

Review of the draft U.S. National Assessment by the Nature Record

Committee

Erica Fleishman

Chair

Erica Fleishman is the Director of the Oregon Climate Change Research Institute (OCCRI); Chair of Geography and Environmental Sciences; and Professor in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University. She has 35 years of experience conducting research on land management and ecological responses to environmental change in the western United States. Her long-term research program in the Great Basin documents status and trends of birds, butterflies, and their habitats as land use and climate change. Erica also has worked with federal agencies and industry on responses of marine mammals to underwater sound and coauthored curricula on applications of remote sensing to environmental sciences. Additionally, she participates in development of mechanisms for conservation of private lands under the US Endangered Species Act. As director of OCCRI, she supports public agencies and communities in projecting climate change and its effects on natural and human systems. Erica is the past editor in chief of Conservation Biology and currently serves on the editorial boards of two other international journals. Erica received a B.S. and M.S. in Biological Sciences from Stanford University and a Ph.D. in Ecology, Evolution, and Conservation Biology from University of Nevada, Reno. Erica previously served as a member of the NAS Committee on Ecological Risk Assessment under FIFRA and ESA.

Megan E. Bang

Member

Megan Bang is the James E. Johnson Professor of the Learning Sciences and the former Director of the Center for Native American and Indigenous Research at Northwestern University. Dr. Bang is widely known for her scholarship on human learning and development across the life course with respect to the natural world. Her work focuses on issues of human learning and decision-making central to climate change, adaptation, and sustainability, as well as political, social and civic relations. She is particularly concerned with transforming the ways in which settler-colonialism and racial capitalism have shaped relations between humans and the rest of the natural world. She has been centrally engaged with Indigenous communities and the development and study of forms of intergenerational education and cultural regeneration that cultivate planetary and communal wellbeing. Dr. Bang is a member of the National Academies of Education, which she also serves as a governing board member and the American Academy of Arts and Sciences, and a fellow of the American Education Research Association and the International Society of Learning Sciences. In 2025, Dr. Bang was elected to the John D. and Catherine T. MacArthur Foundation Board of Directors. Dr. Bang received a B.A. in political science and history from Williams College, and a Ph.D. in learning sciences and cognitive sciences from Northwestern University. She was a previous NAS board member for the Board on Science Education and a member of the Committee on Designing Citizen Science to Support Science Learning.

James J. Elser

Member

James Elser is Bierman Professor of Ecology of the University of Montana and since March 2016 has been Director of UM's Flathead Lake Biological Station at Yellow Bay. He also serves as research faculty emeritus in the School of Sustainability at Arizona State University where he directs the Sustainable Phosphorus Alliance. Trained as a limnologist, Dr Elser is best known for his work in developing and testing the theory of ecological stoichiometry, the study of the balance of energy and multiple chemical elements in ecological systems, and for his work on phosphorus sustainability. Currently, Dr Elser's research focuses most intensively on Flathead Lake as well as mountain lakes of western Montana along with work on phosphorus sustainability via the STEPS Science & Technology Center. He has been named a Fellow of the American Association for the Advancement of Science and a foreign member of the Norwegian Academy of Arts and Sciences. In 2012 Dr Elser received the G.E. Hutchinson Award of the Association for the Sciences of Limnology and Oceanography (ALSO), and served as ASLO's President 2014-2016. In recognition of his scientific accomplishments, in 2019 Dr Elser was elected to the National Academy of Sciences. Dr. Elser holds a Ph.D. from the University of California Davis, an M.S. degree from the University of Tennessee, and a B.S. degree from the University of Notre Dame. Dr. Elser has served on the NAS Committee on the Future of Water Quality in Coeur d'Alene Lake and the Committee on Advancing a Systems Approach to Studying the Earth: A Strategy for the National Science Foundation.

Eugene F. Kelly

Member

Eugene F. Kelly is a Professor of Pedology and Director of the Agricultural Experiment Station at Colorado State University, specializing in soil geochemistry and global change. His current research focuses on climate change, soil degradation, water dynamics, and regenerative agriculture. Dr. Kelly is a Fellow of both the American Association for the Advancement of Science and the Soil Science Society of America, and a recipient of the Soil Science Society of America Research Award and the Colorado State University Resident Distinguished Ecologist honor. He was also on the author team for the National Climate Change Roadmap: A Research Framework for U.S. Agriculture, Forestry, and Working Lands. Dr. Kelly earned his B.S. and M.S. degrees from Colorado State University and his Ph.D. from the University of California, Berkeley. He chairs the U.S. National Committee for Soil Science with the National Academy of Sciences.

