NATIONAL ACADEMY OF SCIENCES

THE ROYAL SOCIETY

US-UK SCIENTIFIC FORUM ON

Measuring Biodiversity for Addressing the Global Biodiversity Crisis

MAY 21–22, 2025

WASHINGTON, D.C.

ORGANIZING COMMITTEE CO-CHAIRS

Gene Robinson and
William Sutherland

COMMITTEE MEMBERS

Neil Burgess, Scott Edwards, Julia P.G. Jones,
Pamela Soltis, David Tilman

Assessing biodiversity is fundamental to understanding the distribution of biodiversity, the changes that are occurring and, crucially, the effectiveness of actions to address the ongoing biodiversity crisis. Such assessments face multiple challenges, not least the great complexity of natural systems, but also a lack of standardized approaches to measurement, a plethora of measurement technologies with their own strengths and weaknesses, and different data needs depending on the purpose for which the information is being gathered. Other sectors have faced similar challenges, and the forum will look to learn from these precedents with a view to building momentum toward standardized methods for using environmental monitoring technologies, including new technologies, for particular purposes. The forum will explore ways to ensure interoperability between different outputs and confidence that observed changes in biodiversity are the result of real changes in what is being measured and advance the integration of biodiversity monitoring with evaluation to help ensure conservation at a variety of scales can be more effective.

AGENDA

TUESDAY, MAY 20

7:00–8:30pm **Welcome Reception**

Matera Restaurant, The River Inn

WEDNESDAY, MAY 21

8:00–8:45am **Breakfast**

NAS West Court

8:45–9:00am **Welcome Remarks**

NAS Room 120

Marcia McNutt, President, National Academy of Sciences

Gene Robinson, Forum Co-Chair, National Academy of Sciences

William Sutherland, Forum Co-Chair, The Royal Society

9:00–11:30am **Introductory Session**

Session Chair: William Sutherland, Director of Research, Department of Zoology, University of Cambridge

9:00–9:05am **Welcome remarks by the session chair**

9:05–9:20am **What exactly do we mean by "biodiversity"?**

Speaker: Andy Purvis, Research Leader, Natural History Museum; Research Investigator, Imperial College London

9:20–9:35am **Why is there concern about biodiversity? What are the spatial and temporal scales for the environmental impacts of changes in biodiversity?**

Speaker: David Tilman, Regents Professor and McKnight Presidential Chair in Ecology, University of Minnesota, and Distinguished Professor, University of California, Santa Barbara

9:35–10:30am **Who needs to use the measurements?**

Speakers:

María Cecilia Londoño Murcia, Investigator, Alexander von Humboldt Institute Colombia

Sallie Bailey, Chief Scientist, Natural England

Cristián Samper, Managing Director and Leader for Nature Solutions, Bezos Earth Fund

Marco Lambertini, Convener, Nature Positive Initiative

10:30–11:10am **Breakout group discussion**

11:10–11:30am **Group discussion**

11:30–11:45am **Break**

11:45am–3:00pm **Session 1: What Are the Problems?**

Session Chair: Neil Burgess, Chief Scientist, United Nations Environment Programme's World Conservation Monitoring Centre, and Professor, Center for Macroecology, Evolution and Climate University of Copenhagen

This session will highlight the limitations with the way that biodiversity is currently being measured, as well as the needs of different communities for biodiversity measurement. The kinds of problems that the "system" faces at present are (1) the scale of measurement against scale of use, (2) gaps in coverage for many types of monitoring (both spatial and taxonomic gaps), (3) challenges of having data to see temporal changes beyond birds and large mammals in some parts of the world, (4) many systems in place but no "System," and (5) how to put local and Indigenous Knowledge about the state of biodiversity alongside that coming from scientist observations and (increasingly) machines.

11:45–11:50am **Welcome remarks by the session chair**

11:50am–1:00pm **Speaker presentations**

Speakers:

Barnabas Daru, Assistant Professor, Stanford University

Iroro Tanshi, Postdoctoral Scholar, University of Washington

Nick Isaac, Macroecologist and Head of Biodiversity Monitoring and Analysis, UK Centre for Ecology and Hydrology

Cristina Eisenberg, Associate Dean for Inclusive Excellence, Maybelle Clark Macdonald Director of Tribal Initiatives in Natural Resources, Oregon State University College of Forestry

James O'Dwyer, Associate Head and Associate Professor, Plant Biology, University of Illinois Urbana-Champaign

1:00–2:00pm **Lunch**

2:00–2:40pm **Breakout groups**

2:40–3:00pm **Group discussion**

3:00–3:15pm **Break**

3:15–5:30pm **Session 2: Making Measurements Matter**

Session Chair: Julia P.G. Jones, Professor in Conservation Science, School of Environmental and Natural Sciences, Bangor University

This session will focus on ensuring biodiversity measurement can be used to answer conservation questions and contribute to improved biodiversity outcomes. We will first explore how biodiversity measurement provides a key gauge in the dashboard of metrics informing conservation practice. Drawing on examples from a combined expert-led and citizen-science monitoring scheme (bird monitoring in the United Kingdom), we will explore the distinction between using data to chart change and to seek solutions. We will then discuss how a nature technology company is combining eDNA, remote sensing and artificial intelligence (AI) to deliver meaningful metrics to support the different data needs of stakeholders such as those working on adaptive management of land or sea or those interested in corporate reporting. We will discuss how remotely sensed data and detailed measurements from the world's millions of herbarium specimens can be integrated to revolutionize monitoring of vegetation. Finally, we will discuss how AI is helping to synthesize biodiversity data and knowledge to advance evidence-based conservation practice.

3:15–3:20pm **Welcome remarks by the session chair**

3:20–4:25pm **Speaker presentations**

Nick Salafsky, Executive Director, Foundations of Success

Philipp Boersch-Supan, Principal Ecological Statistician, British Trust for Ornithology

Kat Bruce, Founder and Director, NatureMetrics

Jeannine Cavender-Bares, Professor of Organismic and Evolutionary Biology, Director of the Harvard University Herbaria, Harvard University

Anil Madhavapeddy, Professor of Planetary Computing, University of Cambridge

4:25–5:05pm **Breakout groups**

5:05–5:25pm **Group discussion**

5:25pm **Day 1 Adjourn**

5:30–6:00pm **Reception**
NAS Members' Center

6:00–7:30pm **Dinner**
NAS West Court

THURSDAY, MAY 22

8:00–8:40am **Breakfast**
NAS West Court

8:40–8:45am **Welcome to Day 2 from the Forum Co-Chairs**
NAS Room 120

8:45–10:45am **Session 3: Interoperability of Biodiversity Measurements**

Session Chair: Harris Lewin, Research Professor, Arizona State University, and Distinguished Professor Emeritus of Evolution and Ecology, University of California, Davis

This session will focus on how to ensure that measurements of biodiversity, capturing different facets and using different methods, in some cases for different purposes, will be interoperable. To guide thinking, we will consider examples from disciplines, such as genomics, that have successfully developed approaches to standardization and integration. Speakers will address the challenges of standardization faced in their fields and how they have achieved integration and interoperability as a guide to how this might be accomplished for biodiversity measurements. The role of artificial intelligence in collecting, mining, and integrating data will be explored.

8:45–8:50am **Welcome remarks by the session chair**

8:50–9:45am **Speaker presentations**

Speakers:

Harris Lewin, Research Professor, Arizona State University, and Distinguished Professor Emeritus of Evolution and Ecology, University of California, Davis

Mark Blaxter, Programme Lead, Tree of Life Programme, and Senior Group Leader, Wellcome Sanger Institute

Christina Grozinger, Publius Vergilius Maro Professor of Entomology and Director, Huck Institutes of the Life Sciences, Pennsylvania State University

Oisin Mac Aodha, Reader in Machine Learning, University of Edinburgh

9:45–10:25am **Breakout groups**

10:25–10:45am **Group discussion**

10:45–11:00am Break

11:00am–2:00pm **Session 4: Delivering Change**

Session Chair: Scott Edwards, Alexander Agassiz Professor of Organismic and Evolutionary Biology, Curator of Ornithology, Museum of Comparative Zoology, Harvard University

This session will explore how on-the-ground fieldwork and global surveys of biodiversity can inform conservation frameworks, our understanding of ecosystem services, and specific, targeted conservation goals. Through a range of case studies, from field studies of individual species to global analyses of the geography and scale of historical biodiversity change, the talks will address diverse ways of bending the curve back to sustainability. We will end with a discussion of how our understanding of biodiversity changes in space and time can be translated into policy, including nature-based climate solutions, better management of fragile ecosystems, or implementing conservation plans for particular species.

