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The Ecological Society of America (ESA) appreciates the opportunity to provide a response to the Framing the First National Nature Assessment (NNA) Prospectus. ESA commends the United State Global Change Research Project (USGCRP) and the White House Office of Science Technology and Policy (OSTP) for developing the NNA and engaging with the ecological community.

ESA, founded in 1915, is the world's largest community of professional ecologists and a trusted source of ecological knowledge, committed to advancing the understanding of life on Earth. The 8,000-member society publishes [six journals and a membership bulletin](#) and broadly shares ecological information through policy, media outreach and education initiatives.

Defining nature and its value to the nation is critical as it strikes at the core of human well-being, national security, prosperity and health. ESA wholeheartedly supports the development and use of a National Nature Assessment .

ESA views this response as the continuation of a multi-year process of engagement between the ecological community, USGCRP, OSTP and potential users of the NNA.

The Federal Register Notice Sections I-IV overlap in themes and scope. All ESA comments should be applied throughout Sections I-IV although they are placed under one Section for clarity.

[I. Development of the First National Nature Assessment through a Proposed Report and Portfolio of Associated Products](#)

ESA recommends that federal agencies on the USGCRP Steering Committee follow the [Letter on Recommendations for Advancing Public Engagement with the Sciences](#) from the Presidential Council of Advisors on Science and Technology sent to the President with recommendations for catalyzing effective and systematic engagement between federal research and development agencies, science and technology experts, and the American people (Sept. 2023). Adding the Department of Education to the USGCRP Steering Committee may be beneficial for outreach efforts.

The USGCRP can increase its capacity for public outreach by creating direct staff positions to support public engagement to work directly with the 14 agencies on the steering committee. Another option may be for one federal agency to take the lead on public engagement.

Identifying private NGO partners to disseminate the NNA findings will leverage its impact. Public-private partnerships with NGOs can effectively distribute or develop the NNA products to engage with communities across the nation. One example is to work with the National Ad Council to develop public service announcements.

Professional or affinity group associations can serve as a nexus: they can host and facilitate engagement platforms and outlets as well as gather feedback and increase outreach. Cultural institutions, including museums, zoos, botanical gardens, and aquariums, are primary points to connect with the general public. Self-organized groups such as local cattlemen's associations, Future Farmers of America chapters, 4-H clubs, urban gardens, Friends of National Parks groups, marine fisheries groups, and neighborhood and lake associations can assist in broadening engagement.

II. The First National Nature Assessment: A Use-Inspired, Knowledge-Driven Report

Paragraph one: It would be helpful to explicitly add “waters” so that freshwater is clearly included in the NNA1 scope in this sentence: NNA1 will consider nature in U.S. states, marine areas (U.S. Exclusive Economic Zone), **<ADD waters>**, territories, Native or Indigenous lands and waters, and other affiliated areas (as appropriate), as well as its significant interactions with global drivers.

It seems prudent to have a public comment period or highly participatory process for the technical framing of the report structure to ensure that critical aspects affecting nature are included.

Correlating the drivers of environmental change and nature in the NNA is a complex and significant task. For example, no NNA materials mention nitrogen deposition, yet it is considered one of the major drivers of global change, alongside climate change. Assessing the combined effects of nitrogen deposition and climate change is essential for understanding and mitigating the impacts of global environmental changes on ecosystems and biodiversity.

The technical report framing can be informed by many models. One such model to consider is the Planetary Boundary Model framing model from the Stockholm Resilience Centre that provides an outline of planetary resilience by mapping out all nine boundary processes that define a safe operating space for humanity. Nine planetary boundaries have been identified within which the planet must remain for humanity to be able to thrive and prosper. Since their identification, humanity has consistently exceeded three boundaries: biosphere integrity, climate, and nitrogen biogeochemical cycling. These three boundaries continue to be exceeded, along with additionally exceeding boundaries related to land-use and freshwater systems. Perhaps framing the NNA using this model would help to convey systems-level thinking at large scales (i.e.,

continental or global) when assessing Earth systems, such as the planet's climate, nutrient, energy, and eco-hydrological cycles.

III. Overarching Themes of The First National Nature Assessment

It could be beneficial to separate conservation and natural resource management into two distinct cross-cutting areas as bullet points. Natural resource issues may conflict with conservation issues and may need to be discussed separately. Another option is to use the term 'sustainable conservation and natural resource management' in lieu of 'conservation and management' as one term consistently throughout all NNA digital, printed and other media materials .

Introducing and using the term 'Ecological Safety and Security' rather than 'Safety and Security' would be beneficial in laying the foundation for federal agencies and others to include it as a core cross-cutting theme throughout planning. Ecological security subsets as examples are water security, wildland fire security, food security, shoreline security, coastline security. Currently, federal agencies use the term 'food security,' but it is not a term that includes ecosystems.

IV. Development of Associated Products

See comments under section I. for an overview. ESA fully supports the development of technical reports and peer-reviewed journals as the core function of the NNA. Importantly, ESA recommends products for dissemination to reach audiences not likely to read peer-reviewed journals and technical reports.