Catherine L. Kling

Member

Catherine L. Kling is a Tisch University Professor in the Charles H. Dyson School of Applied Economics and Management at Cornell University and a past faculty director at the Atkinson Center for a Sustainable Future. She is a leading scholar in environmental and resource economics. She specializes in ecosystem services, water quality, and the economics of conservation policy. She served as president of the Association of Environmental and Resource Economists, has held editorial positions at ten economics journals, and has received seven awards from professional associations for her research. She is an elected member of the National Academy of Sciences, and a fellow of the Association of Environmental and Resource Economists, the American Association for the Advancement of Science, the Agricultural and Applied Economics Association, and a university fellow at Resources for the Future. Kling served for ten years on EPA's Science Advisory Board, and she is currently on the Environmental Defense Fund's Economics Advisory Council. She received a B.B.A. from the University of Iowa and a Ph.D. in economics from the University of Maryland. Among several activities at the National Academies, Kling is a member of the Roundtable on Science and Technology for Sustainability, and the Independent Scientific Review of the Everglades Restoration Progress XI, and she was the Chair of the Water Science and Technology Board, and a member of the Committee on the Long Term Environmental Trends in the Gulf of Mexico, the Committee on Reducing Health Impacts of Reactive Nitrogen in Ground and Surface Water from Agricultural Sources, and the Committee on Scientific Tools and Approaches for Sustainability, the Committee on improving Principles and Guidelines for Water Resources Planning by the U.S. Army Corps of Engineers.

Heather M. Leslie

Member

Dr. Heather M. Leslie is a Professor of Marine Sciences in the University of Maine's School of Marine Sciences. From August 2015 through May 2023, she served as Director of the University of Maine's marine laboratory, Darling Marine Center. Before arriving at UMaine, she was on the faculty at Brown University, as the inaugural Peggy and Henry D. Sharpe Assistant Professor. An interdisciplinary scholar of marine conservation science, Dr. Heather Leslie conducts research on the environmental and human dimensions of coastal community and ecosystem resilience. She studies the drivers of ecological and social processes in marine systems, and how to more effectively connect science to policy and management. Dr. Leslie has shared her science with decision makers from the local to international scale on topics that include marine ecosystem-based management, assessing conservation success, and marine protected area design. Dr. Leslie serves as the vice chair on the Board of the Nature Conservancy in Maine and previously served on the Board of the Nature Conservancy in Rhode Island. She has been recognized for her accomplishments through numerous honors and awards, including as an elected fellow of the American Association for the Advancement of Science, a Leopold Leadership Fellow, and a Storymaker Fellow. Dr. Leslie received her A.B. in biology from Harvard University and a Ph.D. in zoology from Oregon State University.

Pamela D. McElwee

Member

Pamela McElwee is a Professor of Human Ecology in the School of Environmental and Biological Sciences at Rutgers, The State University of New Jersey. Her research focuses on identifying solutions to climate change and biodiversity loss that help reduce vulnerabilities and increase human well-being. Her work spans the fields of anthropology, geography, ecology and environmental governance to understand how to build resilience for both people and nature. A particular geographic focus has been in Southeast Asia and particularly Vietnam, where she has worked for several decades on forest governance, climate adaptation, and the environmental legacies of war. She served as co-chair of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) "nexus assessment" examining interlinkages among biodiversity, water, food, health and climate, and is currently a lead author for Working Group 3 of the Intergovernmental Panel on Climate Change (IPCC) Seventh Assessment Report. She also served as chapter lead for ecosystems, biodiversity and ecosystem services for the Fifth US National Climate Assessment. McElwee was elected as an Andrew Carnegie Fellow (2019) and an Earth Leadership Program Fellow (2022). She received a joint Ph.D. in Forestry & Environmental Studies and Anthropology from Yale University. She previously served on the National Academies Committee to Review the Draft Chapters of the Biodiversity and Climate Change report.