11:00–11:05am **Welcome remarks by the session chair**

11:05am–12:00pm **Speaker presentations**

Speakers:

Winifred Frick, Chief Scientist, Bat Conservation International

Andrew Gonzalez, Professor and Liber Ero Chair in Biodiversity, Department of Biology, McGill University, and Co-Chair of GEO BON

Ron Milo, Professor of Systems Biology, Weizmann Institute of Science

Ann Bartuska, Senior Advisor, Resources for the Future

12:00–1:00pm Lunch

1:00–1:40pm **Breakout groups**

1:40–2:00pm **Group discussion**

2:00–2:10pm Break

2:10–3:00pm **Forum Wrap-Up**

FORUM PARTICIPANTS

Julie M. Allen, Assistant Dean of Advancement, Virginia Tech

Herizo Andrianandrasana, Research Fellow, University of Helsinki

Cathrine Armour, Global Director of Data Initiatives, Task Force on Nature Related Disclosures

Tom August, Computational Ecologist, UK Centre for Ecology and Hydrology

Kamal Bawa (NAS), Distinguished Professor of Biology, University of Massachusetts Boston, President Emeritus, ATREE, Bangalore

Tanya Birch, Senior Program Manager, Google Geo Sustainability

Becky Chaplin-Kramer, Global Biodiversity Lead Scientist, World Wildlife Fund

Q"Apaj Conde, Associate Programme Management Officer, Secretariat of the Convention on Biological Diversity

Adriana De Palma, Principal Researcher, Natural History Museum, London

Chris Elphick, Professor, University of Connecticut

Rob Freckleton, Chair in Population Biology, Head of School, School of Biosciences, University of Sheffield

Scott Goetz, Regents Professor, Northern Arizona University

Don Hankins, Professor of Geography and Environmental Studies, California State University, Chico

Gideon Henderson, Chief Scientific Adviser, Defra

E.J. Milner-Gulland, Tasso Leventis Professor of Biodiversity, Oxford University

Robert Pringle, Professor, Princeton University

Amy Rosenthal, Senior Global Director, Conservation Initiatives, Planet

Heather Tallis, Senior Fellow, Center for Coastal Climate Resilience, University of California, Santa Cruz

Varsha Vijay, Technical Director, Science Based Targets Network

Martin Wikelski, Director, Department of Migration, Max Planck Institute of Animal Behavior

David Williams, Associate Professor in Sustainability and the Environment, University of Leeds

Hollis Woodard, Associate Professor of Entomology, University of California, Riverside

Biographies

Julie M. Allen

Julie M. Allen is an Assistant Professor in the Department of Biological Sciences at Virginia Tech, specializing in evolutionary biology and bioinformatics. Her research focuses on understanding the evolutionary, ecological, and biogeographic patterns that shape biodiversity, integrating various data types such as morphology and genetics to uncover these patterns. Julie led the DNA and bioinformatics group of Team Waponi, which won the $5 million XPRIZE Rainforest competition in 2024 for developing autonomous technology to rapidly identify rainforest biodiversity.

Herizo Andrianandrasana

Herizo Andrianandrasana, a conservation practitioner from Madagascar, is a postdoctoral researcher in conservation science at the Department of Geosciences and Geography at the University of Helsinki. Previously, he was a Research Fellow at the University of Warwick and a civil servant overseeing environmental management in two regions of Madagascar. He also worked with Durrell Wildlife Madagascar on ecological monitoring and protected areas. He received his DPhil from the University of Oxford, where he studied the effectiveness of community-based conservation in conserving biodiversity, protecting ecosystem services, and improving human well-being in Madagascar.

Herizo has devoted his time to designing methods of community-based conservation and participatory ecological monitoring to achieve conservation success in developing countries. He is particularly involved in studying the role that can be played by local communities and stakeholders in conservation and monitoring toward the sustainable management of natural resources. Herizo has received the 2014 Tusk Award from HRH Prince William and the 2006 Ramsar Crane Bank Award.

Cathrine Armour

Cathrine Armour is the Global Director of data initiatives for the Task Force on Nature Related Disclosures. Previously she was the Chief Responsible Investment Solutions Officer for the Principles for Responsible Investment (PRI). Leading the delivery of PRI's 2023 Reporting Cycle, a 98.5% uptake of members reporting was achieved following the redesign of the reporting framework, reporting tool, and data platform.

Cathrine is a seasoned leader of strategic, policy-centric organizations, leveraging science and technology to achieve cross-cutting innovation and research. During her tenure as the Chief Customer Officer at the UK Hydrographic Office, Cathrine led the organization's global commercial portfolio, realizing annual revenues of more than £160 million and delivering marine data solutions that support safe, secure, and thriving oceans.

Having founded her career in geospatial data and technology, she is an advocate for open data and committed to the value of data in answering mission-critical questions in global policy development and decision making, including commercialization and economic development. This has included establishing the Southwest Centre of Excellence for Satellite Applications as the inaugural Director, founding Ordnance Survey's award-winning Geovation accelerator and hub and leading the international Eye on Earth program for global cooperation in the use and access of environmental data for sustainable development.

Cathrine holds a BSc in environmental studies from James Cook University, a postgraduate certificate in business and technology from the University of New South Wales, and studied sustainability, leadership, and impact at Said Business School at the University of Oxford. She is a Fellow of the Royal Geographical Society and presently serves as an Advisory Board Member for the National Centre for Earth Observation and as an Independent Member of the Board of Governors at Falmouth University. Currently, she is completing an MS in applied positive psychology. Her academic interest lay at the nexus of activist leadership, decision intelligence, and environment and society.

Tom August

Tom August's research focuses on the application of new methods and technologies to biodiversity monitoring. His interests span the fields of ecology, computer science, engineering, and citizen science.

Tom started his career as a field ecologist studying the behavioral ecology of bats. Over subsequent decades he has increasingly focused on how new technologies can improve the quality and quantity of the biodiversity information available, as well as increase access to these data. Tom has used high-performance computing, drones, smartphone applications, computer vision, and large language models to support his research in biodiversity monitoring.

His recent projects focused on supporting citizen scientists to monitor the environment, creating tools to support stakeholder's access to biodiversity information, developing large-scale computing workflows to support long-term national scale analysis, and the development of hardware systems to monitor insects, including computer vision tools for interpreting outputs. Tom leads a diverse team of engineers, computer scientists, and ecologists, working at the intersection of multiple fields to undertake interdisciplinary science that benefits nature conservation.

Tom places a high value on knowledge exchange activities and is involved in a number of national and international networks with ambitions to share and better understanding of how technology can support comprehension of the natural world. Tom currently chairs the COST Action network InsectAI, which aims to grow and share knowledge in Europe on methods for imaging and identifying insects using novel sensors and artificial intelligence techniques.

Sallie Bailey

Sallie Bailey is the Chief Scientist at Natural England, the UK government's adviser for the natural environment in England. She leads the Chief Scientist's Directorate to ensure science, evidence, and expertise are at the heart of decision making, partnerships, and community action to achieve nature recovery.

Previously, she was the Deputy Chief Science Advisor for the Scottish government in the areas of environment, natural resources, and agriculture, bringing scientific evidence to the center of decision making and policy. She developed the First Minister's Environmental Council to advise the Scottish government on international best practice and response to the climate emergency and ecological decline. She has experience working internationally, with the European Union, the United Kingdom, and in Scotland across science, evidence-based policy, regulation, and delivery within the spheres of natural resource management, biodiversity, and the environment.

