic development opportunities, we urge you to provide the financial resources necessary to ensure that locally-led, community-based processes can be successful.

A. The USG must consider intactness and integrity of forests when developing its inventory

All forests are not equal. The importance of increased carbon sequestration through forests in mitigating the climate crisis is well understood. However, while a birds-eye view of a tree plantation monoculture or other human-dominated landscape may present a forest-like appearance, in many crucial respects such areas do not have the ecological function of true mature forests. This lack of ecological function can compromise not only their ability to provide other co-benefits including to biodiversity, human well-being and climate adaptation, but also their ability to efficiently sequester carbon over the long term. This also runs the other way, wherein the loss of mature forests directly causes increased carbon release. Therefore, preserving mature and old-growth forests is crucial for both sequestering atmospheric carbon and preventing additional carbon release.[2]

https://c532f75abb9c1c021b8c-e46e473f8aadb72cf2a8ea564b4e6a76.ssl.cf5.rackcdn.com/2021/02/25/6nmq9dgybx_WildLifeConservativeSociety__V12_24_02_2021.pdf.

[2] Watson, J. E., Evans, T., Venter, O., et al. (2018). The exceptional value of intact forest ecosystems. *Nature Ecology & Evolution*, *2*(4), 599–610. https://doi.org/10.1038/s41559-018-0490-x

To avoid the cultural weight of terms such as 'wilderness' and 'pristine', the terms *intactness* and *integrity* are used to refer to forests that are free of significant anthropogenic degradation, where degradation specifically refers to losses of forest ecological function. The Forest Landscape Integrity Index (FLII)[3] is a metric of forest integrity developed by scientists from WCS, with the support of other organizations including WWF, TNC and WRI, as well as several academic institutions including Montana State, Arizona State and the University of Queensland. The FLII takes into account human pressures from infrastructure (e.g. roads), agriculture and historic deforestation, and accounts for both immediate effects and effects at a distance. In other words, the construction of a road or the clearing of land at a given location affects not only that location, but also the surrounding forests as well. The result is a high-resolution map of forest intactness that can be utilized to locate high-value blocks of forest that will maximize climate benefits while simultaneously also maximizing benefits to threatened and endangered species as well as to human cultural practices and well-being.[4]

B. The Administration should consider climate-smart approaches to reforestation

Reforestation is a critical strategy for addressing several key national and global crises, including climate change (mitigation and adaptation) and biodiversity loss.[5,6] However, forests—including trees planted as part of reforestation efforts—are also at risk from the impacts of a changing climate.[7] Rapid warming and changing precipitation patterns, along with increasingly severe extreme events such as droughts, wildfire, and floods, could undermine the success of reforestation efforts if those approaches are not strategically designed to be effective in the face of a changing climate.[8] Reforestation efforts that proactively account for a changing climate may differ from status quo approaches in the species that are selected for planting (e.g., targeted species from the region deemed able to thrive under future climate conditions), the locations and environments where seeds or cones were collected (e.g., seeds or cones that were harvested from individuals growing in climate conditions that resemble future climate conditions in the areas to be reforested), or the locations that are prioritized for reforestation (e.g., areas with microclimates that make them relatively more moist, or less likely to burn). As described by WCS Forest and Climate Change expert Dr. Lauren Oakes: "If we are counting on trees to

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[3] *Forest landscape integrity index*. https://www.forestintegrity.com/home

[4] Grantham, H.S., Duncan, A., Evans, T.D., et al. (2020). Anthropogenic modification of forests means only 40% of remaining forests have high ecosystem integrity. *Nature Communications*, *11*. https://doi.org/10.1038/s41467-020-19493-3.

[5] Fargione, J. E., Bassett, S., Boucher, T., et al. (2018). Natural climate solutions for the United States. *Science Advances*, *4*(11). https://doi.org/10.1126/sciadv.aat1869

[6] Cook-Patton, S. C., Gopalakrishna, T., Daigneault, A., et al. (2020). Lower cost and more feasible options to restore forest cover in the contiguous United States for climate mitigation. *One Earth, 3*(6), 739-752.

[7] Reidmiller, D.R., C.W. Avery, D.R. Easterling, et al. (2018). *USGCRP: Impacts, risks, and adaptation in the United States: Fourth national climate assessment, volume ii.* U.S. Global Change Research Program, Washington, DC, USA.