Kirsten L. L. Oleson

Member

Dr. Oleson is a Professor of Ecological Economics at the University of Hawai'i at Manoa in the Department of Natural Resources and Environmental Management. Prior to joining UH, she worked at the World Bank reviewing environmental impact assessments, and with Blue Ventures Conservation in Madagascar, evaluating marine protected areas. She employs tools from economics, environmental engineering, and decision analysis to ensure the values of nature are considered in decision-making. She is a Pew Marine Conservation Fellow, and a Commissioner on the City and County of Honolulu Climate Commission. She has a PhD from Stanford's Interdisciplinary Program in Environment and Resources, an MS from Imperial College London in Applied Environmental Economics, an Ir from the Technical University of Delft in Civil and Environmental Engineering, and a BS from the University of Virginia in Civil and Environmental Engineering.

Rajul Pandya

Member

Rajul Pandya is a Professor of Practice in Mary Lou Fulton Teachers College and the Executive Director of the Global Futures Education Alliance at Arizona State University. Before that he worked at the American Geophysical Union and the National Center for Atmospheric Research. His work focuses on how science and science education can be more participatory, how community engagement guides and enriches discovery and application, and how scientists and science institutions can better support communities as they advance shared sustainability and their own wellbeing. Raj strives to build systems that invite all people—especially people from communities who have been left out in the past—to learn and work together to build futures where people and nature thrive. Raj serves on the advisory boards for the Anthropocene Alliance, Community and College Partners Program, ISET International, and the Aspen Institute for Global Change and is a member of the Scientific Advisory Council of the American Red Cross. He received his B.S. in physics from the University of Illinois, and a Ph.D. in Atmospheric Science from the University of Washington. For the National Academies, Raj serves on the Roundtable on Risk, Resilience, and Extreme Events, the Standing Committee on Advancing Science Communication, the Climate Crossroads Advisory Committee, and the Committee on Education for Thriving in a Changing Climate.

Timothy J. Sippel

Member

Dr. Sippel is a senior environmental scientist specializing in marine and aquatic ecology at Stantec. He brings 25+ years of experience, including as a scientist managing fisheries and fish populations for both state and Federal agencies. His background includes working as a technical advisor for salmon population management in the Columbia River, which involves working collaboratively with Pacific Northwest Tribes, a policy advisor to the Pacific Fishery Management Council, a scientist for international fishery stock assessments in the North Pacific Ocean, and a member of Oregon Governor's Stakeholder Advisory Panel for Marine Renewable Energy Development. He completed his PhD and Masters degrees in marine ecology in New Zealand. He was previously a member of the NAS Standing Committee on Offshore Wind and Fisheries.

David L. Skole

Member

David L. Skole is a professor of forestry and the director of the Global Observatory for Ecosystem Services in the Department of Forestry at Michigan State University. Prior to that he was a research professor at the Institute for the Study of Earth Oceans and Space at the University of New Hampshire. His research focuses on the role of forestry and agriculture in global climate change, geospatial information for sustainable development and natural resource management, and the application of Earth observations and geo-AI for global environmental change analytics. His current research is focused on systems of trees outside of forests in agroforestry, nature-based solutions to climate change, and nature finance. He is the chair of the United Nations Program on Global Observations of Forest Cover; past chair of the National Science Foundation Advisory Committee on Environmental Research and Education; and the International Geosphere Biosphere Programme's Core Project on Land Use and Cover Change. Dr. Skole was an advisor to the Forest Investment Program (World Bank Group) and led the development of its monitoring and reporting toolkit. He was formally recognized for his climate change research as an official member of the United Nation's Intergovernmental Panel on Climate Change that shared the 2007 Nobel Peace Prize. Dr. Skole earned a PhD in natural resources from the University of New Hampshire and a BA and an MS from Indiana University. He has been a member of several committees of the National Academies, including the Committee on Earth Science and Applications from Space, and the Committee to Review the Draft Fifth National Climate Assessment. He is currently the Chief Science Officer of IORA Nature Tech, a private firm that deploys measurement and monitoring platforms for nature finance.