Overall, the key audiences and users are (1) government decision makers (i.e., federal, state, local, tribal policy and management entities); (2) the public sector (e.g., concerned community members, academics, practitioners, educators, landowners, public health professionals and medical doctors, environmental activists, NGOs and any of a wide array of individuals and groups who are interested in the status, drivers and fate of America's nature); and (3) commercial interests (e.g., fishers, farmers, agribusiness and eco-tourism operators, ranging from the individual to the national and even international nature-based businesses and industries).

Among these three audiences, the public sector is viewed as the most important because segments of the public have fewer, consolidated resources (human and social capital) to cope with changes to nature that affect their well-being and livelihoods. Although the public sector understands various aspects of the nature around them, the NNA could engage with the public sector to create a dialogue to facilitate knowledge sharing among the three audiences.

Specifically, ESA recommends the NNA report begin with a story of a stand-alone narrative that is accessible and well-illustrated that would lay out the rationale, history and motivations of the NNA. It should start by answering what nature is and why nature is important to everyone, followed by the importance of key elements of nature, biodiversity and ecosystem functions that

ensure resilient and healthy environments. This in turn would lead to an overview of how nature supports civil society by providing goods and services, opportunities for livelihoods/jobs, and human health. Equally important is to help develop a broad appreciation for the fact that while humans benefit from nature, they are also responsible for its sustainable stewardship. It is important to introduce Indigenous Knowledge (IK) as a parallel way of knowing based on very different philosophy from “Western” science at the beginning of the stand-alone narrative.

The products should be creative, varied and aligned with a wide diversity of audiences and engaged partners. These might include at least three classes of products: (1) data resources organized into a single portal; (2) reports and searchable literature, including actionable interpretation of data and data analysis, as well as summaries for decision makers and findings; and (3) a wide array of public outreach products, which may include interactive displays and infographics to online teaching modules and games. These three classes of NNA products can be organized for decision-makers at all levels, the public and commerce. Products should be made relevant not only on a national and regional scale, but also at the local level as much as possible to make them actionable for communities.

The standard products of synthesis reports such as the NNA would include summaries for policymakers, smaller reports and peer-reviewed publications (freely available or in journals). These materials are important for the dissemination of the NNA findings among scholars and decision-makers. Products that reach the public sector will be of profound importance if the NNA is to be effective in engaging the public as well as changing public attitudes, perceptions, values and understanding of nature, including its importance to well-being, its status and its trends. Such products could include online readily accessible data portals that can serve researchers, government agencies, NGOs, businesses, educators and more. A data portal would maximize the utility of data gathered by the NNA.

In addition, it would be useful to take innovative, creative and alternative approaches designed to reach as many people and sectors as possible in ways and places that resonate with diverse groups. While the current younger population may gather information from web-based digital outlets, such as YouTube, podcasts and other social networking applications, other products that “meet them where they are” could be in the form of infographics, games, film, online interactive platforms, online dashboards, mobile apps, artistic expression, social media events and other forms that will be more effective in communicating the importance and urgency of the NNA’s findings and recommendations.

The enduring value of the work of the NNA, however, may come from engagement with K-12 students and especially teachers through education modules or materials that cover what the NNA is, what its key findings are, the significance of its work and how people can be involved. In addition, nature tours for schools and for seniors could engage people who can share experiences across ages.

Equity

Recognizing Indigenous Peoples' involvement in developing the NNA is critical for people and nature. ESA agrees with the White House efforts to fully engage with Tribes and Indigenous

Peoples for co-stewardship goals for waters, fisheries and other resources of significance and value to Tribes.

All NNA efforts by the USGCRP should follow the guidance for federal agencies as stated in the Joint Executive Order 3403 to ensure that the agencies are managing Federal lands and waters in a manner that seeks to protect the treaty, religious, subsistence and cultural interests of federally recognized Indian Tribes including the Native Hawaiian Community; that such management is consistent with the nation-to-nation relationship between the United States and federally recognized Indian Tribes; and that such management fulfills the United States' unique trust obligation to federally recognized Indian Tribes and their citizens.

USGCRP can further engage directly with Tribes and Indigenous Peoples by participating in STEM-related conferences such as the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science conference and the ESA annual meeting along with the National Congress for American Indians and other relevant gatherings.

IKs are a complete way of knowing that span long-term observations, prediction, learning and adaptation, data management and intergenerational knowledge transmission. In important ways, IKs diverge from "Western" science. One of the most important aspects of Indigenous societies is the reciprocal relationship between humans and nature. While humans benefit from nature, they are also responsible for its sustainable stewardship. This perspective stands in stark contrast to the prevailing Western view that nature is a resource to be exploited, though there are encouraging signs of moving more towards an environmentally sustainable or nature-positive framework. Furthermore, non-human beings are considered relatives with inherent rights, and should be honored and respected. While there are other differences, these are particularly critical.

It is useful to remember that IKs are not just another dataset, but are a different way of relating to the world. The NNA needs to follow an ethical approach to develop agreements with local communities and Tribal members (and not limited to federally recognized Tribes) about what specific knowledge will be shared, what form that might take, who will have access to the data, and how the data will be used. One key element of such agreements must be that Indigenous communities will maintain control over their data: it must not be appropriated for uses by anyone or for any reason not defined in a formal agreement.

ESA appreciates the opportunity to comment on the NNA prospectus. You may contact Alison Mize, director of public affairs, with any questions. (alison@esa.org).