Sallie has held leadership roles in the UK state forestry sector, is a fellow of the Institute of Chartered Foresters, and holds an Honorary Professorship at the University of Stirling. Following her MSc in GIS and remote-sensing and PhD in woodland ecology and biodiversity loss at the University of Nottingham, she completed a postdoctorate at the Center for Conservation Biology at Stanford University considering biodiversity and natural capital.

Ann Bartuska

Ann Bartuska is a Senior Advisor at Resources for the Future and a Senior Contributing Scientist with the Environmental Defense Fund. Ann served as the Deputy Under Secretary for Research, Education and Economics (REE) within the U.S. Department of Agriculture (USDA) from 2010 to September 2017. She also held the position of Acting Under Secretary for REE and Acting Chief Scientist for USDA from December 2016 until her departure. Prior to that, she was the Deputy Chief for Research and Development at the U.S. Forest Service, which she held from 2004 to 2010. She held numerous positions with the U.S. Forest Service, including Director of the Forest and Rangeland Management staff and Director of the Forest Health Protection staff. Ann is a long-standing member of the Ecological Society of America and has served the Vice President, Public Affairs, and then President, the latter in 2003. She recently served on the Wildland Fire Mitigation and Management Commission and is the Board Chair of the Pacific Forest Trust. Ann was also recently named to the National Academies of Sciences, Engineering, and Medicine's Division on Earth and Life Studies advisory committee.

Kamal Bawa

Kamal Bawa is a Distinguished Professor Emeritus of biology at the University of Massachusetts Boston and the Founder-President of the Ashoka Trust for Research in Ecology and the Environment, one of India's top-ranked environmental think tanks, based in Bangalore. During the past five decades, he has done extensive work in Central America, the Himalayas, and the Western Ghats on a wide range of issues from biodiversity conservation to climate change, publishing more than 230 papers and 10 books.

Among the many awards he has received are the Bullard Fellowship at Harvard University, the Guggenheim Fellowship, Pew Scholar in Conservation and the Environment, Giorgio Ruffolo Fellowship at Harvard University (2009), the Gunnerus Prize in Sustainability Science from the Royal Norwegian Society of Letters and Sciences, the international MIDORI Prize in Biodiversity from the Aeon Foundation in Japan, the Linnean Medal, and honorary doctorates from the University of Alberta and Concordia University in Montreal. He is an elected Fellow of the American Academy of Arts & Sciences, the Royal Norwegian Society of Letters and Sciences, the Royal Society, the American Philosophical Society, and the National Academy of Sciences. Kamal is the founding Editor of two interdisciplinary journals: *Conservation and Society* and *Ecology, Economy and Society.* His latest coffee table book, Himalaya: The Mountains of Life, a companion volume to *Sahyadri: India's Western Ghats,* was published in 2013.

Tanya Birch

Tanya Birch is a Senior Program Manager at Google, using its mapping technology, artificial intelligence (AI) capabilities, and cloud platform to help monitor ecosystems and biodiversity. She leads the Nature program within Geo Sustainability, which catalyzes positive environmental impact at scale using Google's understanding of the real world.

She works with leading public- and private-sector organizations in applying technology to address nature-based solutions to climate change. She leads Google's role in the Forest Data Partnership, a collective approach to halting commodity-driven deforestation. She led the program management of Dynamic World, a novel deep learning AI approach to land cover mapping with the World Resources Institute and is a founding technology partner of Wildlife Insights, a global platform for biodiversity monitoring with seven leading conservation organizations. She is also responsible for bringing elephants into Google Street View with Save the Elephants.

Prior to Google, she researched and mapped human elephant conflict with the Sri Lanka Wildlife Conservation Society. She holds a BA in geography and environmental studies from the University of California, Santa Barbara.

Mark Blaxter

Mark Blaxter leads the Sanger's Tree of Life program, which is generating and analyzing reference genome sequences from many thousands of species across the tree of life. The initial focus has been on the eukaryotic biota of Britain and Ireland (Darwin Tree of Life Project), the genomes of symbiotic organisms (Aquatic Symbiosis Genomics Project), and international initiatives under the umbrella of the Earth BioGenome Project. His research portfolio focuses on the genomics of neglected, non-model organisms and the interpretation of those genomes in ecological and evolutionary contexts (including inter alia, parasitic and free living nematodes, tardigrades, gastropod and bivalve molluscs, butterflies, bees, flies, birds, algae, fungi, and bacteria). Before joining Sanger, he was a Professor of evolutionary genomics at the University of Edinburgh. He was elected a Fellow of the Royal Society of Edinburgh in 2014.

Philipp Boersch-Supan

Philipp Boersch-Supan is the Principal Ecological Statistician at the British Trust for Ornithology (BTO), where he leads a team of statisticians and quantitative ecologists who champion robust data analysis in conservation science. He oversees the development and implementation of new statistical techniques and leads a program of research covering topics such as the design of biodiversity surveys, analyses of large-scale and long-term datasets, and the evaluation of monitoring technology.

Recent applications have had a strong focus on integrating biodiversity monitoring and/or life-history data from multiple data sources to better understand avian population dynamics in changing climates and landscapes and on understanding the strengths and weaknesses of sensor-based monitoring technologies, particularly in the context of offshore renewable energy developments.

Philipp joined BTO following a PhD from the University of St Andrews and postdoctoral appointments at the British Antarctic Survey, the University of South Florida, and the University of Florida. He is a guest lecturer in applied ecology at Cambridge University and a fellow of the UK Software Sustainability Institute.

Catharine (Kat) Bruce

Kat Bruce is a biodiversity scientist and the Founder of NatureMetrics Ltd. She holds a BSc in wildlife biology, an MRes in entomology, and a PhD in molecular ecology and is a leading expert in the use of environmental DNA for biodiversity assessment. In 2014, Kat founded NatureMetrics to put these powerful new tools into the hands of those who are tasked with measuring, monitoring, and mitigating impacts on nature. NatureMetrics now works with clients and partners all around the world, providing biodiversity data at unprecedented scales to inform decision making, drive effective conservation, and enable a new era of transparency and accountability when it comes to our impact on the natural world.

Kat's particular interest lies in how to bring together the worlds of rigorous science, evolving technology, and emerging policy to drive forward advances in the capacity to monitor the natural world. From 2016 to 2021, Kat led a working group of more than 300 within the EU COST Action project DNAqua-net, publishing best practice guidance for the use of DNA monitoring tools for aquatic biomonitoring in Europe and beyond.

Neil Burgess

Neil Burgess is the Chief Scientist at the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP-WCMC) in Cambridge (United Kingdom). UNEP-WCMC has 245 staff and works at the science, policy, and implementation interface. Neil is also a part-time Professor of conservation biology at the University of Copenhagen's Center for Macroecology, Evolution and Climate in Denmark, where he supervises postdocs and PhD and master's students. He has published more than 250 scientific papers, which have been cited more than 60,000 times. Neil is equally proud of his work running field conservation projects in Africa, mainly Tanzania, for more than 20 years and the conservation capacity that he helped create over a 30-year period in Africa, Denmark, and the United Kingdom.

Jeannine Cavender-Bares

Jeannine Cavender-Bares is a Professor of organismic and evolutionary biology at Harvard University and the Director of the Harvard University Herbaria. Her research explores how plant physiology and evolution shape species interactions and ecosystem functions. Her team is developing methods to scale up spectral data from plants, including herbarium specimens, to improve global knowledge of plant function and biodiversity. She is dedicated to international efforts to monitor and assess biodiversity and ecosystem services toward sustainability. Currently, she serves as the Director of the National Science Foundation's Biology Integration Institute, ASCEND, Advancing Spectral Biology in Changing Environments to Understand Diversity. She is also the Vice President for Finance of the Ecological Society of America and a member of the American Academy of Arts & Sciences.