Jeremy Spoon

Member

Jeremy Spoon is a Research Professor of Anthropology at Portland State University (PSU), and was the founding director of the Emergency Management and Community Resilience graduate program. Since 1997, he has collaborated with Indigenous and rural peoples and government agencies on applied research related to local knowledge, nature conservation, protected areas, disaster recovery, development, cultural heritage preservation, and public education in the western United States, Nepal, Germany, Hawai'i, and Kenya. Funded by the U.S. National Science Foundation and other federal agencies, Dr. Spoon's research utilizes participatory approaches and aims to operationalize outcomes progressively and pragmatically. He is an active member of various commissions for the International Union for the Conservation of Nature. In 2019, Dr. Spoon and his team were awarded the Hackenberg Award from the Society of Applied Anthropology. In 2021, Dr. Spoon won with the Junior Scholar Award given to one faculty member across PSU, and in 2022, he and his collaborators received a Partnership Award from the U.S. Forest Service. Dr. Spoon's students also voted him Most Outstanding Teacher four times. He has an B.A. in Ethnic Studies from the University of Michigan and an M.A. and Ph.D. in Cultural Anthropology from the University of Hawai'i at Manoa.

Lisa A. Wainger

Member

Dr. Lisa Wainger is a research professor of environmental economics at the University of Maryland Center for Environmental Science, where she has spent more than two decades advancing tools that link ecological change to social and economic outcomes. Her work integrates ecological modeling, economic valuation, and decision science to help agencies and communities evaluate the costs, benefits, and risks of environmental restoration and protection. She is widely recognized for pioneering methods that incorporate landscape configuration into economic analyses and for developing non-monetary benefit indicators that clarify tradeoffs in natural resource policy. Her research frequently supports government agencies, including long-standing collaborations with the US Army Corps of Engineers and the Maryland Port Authority, where she applies findings from economics to enhance environmental programs. She uses multiple analytic tools including integrated modeling of ecosystem and social behaviors to test policy effectiveness for such topics as water quality, invasive species, wetland restoration, climate vulnerabilities of oyster aquaculture, and socially equitable flood risk management. She serves on numerous governmental and non-governmental organizations' science advisory boards including the California Delta Independent Science Board, the Hughes Center for AgroEcology Research Advisory Board, the Great Lakes Research Institute advisory board, the Maryland Governor's Science Advisory Panel, and she previously served as chair for the Chesapeake Bay Program's Scientific and Technical Advisory Committee (STAC). She holds a B.S. in Earth science from the University of California, Santa Cruz, and a Ph.D. in Environmental and Ecological Economics from the University of Maryland, College Park.

Daniel Wildcat

Member

Daniel R. Wildcat is a Yuchi member of the Muscogee Nation of Oklahoma. He is an Indigenous scholar, writer, and professor of Indigenous and American Indian Studies at Haskell Indian Nations University. In 2013 he was the Gordon Russell visiting professor of Native American Studies at Dartmouth College. He is a noted speaker on Traditional Ecological Knowledges. He is currently the Principal Investigator for the Rising Voices, Changing Coasts Hub at Haskell. He is the author and editor of several books: *Power and Place: Indian Education In America*, with Vine Deloria, Jr.; *Destroying Dogma: Vine Deloria's Legacy on Intellectual America*, with Steve Pavlik; *Red Alert: Saving the Planet with Indigenous Knowledge*, and *On Indigenuity: Learning The Lessons Of Mother Earth* which argues we need Indigenous ingenuity or Indigenuity to address the destructive character of the Anthropocene. Dr. Wildcat received an interdisciplinary Ph.D. at the Block School of Public Administration and Business from the University of Missouri at Kansas City. He served as a planning committee member for the workshop, Higher Education Transformative Climate Action.

Liz Willetts

Member

Liz Willetts is an independent Expert and Consultant with experience advising and authoring landmark planetary health works for the International Institute for Sustainable Development, the World Health Organization, the Convention on Biological Diversity (CBD), the World Bank, the UN Economic and Social Commission for Asia and the Pacific, and the Harvard TH Chan School of Public Health. She also contributes as a freelance Newsdesk writer for the Lancet Planetary Health. She is a family Medicine Clinician (PA) with a 10-year background in community public health and medicine in marginalized and Indigenous populations and a science policy expert on health in multilateral environmental agreements with 18 years' experience tracking international diplomacy and law. Liz drafted the UN CBD Global Action Plan on Biodiversity and Health negotiated and adopted in 2024 by 196 countries. She is a past lead on Nature and Mental Health for IUCN CEM Human Health Thematic Group and a current member of IUCN Medicinal Plant Specialist Group. She is also a life member of the Council on Foreign Relations since 2024. Liz holds a B.A. in biology from the University of Pennsylvania, an MEM in environmental economics and policy from Duke University and an MMSc from Emory University School of Medicine.