[8] Anderegg, W. R., Trugman, A. T., Badgley, G., et al. (2020). Climate-driven risks to the climate mitigation potential of forests. *Science*, *368*(6497).

remove carbon from the atmosphere, we need to start making climate-informed decisions now—well before we see them *[trees]* stressed or dying in the warming world."[9]

Therefore, we urge the Federal government to develop explicitly *climate-smart* reforestation efforts that proactively account for the impacts of a changing climate to ensure the long-term viability of reforested landscapes and ecosystems. Climate-smart reforestation can be designed using tools and resources such as the Adaptation Workbook developed by the Northern Institute of Applied Climate Science (NIACS),[10] the Adaptation for Conservation Targets (ACT) framework for climate-informed management planning,[11] menus and libraries of climate-informed forest management strategies and tactics, and the climate-smart Seedlot Selection Tool (a GIS-based tool that helps forest managers match seed sources with planting sites based on future climate scenarios). Since 2011, the WCS Climate Adaptation Fund has supported at least 10 projects that are applying climate-informed reforestation techniques across the country and within a range of forest types.[12] These projects can serve as models for climate-smart reforestation projects advanced through this Executive Order.

C. Climate-informed planning is needed when increasing the Federal cone and seed collection

One significant hurdle to the implementation of climate-smart reforestation projects is the availability of seeds, cones, and seedlings from regionally-specific, climate-adapted tree species. The Federal government therefore has a significant role to play in increasing access of both Federal and non-Federal partners to sufficient climate-adapted seeds, cones, etc. to support the implementation of climate-smart reforestation across large landscapes. Several of the projects supported by the WCS Climate Adaptation Fund are specifically addressing this challenge and can provide useful models for a climate-informed Federal plan for ensuring adequate seed and seedling nursery capacity. This includes one recently funded project led by The Nature Conservancy and partners in Minnesota that aims to reforest 1 million acres in the state by 2040 through the planting of tree species that are best suited to future climate conditions.[13] To meet this scale of impact, the team is building a coalition of public, private, and grassroots seed collectors to develop a supply chain for climate-adaptive seeds. Other projects supported by the

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[9] Oakes, L. (2020). How to plant the forests of the future, *Anthropocene Magazine* https://www.anthropocenemagazine.org/2020/07/how-to-plant-the-forests-of-the-future/

[10] Swanston, C.W., Janowiak, M.K., Brandt, L.A., et al. (2016). Forest Adaptation Resources: Climate change tools and approaches for land managers. *USDA Forest Service*. p. 170.

[11] Cross, M.S., Zavaleta, E.S., Bachelet, D., et al. (2012). The adaptation for conservation targets (ACT) framework: A tool for incorporating climate change into natural resource management. *Environmental Management, 50*(3): 341–351.

[12] Wildlife Conservation Society. *Supported projects: Conservation redesigned for climate change*. WCS Climate Adaptation Fund. https://www.wcsclimateadaptationfund.org/supported-projects-1

[13] Wildlife Conservation Society. WCS Climate Adaptation Fund. https://www.wcsclimateadaptationfund.org/the-nature-conservancy-mn-2021.

Climate Adaptation Fund are establishing nurseries and seed collections of climate-adapted species to provision local and regional reforestation and restoration projects.

D. Financial resources are needed for communities to lead in creating sustainable forest jobs

Maintaining forestry, tourism, and other regional economic development opportunities related to land requires the availability of relatively large and contiguous parcels unimpeded by the fragmenting features of development. Private lands offer immense opportunities for community-led local and regional economic development opportunities to create and sustain jobs within the sustainable forest product sector, however smaller individually managed parcels reduce management options.[14] Communities seeking to prioritize such activities will be able to achieve their goals through the processes of community visioning, incorporating that vision into a land-use plan which governs decision making at the local level, and supporting the vision through ordinances that guide development in ways that maximize contiguity of open spaces, direct development to places that can be economically serviced by the community, and provide the tools to ensure fair and equitable processes are in place to achieve the community vision and sustain forestry-based economic activities.[15] Such locally-led processes to develop a vision and a plan require leadership and expertise in a variety of tools that a community can use to help implement their vision while still honoring private property rights. However, many communities lack the human power, capacity, and resources to engage in such discussions and decision-making processes amongst themselves and with the private forestry sector, even when relatively small changes to existing codes and ordinances could have a disproportionate positive impact on maintaining resources in the future.[16]