Becky Chaplin-Kramer

Becky Chaplin-Kramer is the Global Biodiversity Lead Scientist for the World Wildlife Fund (WWF) , working across the WWF network and with external partners to advance the science and implementation of conservation strategies to support biodiversity and its myriad contributions to people's well-being. Prior to WWF, Becky was a lead scientist for the Natural Capital Project, where she led research on global ecosystem service assessment, linking earth observations with ecosystem service modeling, and developing tools to integrate nature's values into decision-making. Throughout

her career, Becky has worked with governments, NGOs, and companies worldwide on ecosystem service assessments, scenario development, and prioritization.

Q"apaj Conde

Q"apaj Conde is the Associate Programme Management Officer at the Secretariat of the Convention on Biological Diversity. Previously, he served as the Indigenous Fellow in the World Intellectual Property Organization (2013–2014) and a Legal Officer in the Centro de Estudios Multidisciplinarios-Aymara (2016–2017). He holds a law degree from the Universidad Mayor de San Andrés (Bolivia), a Master of Laws from the University of Seville (Spain), and a Doctor of Juridical Sciences from the University of Arizona (United States).

Barnabas Daru

Barnabas Daru is an Assistant Professor of biology at Stanford University, whose research leverages interdisciplinary approaches in biodiversity informatics, herbarium collections, biogeography, phylogenetics, and genomics to address fundamental questions on the ecology and biogeography of plants. Before joining Stanford, Barnabas was a postdoc at Harvard University, where he leveraged the biological collections of plants at the Harvard University Herbaria along with biodiversity informatics to investigate changing species distributions and conservation biogeography of vascular plants along ecological scales. He completed his undergraduate studies in zoology at the University of Jos in Nigeria and earned his PhD in botany at the University of Johannesburg in South Africa. Barnabas has made important contributions to the field by identifying important patterns about the way plant species are distributed across landscapes and seascapes, and how this information can be useful for setting conservation priorities. Beyond his research, he has served as the Associate Editor for the *American Journal of Botany* and a Reviewing Editor for *eLife*. His work in plant diversity has earned him several awards, including recognition as an Alfred P. Sloan Fellow, elected Fellow of the Linnean Society of London, and invitations to present at prestigious venues, including the Vicki Funk Lecture for the International Biogeography Society. Now the Daru laboratory uses emerging techniques in biodiversity informatics, digital specimen accessibility, and mathematical models to explore the processes underlying patterns of biodiversity. Barnabas proposed that patterns of biodiversity can be underpinned by at least four evolutionary processes: dispersal, extinction, speciation, and niche conservatism. His research focuses on differentiating among these processes to uncover the mechanisms that generate, distribute, and maintain biodiversity. His long-term goal is to illuminate how biodiversity is shaped, maintained, and impacted in the Anthropocene—an era defined by profound human influence on the planet.

Adriana De Palma

Adriana De Palma is a Principal Researcher at the Natural History Museum in London and the Co-Lead of the Biodiversity Futures Lab. Her work focuses on computational ecology, using large datasets and data science approaches to understand the impacts of human activities on terrestrial biodiversity. Key current projects include the ongoing development and implementation of the Biodiversity Intactness Index (BII) and work on the National Education Nature Park Project, which aims to improve access to nature for schoolchildren in England. Adriana regularly engages with the public and policymakers to share NHM science. She has contributed to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services in various roles, including as the lead author for the Nexus Assessment and currently as an expert on the Data and Knowledge Management Task Force. Her other research interests include integrating social equity into biodiversity indicators and understanding the relationship between biodiversity and human well-being.

Scott Edwards

Scott Edwards is the Alexander Agassiz Professor of Zoology and the Curator of ornithology in the Museum of Comparative Zoology at Harvard University. Scott is an evolutionary biologist, with diverse interests in molecular evolution, phylogenetics, comparative genomics, and population genetics. His research uses birds as model systems, focusing on their evolutionary history, phylogeography, genome evolution, and genetic diversity. His current work focuses on using phylogenetic trees and statistical models to link genomic and phenotypic variation. Scott has served as the President of the Society for the Study of Evolution and the Society of Systematic Biologists, and has served on National Geographic's Committee for Research and Exploration and the Advisory Boards of the National Museum of Natural History (Smithsonian) and the Cornell Lab of Ornithology. From 2013 to 2015 Scott served as the Division Director of the Division of Biological Infrastructure at the National Science Foundation, where he facilitated funding in areas such as undergraduate research experiences, supporting biological collections, major infrastructure, and bioinformatics. He was elected to the National Academy of Sciences in 2015 and is also a member of the American Academy of Arts & Sciences, the American Philosophical Society, and the American Association for the Advancement of Science.

Cristina Eisenberg

Cristina Eisenberg is the Associate Dean for inclusive excellence and the Maybelle Clark Macdonald Director of Tribal Initiatives in the College of Forestry at Oregon State University (OSU). Cristina is a Professor who specializes in Indigenous Knowledge, with a PhD in forestry and wildlife. As a Native American (Raramuri and Western Apache) and Latinx ecologist, she is the lead principal investigator

on several long-term, federal projects with Native American communities that incorporate Indigenous Knowledge and Western science in ecocultural restoration of forests and grasslands in North America. At OSU she is leads the Indigenous Natural Resource Office and the Traditional Ecological Knowledge Lab.

Chris Elphick

Chris Elphick is a Professor of conservation biology in the Department of Ecology and Evolutionary Biology at the University of Connecticut. His research centers around describing, understanding, and mitigating biodiversity loss. Members of his lab group have conducted research on birds in coastal marshes, forest fragments, farmland, and montane shrublands. Past book-length projects include the *Sibley Guide to Bird Life and Behavior,* the *Atlas of the Breeding Birds of Nevada,* and the *Ecology and Conservation of Birds in Rice Fields: A Global Review*. His current research includes understanding long-term changes in coastal salt marshes along the U.S. Atlantic Coast and the efficacy of management actions to mitigate losses, the use of data collected by the public to understand biodiversity change and guide conservation planning, and the synthesis of information on insect population change through the international Status of Insects Research Coordination Network.

Rob Freckleton

Rob Freckleton is an ecologist and evolutionary biologist based at the University of Sheffield. His work revolves around data-driven modeling of ecological systems to address problems that span spatial and temporal scales. He developed methodologies for large-scale monitoring of plant communities and applied this to improve understanding of the drivers of evolved resistance in pest populations. Rob's current research explores the evolution of ecological interactions by harnessing advanced analytical methods that integrate phylogenetic and spatial data. His group recently applied this approach to modeling large-scale temporal trends in biodiversity. His work in community ecology explores the stabilizing processes that sustain hyperdiversity in tropical forests. Previously, Rob looked at the impact of harvesting on a variety of forest species, including edible palms and brazil nuts, revealing the dangers of overexploitation for the long-term viability of populations. He also explored the drivers of diversity in tropical forests. Looking forward keen to explore how the mechanisms that drive diversity have changed in human-altered forests. He is also investigating the role of climber cutting in rainforest restoration programs for carbon stocking, timber yields, and biodiversity, having co-led a research team in developing a replicated climber-cutting experiment in the heavily logged forests of Sabah, Malaysia.

Winifred Frick

Winifred Frick is the Chief Scientist at Bat Conservation International and an Adjunct Professor in ecology and evolutionary biology at the University of California (UC), Santa Cruz. At Bat Conservation International, she directs high-priority research to achieve conservation outcomes for bats. With nearly 1,500 species, bats are the second most diverse group of mammals on Earth, yet the forces of global change threaten many species. Winifred works worldwide to study and protect bats, using conservation evidence and actionable science. She received her BA in environmental studies from UC Santa Cruz and her PhD in forest science at Oregon State University.

Scott Goetz

Scott Goetz is the Regents Professor in the School of Informatics, Computing and Cyber Systems at Northern Arizona University. For more than 30 years, he has conducted satellite remote-sensing research for environmental science applications. Scott has both organized and served on numerous working groups for the Intergovernmental Panel on Climate Change, the United Nations programs on Reducing Emissions from Deforestation and Forest Degradation, the U.S. Global Change Research Program, the National Academy of Sciences, as well as National Aeronautics and Space Administration (NASA) and National Science Foundation programs on arctic and carbon cycle science, climate change, terrestrial ecology, and biodiversity. He is the Science Lead of NASA's Arctic Boreal Vulnerability Experiment and the Deputy principal investigator of NASA's Global Ecosystem Dynamics Investigation (a LiDAR mission on the International Space Station). He has authored more than 250 refereed publications that have been cited more than 50,000 times, is a Thompson Reuters Highly Cited Researcher in the Cross-Field (interdisciplinary) and Environmental Science categories, a Stanford Ranking highly cited scientist, and is included in the Reuters Hot List of Most Influential Climate Scientists. His research has been covered by numerous new agencies (including *The New York Times* and National Public Radio), popular magazines (e.g., *National Geographic, Scientific American*), and science news venues (e.g., *Nature, Science*). He was awarded a Fulbright Research Scholarship in Toulouse, France, and received NASA team awards for interdisciplinary science. Between 2002 and 2015 he was a Senior Scientist at the Woods Hole Research Center, including 5 years as the Deputy Director. He is a Fellow of the American Geophysical Union, the Editor in Chief of *Environmental Research Ecology,* an Executive Board Member of Environmental Research Letters, and served 10 years as an Associate Editor of *Remote Sensing of Environment*. He has supported and mentored dozens of early-career scientists and graduate students.

Andrew Gonzalez

Andrew Gonzalez is a Professor and the Liber Ero Chair in Biodiversity Conservation in the Department of Biology at McGill University. He is a Fellow of the Royal Society of Canada. He is the founding Director of the Quebec Centre for Biodiversity Science, a network of 15 universities connecting 600 researchers and trainees. He is the Co-Chair of the Group on Earth Observations Biodiversity Observation Networks, an international network dedicated to the coordination and delivery of biodiversity observations to support policy. He is the Co-Chair of the international assessment on monitoring biodiversity for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. In 2018, he co-founded the biodiversity consultancy Habitat that provides biodiversity data, science, and tools to organizations and businesses in the public and private sector.

His research addresses (1) the causes and consequences of biodiversity change, (2) rapid evolution in changing environments, and (3) the application of conservation science to the planning and prioritization of actions to protect biodiversity. He is an ISI highly cited researcher, a distinction given to 0.1% of the world's researchers, across 21 research fields. He has published more than 170 papers, many in the field's leading journals. His work has been cited in around 500 policy documents. He communicates biodiversity issues in all forms of media, including radio and television. He has given many keynote talks at international conferences and spoken at the World Economic Forum, the United Nations' Convention on Biological Diversity's Conference of the Parties, and TEDx.

Christina Grozinger

Christina Grozinger is the Publius Vergilius Maro Professor of Entomology and the Director of the Huck Institutes of the Life Sciences at Pennsylvania (Penn) State University. She is the founding Director for the Center for Pollinator Research and Insect Biodiversity Institute at Penn State University. Christina uses an integrative approach—spanning genomics, metagenomics, physiology, behavior, and spatial ecology—to study bee behavior, plant–pollinator interactions, and support management and conservation of bees. She is leveraging artificial intelligence and citizen science to monitor, model, and forecast how bees and other insect species and communities respond to environmental factors, including land use, weather, and climate. Christina is a Fellow of the Entomological Society of America and the American Association for the Advancement of Science. She was awarded the 2021 National Academy of Sciences Prize in Food and Agriculture Sciences and the 2023 Penn State President's Award for Excellence in Academic Integration. She received her bachelor's degree in chemistry and biology at McGill University, her master's and doctoral degrees from Harvard University, and was a Beckman Institute Fellow at the University of Illinois Urbana-Champaign. Christina currently serves as the Chair of the U.S. Department of Agriculture's National

Agricultural Research, Extension, Education, and Economics Advisory Board Pollinator Subcommittee.

Don Hankins

Don Hankins is a distinguished Professor of environmental geography at California State University, Chico, and the Field Director of the Big Chico Creek Ecological Reserve. He has a BS in wildlife, fish, and conservation biology and a PhD in geography. His extensive expertise encompasses pyrogeography, water stewardship, conservation, and climate resilience. He integrates academic insights with Indigenous Knowledge to engage in transdisciplinary efforts, including prescribed and cultural burns, ecocultural restoration, and policy development. Don collaborates with various organizations, agencies, and Indigenous entities across North America and Australia, earning international recognition for his innovative work in Indigenous fire stewardship and ecocultural restoration. His leadership includes co-leading the California Biodiversity Network's Stewardship Roundtable, co-founding the Indigenous Peoples Burning Network and Indigenous Stewardship Network, and serving on the California Wildfire and Forest Resilience Task Force executive committee. He is a Fellow of the California Academy of Sciences and a Grist 50 Fixer.

Gideon Henderson

Gideon Henderson became Defra's Chief Scientific Adviser in October 2019 and is a Professor of Earth sciences in the Department of Earth Sciences at the University of Oxford. He is also a Senior Research Fellow at University College, Oxford, and an Adjunct Associate Research Scientist at the Lamont Doherty Earth Observatory at Columbia University. In 2013, he was elected a Fellow of The Royal Society. His research uses geochemistry to understand surface earth processes, particularly those relating to climate, the ocean, and the carbon cycle.

Nick Isaac

Nick Isaac is interested in how biodiversity is distributed in space, how it is changing over time, and how we measure it. He is Head of Biodiversity Monitoring and Analysis at the UK Centre for Ecology & Hydrology and has published more than 100 papers in the peer-reviewed literature. His research uses theory and statistical models to address applied questions about the natural environment, focusing on four broad areas: (1) Quantitative methods for biodiversity science: Nick develops and tests methods for assessing biodiversity change from monitoring data. He describes biases in biodiversity datasets and builds methods capable of mitigating them. He works with hierarchical Bayesian models for individual species, including occupancy-detection models and integrated distribution models, as well as for multispecies indicators. (2) Understanding biodiversity change: Nick quantifies

long-term trends in biodiversity and tests hypotheses about the drivers of change. He is the principal investigator of the NERC-funded Global Insect Threat-Response Synthesis consortium, which aims to create a global view on the status of insect populations. (3) Biodiversity projection modeling: Developing the principles for transparent models of biodiversity metrics under scenarios of future environmental change. (4) Evidence for policy: He works in partnership with government agencies to develop biodiversity indicators and targets and to improve the evidence base provided by the biodiversity monitoring portfolio.

Nick is a member of the European Commission expert group on pollinating insects and the UK government's Department for the Environment Farming and Rural Affairs' biodiversity expert committee.

Julia P.G. Jones

Julia P.G. Jones is interested in making conservation more effective by doing better evaluations of conservation policy and practice. Julia does both ex-post evaluations with existing (almost inevitably flawed) designs and data, as well as work with practitioners or policy makers to design interventions and data collection in parallel.

Much of her current work is focused on causal inference from observational data. She is exploring the impact of avoided deforestation carbon credit projects and how biodiversity is being measured (and additionality of conservation demonstrated) in the emerging biodiversity credit market. Julia used global-scale citizen science data to explore the impacts of protected areas on waterbirds and finer-scale, remote-sensed forest change data to understand the impact of mining on deforestation.

Julia trained as an ecologist but has always enjoyed working with people, methods, and approaches from across disciplinary divides. Her aim is to apply the most relevant scientific tools to improve outcomes from conservation for both people and nature.

Julia's main position is at Bangor University, but she also currently serves as the Prince Bernhard Chair in International Nature Conservation at Utrecht University. The purpose of the Chair is to serve international nature conservation through strengthening the link between conservation science and practice, while opening new avenues for multidisciplinary approaches.