To address the need to reduce parcelization and/or fragmentation of contiguous open spaces by housing, road, or infrastructure development that could foreclose options for sustainable forestry, a significant investment of financial resources needs to be directed to municipalities, counties, and other community support organizations (CSOs), like Cooperative Extensions, and community-based non-profits, to support the visioning, planning, and implementation process of community-determined ordinances and tools that will ensure forestry and other land-based economic activities can be sustained into the future.[17] To complement this effort, those groups (i.e., municipalities, counties, and CSOs) need access to current resources and best practices for

[14] Butler, B.J. & Leatherberry, E.J. (2004). America's family forest owners. *Journal of Forestry, 102*(7): 4-14. https://doi.org/10.1093/jof/102.7.4

[15] Solomon, P.J. & Riley, J.M. (2018). *Sustaining and improving Pennsylvania's forest land through comprehensive plans: The vital role of counties and municipalities.* https://drive.google.com/file/d/1eqmhYExqsMMT_wPXh7xx9_cgWS1voahC/view

[16] Reed, S.E., Hilty, J.H., and D. M. Theobald. (2013). Guidelines and incentives for conservation development in local land-use regulations. *Conservation Biology, 28*(1): 258-268.

[17] Kretser, H.E., Dale, E., Karasin, L., Reed, S.E., and Goldstein, L.J. (2019). Factors influencing adoption and implementation of conservation development ordinances in rural United States. *Society and Natural Resources,* 9:1021-1039.

supporting community-led decisions to maintain natural resource assets and ensure forward-looking climate-smart and disaster-prepared approaches are implemented to build resilience of these communities to exogenous factors. Beyond the community identifying those areas important for forestry and other land-based economic activities, tools such as conservation easements, overlay districts, transfer of development rights, and carbon financing could be explored as ways to promote and maintain private property rights while contributing to a broader community vision and economic trajectory. As communities implement such approaches and lessons learned, model language for incorporating tools into local plans and new best practices should be harvested and shared among the growing number of communities that recognize the importance of maintaining resource-based economies as part of their community vision.

Section 4: Deploying Nature-Based Solutions to Tackle Climate Change and Enhance Resilience.

The Administration has correctly identified that it must quickly develop and deploy solutions to the climate and extinction crises. But these solutions cannot simply be based in nature, they must have a net positive result for natural ecosystems. One of the agencies that will be influential in this direction is the Army Corps of Engineers, particularly in the marine ecosystems in and around New York and New Jersey. This Executive Order recognizes that better stewardship of U.S. public lands will be a critical factor to reduce the effects of climate change. Better stewardship necessitates that more resources be included in current and future budgets for land management and the implementation of nature-positive solutions.

A. Nature-*positive* solutions are needed, not just nature-*based* solutions

Organizations and individuals working at the interface of climate change and biodiversity conservation have wildly different opinions about what are commonly termed Nature-Based Solutions (NBS) and Natural Climate Solutions (NCS) to the climate crisis. The idea behind these solutions is that protecting and accelerating natural processes can help solve the climate crisis by removing greenhouse gasses from the atmosphere, storing carbon in biomass, and reducing greenhouse gas emissions from biomass to the atmosphere. Natural Climate Solutions can also be key to helping people adapt to the effects of the changing climate. But because nature is all-encompassing — Earth, water, air, fire, living things (including people) — what counts as "nature-based" or "natural" depends largely on who is doing the counting. But, what does and does not count matters a lot in the context of the urgency of the climate crisis and our thus-far inadequate responses to it, as the newly released Intergovernmental Panel on Climate Change (IPCC) Working Group II report on climate change impacts, adaptation and vulnerability[18] makes

[18] IPCC, 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press.

abundantly clear. While some proponents of NBS and NCS strive to ensure strong alignment of climate and biodiversity outcomes, others are content to lay claim to nature's benefits while side-stepping responsibility for the costs to nature that they incur.

The latter camp includes proponents of bioenergy projects and pro-bioenergy policies. These initiatives often rely on trees as the principal energy source, devastating mature forests and their wildlife and undermining the role of forests in long-term carbon dioxide removal and storage. Along with bioenergy, the continuing expansion of monocultural plantations for food and fiber products is at odds with biodiversity conservation, despite the growing interest among some agribusinesses in dressing up a business-as-usual narrative to extol NBS or NCS.