Marco Lambertini

Marco Lambertini is the Convener of the Nature Positive Initiative. Marco was the World Wildlife Fund (WWF) International Director General (2014–2022) and Special Envoy (2023). Before joining WWF, he was the Global Director of Network and Programme and subsequently the Chief Executive Officer of BirdLife International.

Marco's experience and career range from ecological field research to high-level advocacy and international policy, nature reserve management, integrated conservation and development projects, environmental education, nongovernmental organization development, communications, and campaigning in many countries all over the world.

Marco is a member of the China Council, a member of the Board of Directors for the Fondation Prince Albert III de Monaco, the Co-Chair of the Nature Action 100 Science Council, the former Co-Chair and now Board member of the Belt and Road Initiative Greening Coalition, a founding member of the Nature Action Agenda and the Friends of Ocean Action at the World Economic Forum, outgoing member of the United Nations (UN) Global Compact Board and the former co-focal point for UN Department of Economic and Social Affairs' Community of Ocean Action on Marine and Coastal Ecosystems. Marco is also the former Co-Chair of the Global Commons Alliance.

Harris Lewin

Harris Lewin is a Research Professor at Arizona State University and a Distinguished Professor Emeritus of Evolution and Ecology at the University of California (UC), Davis. Until July 2022, he held the position of Robert and Rosabel Osborne Endowed Chair and Distinguished Professor of Evolution and Ecology at UC Davis with joint appointments in the Department of Reproduction and Population Health, the School of Veterinary Medicine, and the John Muir Institute for the Environment. From 2011 to 2016, he served as the UC Davis Vice Chancellor for Research. Before joining the faculty and administration at UC Davis, Harris spent 27 years at the University of Illinois Urbana-Champaign, where he held the E.W. and J.M. Gutgsell Endowed Professorship in Immunogenetics, with a primary appointment in the Department of Animal Sciences. Harris served as the Director of the University of Illinois Biotechnology Center, the Founding Director of the W.M. Keck Center for Comparative and Functional Genomics, the Founding Director of the Institute for Genomic Biology, and was a Center for Advanced Study member. His current research interest is in mammalian genome evolution as it relates to adaptation, speciation, and the origins of cancer. In 2017, Harris co-founded the Earth BioGenome Project (EBP), which aims to sequence all named eukaryotic life, and currently serves as the Chair of the EBP Executive Council. In 2008, he was elected as a Foreign Member of the Royal Swedish Academy of Agriculture and Forestry. In 2011, Harris was awarded the Wolf Prize in Agriculture, and in 2013, he was elected to the National Academy of Sciences. Harris received the Zhongguancun International Cooperation Award from Beijing in 2021 and the Lowell Thomas Award from the Explorers Club (New York City) in 2022.

María Cecilia Londoño Murcia

María Cecilia Londoño is currently the Scientific Information Manager at the Alexander von Humboldt Institute in Colombia, where she oversees the management and dissemination of biodiversity information. In addition, she serves as the Co-Chair of the Global Biodiversity Observations Network and coordinates the Colombian Biodiversity Information System, which functions as the national node of the Global Biodiversity Information Facility. María Cecilia has 13 years of experience in biodiversity information management, with a focus on leading teams for the development and maintenance of key infrastructure for sharing biodiversity data, including the award-winning BioModelos platform for species distribution data.

María Cecilia has been a crucial player in the Kunming-Montreal Global Biodiversity Framework negotiations. She led Colombia's involvement in defining the indicators and monitoring framework and co-chaired the Ad Hoc Expert Group on the Indicator and Monitoring Framework. She also spearheaded the development of monitoring actions within Colombia's National Biodiversity Strategy and Action Plan. Her work also encompasses the design and implementation of policies and governance processes that facilitate the publication, accessibility, and utilization of biodiversity data and indicators.

María Cecilia has extensive experience coordinating projects that apply biodiversity monitoring and metrics in the business sector, particularly in the context of biodiversity offsets and the Taskforce on Nature-related Financial Disclosures. She collaborates with national and regional governments, supporting the integration of biodiversity information into land-use planning, and works directly with local communities, empowering them through community-based monitoring processes. These diverse experiences have fostered her ability to coordinate and conduct research based on principles of trust and active participation. This approach enables her to build collaborative knowledge aimed at addressing critical issues related to biodiversity and sustainable development across a range of scales and in partnership with a wide array of stakeholders.

Oisin Mac Aodha

Oisin Mac Aodha is a Reader in Machine Learning in the School of Informatics at the University of Edinburgh. He is a former Turing Fellow and current ELLIS Scholar. He obtained his PhD from the University College London, advised by Gabriel Brostow, and was a postdoc with Pietro Perona at the California Institute of Technology before joining the University of Edinburgh. His current research interests are in the areas of self-supervised learning, 3D computer vision, fine-grained learning, human-in-the-loop learning, with a specific focus on artificial intellgience for conservation and biodiversity monitoring.

Anil Madhavapeddy

Anil Madhavapeddy is the Professor of planetary computing at the University of Cambridge Computer Laboratory. He co-leads the Energy and Environment Group at Cambridge and co-directs the Centre for Earth Observation and the Cambridge Centre for Carbon Credits (4C), which aims to increase the integrity of natural climate solutions that contribute toward ending deforestation and improving biodiversity globally via the application of modern remote sensing and statistical techniques to reduce the overheads of verifying interventions. He has decades of experience with constructing Internet-scale systems and has contributed to open-source projects such as OCaml, Docker, Xen, and OpenBSD, with users ranging from all of the major cloud computing providers to governments worldwide.

E.J. Milner-Gulland

Dame E.J. Milner-Gulland is the Tasso Leventis Professor of Biodiversity at the University of Oxford. Previously she was a Professor of conservation science at Imperial College London, and she has also held held lectureships in resource economics and mathematical ecology. Her PhD at Imperial College London was on the wildlife trade, with a focus on ivory, rhino horn, and saiga antelopes. She is the Director of the Interdisciplinary Centre for Conservation Science in the Department of Biology, a group of around 60 researchers covering a range of research areas within the broad area of understanding, predicting, and mitigating biodiversity impacts and monitoring and evaluating conservation interventions for their social and biodiversity outcomes. This includes large programs on food systems, Nature Positive transitions, the wildlife trade, and social justice and equity. She aims to ensure that all of the research in her group is addressing issues identified by practitioners and policy makers, is carried out collaboratively with end users, and builds the capacity of early-career conservationists, particularly in low-income countries. She has launched several initiatives that aim to change the real-world conversation around conservation, including the Nature-Positive Universities intiative and the Conservation Optimism movement. She is the Chair of the UK government's Darwin Expert Committee and sits on the Defra Biodiversity Expert Committee and the HM Treasury Biodiversity Valuation group, as well as sitting on numerous international working groups and chairing two Boards of Trustees. She has two Honorary Doctorates, has won four awards for her research, and was made a Dame of the British Empire for services to international conservation in the 2023 King's Birthday Honors.

Ron Milo

Ron Milo earned a BSc in physics and mathematics and a PhD in biological physics before becoming a Fellow in the Department of Systems Biology at Harvard Medical School. He joined the Weizmann Institute in 2008. He is Weizmann's Dean of education and serves as the Founding Director of the Institute for Environmental Sustainability.

The Milo lab harnesses the tools of systems biology to find solutions to the challenges of sustainability. His main contribution in this aspect was demonstrating the ability to use E. coli to convert carbon dioxide into biomass.

Ron also leads a global accounting of biomass on Earth, giving a fresh perspective on the impact of humanity and the future of biodiversity. He developed rigorous methodologies for estimating the global biomass of the main taxonomic groups of living creatures. His group created a comprehensive quantitative census of life on the planet and of humanity's footprint on it and showed that the mass of all artifacts built by humans surpassed in 2020 the mass of all living things in the world. These findings serve as a wake-up call for humanity and have already had an immense impact on public awareness of the current environmental crisis across generations and sectors of society.

He is the author of *Cell Biology by the Numbers,* read online and in print by more than 1 million people per year and translated into multiple languages. Ron enjoys playing the harmonica and hiking with his wife and their three daughters.

James O'Dwyer

James O'Dwyer is an ecologist in the Department of Plant Biology at the University of Illinois. His PhD was in applied mathematics and theoretical physics at the University of Cambridge, concentrating on the physics of phase transitions. Subsequently, James shifted his focus to biology, starting with a postdoctoral position at the Institute for Ecology and Evolution at the University of Oregon analyzing microbiome data and then as an Omidyar Fellow developing theory for complex systems at the Santa Fe Institute. The O'Dwyer lab's recent work has quantified new connections between life history variation and the maintenance of biodiversity. Focusing initially on plant communities, this program of research has identified emergent life history parameters that drive the dynamics and maintenance of biodiversity, alongside novel methodologies for measuring these key variables. Beyond plant ecology, the lab's research has ranged from modeling the structure and function of microbiomes, the role of life history in epidemiology, predictive models of escape behavior in animals, and commonalities in patterns of diversity among complex systems drawn from multiple domains. This interdisciplinary perspective has been recognized with a Simons Foundation Investigator award, the McDonnell Foundation Complexity Scholar award, and the Hrdy fellowship of the Harvard Radcliffe Institute. It is also reflected in the broad disciplinary range of his graduate and postdoctoral mentees.

Robert Pringle

Robert Pringle is a Professor and the Director of undergraduate studies in the Department of Ecology and Evolutionary Biology at Princeton University. He is currently on leave as a Senior Fellow at the Collegium Helveticum, affiliated with ETH Zürich. Robert received a PhD in biology from Stanford University and was a Junior Fellow in the Harvard Society of Fellows prior to joining the Princeton faculty in 2012. Robert's research addresses questions at the interface of ecology, evolution, population biology, and conservation, focusing primarily on African savanna ecosystems. Research in Pringle's laboratory combines large-scale experimental field work with environmental DNA analysis to understand the mechanisms of biodiversity maintenance and ecological resilience to natural and human-made catastrophes. Robert is a 2024 Guggenheim Fellow, a recipient of the Young Investigator Prize from the American Society of Naturalists, and a former Early Career Fellow of the Ecological Society of America. He is the Senior Editor of the Monographs in Population Biology series (Princeton University Press) and Ecological Monographs (Ecological Society of America). Robert serves on the board of directors of the Guanacaste Dry Forest Conservation Fund and is a Chief Scientific Advisor for the Gorongosa Restoration Project in Mozambique.

Andy Purvis

Andy Purvis is a Research Leader at the Natural History Museum in London. He co-leads the Biodiversity Futures Lab and the Projecting Responses of Ecological Diversity in Changing Terrestrial Systems project, which aims to model globally how local terrestrial biodiversity responds to human pressures and to use these models to project potential biodiversity futures under alternative scenarios of socioeconomic development. Other current projects aim to understand global trends in insect biodiversity, improve biodiversity in horticultural agriculture, and improve access to nature for the United Kingdom's schoolchildren. He was a Coordinating Lead Author on the first *IPBES Global Assessment Report on Biodiversity and Ecosystem Services* (2019), scientific advisor on Sir David Attenborough's documentary *Extinction: The Facts* (2020), and a contributor to Greta Thunberg's *The Climate Book* (2022).

Gene Robinson

Gene Robinson joined the faculty of the University of Illinois Urbana-Champaign in 1989. He holds a University Swanlund Chair and Center for Advanced Study Professorship, is the Director of the Carl R. Woese Institute for Genomic Biology, and the former Director of the university's Neuroscience Program. Gene pioneered the application of genomics to the study of social behavior, has been honored with the Wolf Prize in Agriculture, and is a member of the American Academy of Arts & Sciences, the National Academy of Sciences (NAS), the National Academy of Medicine, and the American Philosophical Society. He is also a member of the NAS Governing Council. Gene earned his PhD from Cornell University in 1986.

Amy Rosenthal

Amy Rosenthal is the Senior Global Director for conservation initiatives at Planet, where she leads the public benefit corporation's biodiversity programs. In 2024, Planet launched its digital public good program for biodiversity, Project Centinela. Previously Amy served as the Senior Director of the Keller Science Action Center at the Field Museum of Natural History in Chicago. Over the past 20 years, Amy has worked in philanthropy, academia, and social-profit organizations focused on the development of science-based, community-centered strategies for nature conservation and sustainability. She holds degrees from Stanford University and Amherst College, publishing in the fields of nature data reporting, conservation social science, biodiversity and ecosystem services, and decision science. Amy is a member of the Oak Park Climate Action Network and has served on the boards of the Chicago Wilderness Alliance and the Amazon Conservation Association.

Nick Salafsky

Nick Salafsky is the Executive Director of Foundations of Success (FOS), a non-profit organization that seeks to improve the practice of conservation. FOS has worked for more than 25 years with conservation practitioners around the world to define clear and practical measures of conservation success, determine sound guiding principles and evidence for using conservation strategies, and develop the knowledge and skills of individuals and organizations to do good adaptive management. Nick is also the Product Manager of the Miradi Adaptive Management Software and was one of the founders of the Conservation Measures Partnership, a community of practice composed of many of the world's leading conservation organizations and agencies. Nick also serves as a Co-Chair of the World Commission on Protected Areas working group on effectiveness and outcomes.

Prior to starting FOS, Nick worked for the MacArthur Foundation where he was responsible for environmental grantmaking in Asia and the Pacific. Nick also worked for the Biodiversity Support Program, testing enterprise-based approaches to biodiversity conservation across the Asia/Pacific Region. Nick spent several years in West Kalimantan, Indonesia, conducting interdisciplinary research on the forest gardens, a locally developed agroforestry system, and the behavioral ecology of the red-leaf monkey. Nick has a PhD in environmental studies and an MA in resource economics from Duke University and an AB in biological anthropology from Harvard University.

Cristián Samper

Cristián Samper is the Managing Director and the Leader for Nature Solutions at the Bezos Earth Fund, overseeing work related to the protection and restoration of nature, as well as the transformation of food systems. Prior to joining the Bezos Earth Fund, he served as the

President and Chief Executive Officer of the Wildlife Conservation Society for a decade from 2012 to 2022, overseeing the largest network of urban wildlife parks, hosting 4 million visitors each year, and carried long-term field research and conservation programs in more than 60 countries.

Cristián served as the Director of the Smithsonian's National Museum of Natural History from 2003 to 2012 and was the Founding Director of Colombia's Alexander von Humboldt Biodiversity Institute in 1995. He served as the Chair of the science advisory body of the United Nations Convention on Biological Diversity and was one of the leaders of the Millennium Ecosystem Assessment. He is a member of the Council on Foreign Relations and a Fellow of the American Academy of Arts & Sciences. Raised in Colombia, Cristián studied biology at the Universidad de Los Andes and earned his MA and PhD from Harvard University.

Pamela Soltis

Pamela Soltis is a Distinguished Professor and the Curator at the Florida Museum of Natural History at the University of Florida and the Director of the University of Florida Biodiversity Institute. She also serves as the Director of Research for iDigBio, the National Center for Digitization of Biodiversity Collections. Pam received her BA from Central College in Pella, Iowa, and her PhD from the University of Kansas. Her research focuses on patterns and processes of plant evolution, spanning genome to landscape scales, with applications for biodiversity assessment and conservation. Her main research interests are angiosperm phylogeny, polyploidy, and novel uses of digitized herbarium collections in studies of plant diversity.