To right that, the Administration must promote and implement solutions that are not just vaguely "nature-based," but actually and demonstrably "nature-positive" — meaning they help to halt and reverse the loss of natural ecosystems — by 2030, against a 2020 benchmark, while providing climate change mitigation and adaptation benefits. In the arena of climate change, NBS and NCS now have a firm foothold, with potential for substantial impact. While a lot more finance is sorely needed, impact is the only real measure of success and failure. As the Administration implements this Executive Order and other relevant policies, clear questions for nature-positive impacts are warranted such as: How will it help halt and reverse natural ecosystem loss? What are its climate change mitigation and adaptation benefits? And will it help reduce, or exacerbate, existing inequality, including for Indigenous peoples and local communities?

B. U.S. Army Corps of Engineers projects should evaluate and deploy effective, nature-positive solutions

Given that the Wildlife Conservation Society is headquartered and operates five wildlife parks in New York City, the organization has been engaged in the U.S. Army Corps of Engineers (USACE) process regarding the New York - New Jersey Harbor and Tributaries Feasibility Study (NYNJHATS), including providing technical comments regarding measures to evaluate options to reduce potential impacts from storms, sea level rise and and other threats from climate change. Long-term USACE studies and projects like the NYNJHATS can serve as a vehicle to evaluate and deploy nature-positive solutions that not only enhance resilience but also advance carbon sequestration.

WCS has consistently provided comments and background in support of marine wildlife, habitats, and the long-term health and ecological function of our region's diverse coastal, estuarine, riverine, and marine ecosystems, while appreciating the necessity of a climate change adaptation plan that enhances the resiliency of our diverse coastal communities and businesses. We continue to strongly recommend a full assessment of natural and nature-positive strategies to

minimize impacts on marine wildlife and habitats, as well as coastal communities. Section 116 of the Water Resources Development Act of 2020 (WRDA 2020) explicitly requires the prioritization of natural and nature-based features and ecosystem services in cost-benefit analysis. Using natural infrastructure and non-structural projects can reduce risks to local communities while improving ecosystems and protecting human health. Members of the New York Congressional Delegation have advocated for implementation guidance for NYNJHATS that prioritizes multi-beneficial natural, and nature-based approaches that take into account the quality of life, economic and environmental impacts, including to protected species and the habitats they depend on. For example, at different times during the year, New York Harbor provides habitat for endangered and protected species, including Atlantic sturgeon and a range of marine mammal species (including humpback whales). NYNJHATS must evaluate how each alternative will impact these and other protected species. These impacts should be considered early in the process to inform alternative selection.

C. **Substantial additional Federal budgetary resources will be needed for existing U.S. public lands**

To some extent, this Executive Order is an acknowledgement that stronger stewardship of America's public lands and wildlife are a key part of our solution to climate change. America's network of national parks, forest, reserves, wildlife refuges, monuments, and other public lands have been valued for their natural beauty by people around the world for more than a century. Furthermore, it is clear today that many of these lands are key components of any nature-positive solutions to climate change. From the tundra habitats of the Arctic National Wildlife Refuge, to the boreal forest of the Gates of the Arctic National Park, and south to the expansive Tongass National Forest, and from the Yellowstone National Park in the Northern Rocky Mountains to the Smoky Mountain National Park in Tennessee in the contiguous United States, these public lands provide a solid foundation to build from, but only if kept intact. It is also increasingly clear that merely placing these lands into the public trust is no longer sufficient to ensure that the environmental future of our nation and our planet are safeguarded for future generations. It is imperative that additional budgetary resources be allocated to fully understand the value of U.S. public lands and wildlife to nature-positive solutions, and to support the management and, where necessary, restoration of U.S. public lands and wildlife to ensure that they remain key nature-positive solutions to climate change and biodiversity loss.

Conclusion

The President's Executive Order on Strengthening the Nation's Forests, Communities, and Local Economies is an important step to conserving forests in the United States and implementing nature-positive solutions in U.S. forests and public lands and across federal agencies. WCS looks forward to working with the Administration to develop and implement these initiatives.

Additional recommendations will be developed for other sections of the Executive Order. For more information on these recommendations, please contact Colin Sheldon, WCS Director of Federal Affairs, at csheldon@wcs.org.