She has helped develop outreach products that combine science and art, emphasizing the Tree of Life. She has served as the President of the Botanical Society of America, the Society of Systematic Biologists, the American Society of Plant Taxonomists, the International Society for Phylogenetic Nomenclature, and the Academy of Science, Engineering and Medicine of Florida and is the Secretary of the Board of Directors for the American Institute of Biological Sciences. In these roles, she has emphasized scientific literacy, opportunities for early-career scientists, science communication to the public, and diversity in the scientific workforce. She is a member of the National Academy of Sciences, where she serves as the Secretary of Class II (Biological Sciences), and a Fellow of the American Academy of Arts & Sciences. Her awards include the Dahlgren Prize in Botany, the Asa Gray Award, the Stebbins Medal, the Botanical Society of America's Merit Award, and the Darwin-Wallace Medal, all jointly with husband and collaborator Douglas Soltis, the Southeastern University Research Association Distinguished Scientist Award, University of Florida Teacher/Scholar of the Year, the Southeastern Conference Professor of the Year, and teaching and mentoring awards from Washington State University and the University of Florida.

William Sutherland

William Sutherland is an ecologist and conservation scientist who has showed how behavior and population ecology could be linked through game theory models of the decisions individuals make and that such models can then be used to predict the consequences of future states, such as agricultural change or climate change. This was summarized in his Oxford University Press monograph From Individual Behaviour to Population Biology.

Much of his career has been devoted to developing novel processes for integrating science and policy including horizon scanning and evidence-based conservation. With more than 1,100 named collaborators, he created the website www.conservationevidence.com (which reviews the evidence for the effectiveness of 3,155 conservation actions) and a set of tools for making evidence-based decisions and embedding evidence into practice. This is summarized in his recent edited open-access book *Transforming Conservation: A Practical Guide to Evidence and Decision Making*. He regularly advises government and conservation organizations. He was the President of the British Ecological Society and made a Commander of the British Empire in 2021 "for services to evidence-based conservation."

Heather Tallis

Heather Tallis, an interdisciplinary scientist and policy advisor, works to bridge nature, the economy, and people's lives. Heather served as President Biden's policy advisor on nature in the White House Office of Science and Technology Policy, where she drove cross-agency action on nature-based solutions; advanced efforts to account for nature in benefit-cost analysis; embedded funding for nature-based solutions in transportation, infrastructure, housing, water systems, and emergency management; and created the National Nature Assessment. Through previous work with The Nature Conservancy and the Natural Capital Project, she has advanced the science of ecosystem services, created measurement frameworks for biodiversity and the human dimensions of conservation, advanced standards for conservation planning and the design of nature-based solutions, and infused nature into decisions with local communities, governments, and the private sector in 20 countries. Heather has brought her expertise to the World Economic Forum, assessments with the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and the National Climate Assessment, and global non-profit and research boards. She is currently a Senior Fellow at the University of California, Santa Cruz, and serves as an independent advisor for multiple sectors.

Iroro Tanshi

Iroro Tanshi combines natural history and applied biodiversity science to understand how ecological communities assemble or disassemble along natural and anthropogenic gradients, respectively. Iroro aims to understand why there are so many bat

species and how such hyperdiverse groups coexist, especially in a changing world. As part of a research agenda to target historically understudied areas, Iroro is currently focused on West African forests and the Gulf of Guinea Islands to address drivers of insectivorous bat assembly structure along environmental gradients. Elevational gradients are natural laboratories for examining how mechanistic processes shape animal communities. To model assembly structure and map ecomorphological traits to diet and habitat, she combines field-generated data (i.e., bite force, bat biometrics) with post-field, specimen-based work and imagery analysis (e.g., 3D prey particle analysis, prey metabarcoding, and vegetation structure). Together, her work addresses fundamental questions in ecology alongside quantifying species' responses to global environmental change. Effective interventions to global environmental change require quantification and monitoring of the multi-dimensional aspects of biodiversity at scale, from organismal responses to communities. To bend the curve for biodiversity, we must address two types of gaps: methodological versus geographic. While Iroro resolves methodological problems, her science also develops and supports infrastructure and in-country expertise for small mammal conservation in Nigeria and West Africa through a non-profit that she founded to provide a platform for research, species monitoring, habitat protection, local outreach, and networking of regional partners.

David Tilman

David Tilman is the Regents' Professor and McKnight Presidential Chair in Ecology at the University of Minnesota, where he also serves as the Director of the Cedar Creek Ecosystem Science Reserve. He is best known for his experimental and theoretical work on competition on the mechanistic causes of multispecies coexistence and for demonstrating via rigorous field experiments and theory that biodiversity is of central importance to the functioning of ecosystems.

In the 1970s, David proposed and experimentally tested the first mechanistic and predictive theory in ecology, which he called resource competition theory. His classic 1982 *Princeton Monograph* expanded on this theory and showed its application to organisms ranging from bacteria and algae to grasses and trees and to terrestrial, freshwater, and marine ecosystems. By then explicitly incorporating interspecific trade-offs into this theory, he has more recently explored the forces that may have led to the emergence and coexistence of the Earth's biodiversity, the effects of the loss of biodiversity on ecosystem stability and functioning, and the impacts of global agriculture on ecosystem services and global biodiversity.

His long-term ecological experiments at Cedar Creek Ecosystem Science Reserve focus on the impacts on ecosystems of human-induced environmental changes, including the loss of biodiversity, nitrogen deposition, habitat destruction, and climate change. A major goal of his current research is the pursuit of ways to preserve

the world's biodiversity, slow the rate of climate change, and still meet human needs for food and energy.

David received his PhD in zoology from the University of Michigan in 1976. In addition to being on the faculty at the University of Minnesota, he holds an appointment as a Professor in the Bren School of Environmental Science and Management at the University of California, Santa Barbara. He is a member of the National Academy of Sciences and the American Academy of Arts & Sciences. He was awarded the International Prize for Biology in 2008 and the Heineken Prize for Environmental Sciences in 2010. He has received the Cooper and MacArthur Awards from the Ecological Society of America, the Centennial Award from the Botanical Society of America, the Princeton Environmental Prize, the Alexander von Humboldt Medal, a Guggenheim Fellowship, and was named an Honorary Member or Fellow of both the British Ecological Society and the Ecological Society of America. He has written two books, edited three more, and published more than 250 scientific papers. For the 1991–2000 and 2001–2010 decades, David was ranked as the world's most highly cited environmental scientist by the Web of Science.

Varsha Vijay

Varsha Vijay is a quantitative conservation scientist with a PhD in environmental science and expertise across biodiversity, land use, data/modeling, monitoring, and corporate supply chains. In addition to technical expertise, she has direct experience working on justice and equity in conservation to develop solutions with a diverse group of collaborators and stakeholders, including communities, nongovernmental organizations, companies, and government stakeholders.

With the collaborative efforts of network partners and the network hub team, Varsha led the technical direction for the first release of science-based targets for nature in early 2023 to help companies begin to take integrated action across climate and nature.

Martin Wikelski

Martin Wikelski is the Founding Director of the Max Planck Institute of Animal Behavior and a Professor of biology at the University of Konstanz. He previously worked at the University of Washington, Seattle; the Smithsonian Tropical Research Institute, Panama; the University of Illinois Urbana-Champaign; and Princeton University. His specialization is the study of global animal movement.

David Williams

David Williams is an interdisciplinary conservation scientist interested in preserving biodiversity while meeting the needs of a growing human population. He focuses on how land use affects biodiversity, the wider environment, and human benefits. His background is in natural sciences, but he is increasingly working

with social scientists and integrating social science approaches into his work.

David's main areas of research at the moment are which land-use strategies, at different spatial scales, can best balance biodiversity conservation with food production and other land uses; thinking holistically across sectors and disciplines to understand trade-offs and synergies between objectives; and maximizing the impact of research by focusing on the questions that really need to be answered to conserve global biodiversity, rather than those that are easily answered with existing methods.

Hollis Woodard

Hollis Woodard is an Associate Professor in the Department of Entomology at the University of Riverside. She is generally interested in wild bee conservation, with a more specific focus on how insights into bumble bee behavior and physiology can support protection of this pollinator group, and the location, monitoring, and recovery of rare and threatened species. She is currently co-leading projects related to establishing priority areas for wild bee conservation and assessing the extinction risk of U.S. bees. She also oversees a research group working on topics such as bumble bee social behavior, development, and ecology.

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