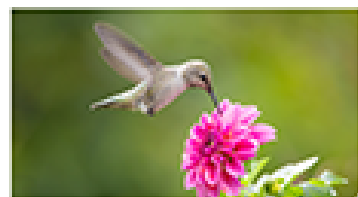
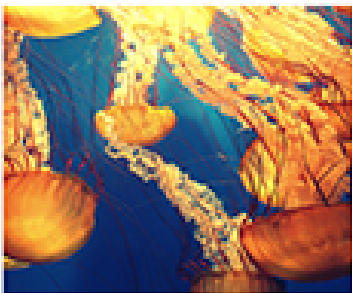
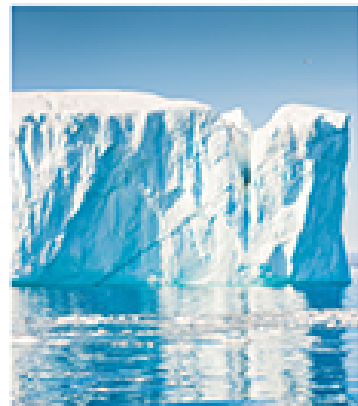
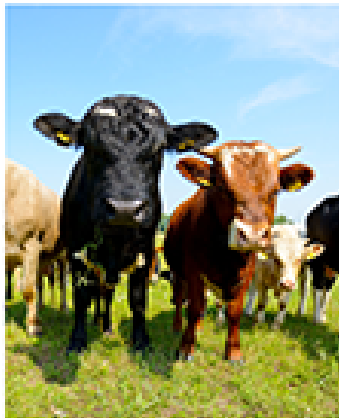
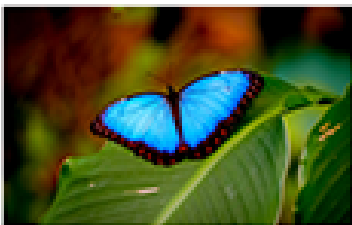
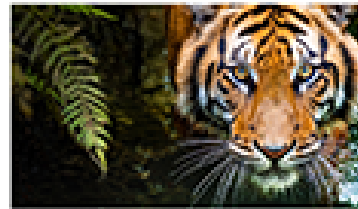
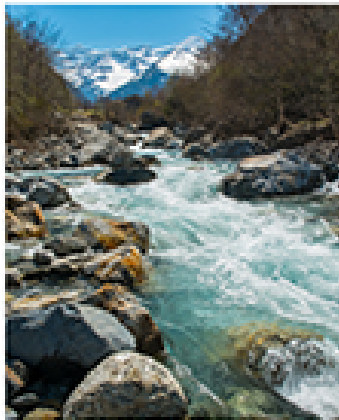




Environmental  
Innovations Initiative  
*UNIVERSITY of PENNSYLVANIA*

WORKING GROUP  
BIODIVERSITY

JUNE 11, 2025



# ADDRESSING BIODIVERSITY LOSS

Biodiversity, or biological diversity, refers to all forms of life on Earth, including the variety of genes, species, and ecosystems. Therefore, it encompasses the diverse landscapes, regions, and habitats where these life forms exist<sup>1</sup>.

The importance of biodiversity cannot be overstated. It provides food, water, and shelter. It influences climate, controls disease, and regulates nutrient and water cycles. Moreover, it enhances our health and spiritual, cultural, mental, and artistic well-being. Beyond its direct benefits to humanity, biodiversity has its own inherent value. Unfortunately, we are witnessing an alarming decline in biodiversity at unprecedented rates - even in areas with little direct contact with humans.

This decline is driven by light and chemical pollution, habitat loss, and climate change, among other factors. These threats disrupt the integrity of ecosystems, diminishing their capacity to sustain life.

To tackle this pressing issue and pave the way for a sustainable future, the University of Pennsylvania Biodiversity Working Group leverages the expertise from diverse disciplines across campus. This document provides a snapshot of their areas of scholarship in ecology, conservation and restoration, sustainable agriculture, architecture and urban development, as well as policy and law, highlighting the potential opportunities for collaboration to address and reverse biodiversity loss.



## CATHERINE SEAVITT

Weitzman School of Design, Landscape Architecture

Expertise: Architecture in support of biodiversity

Historical research focused on the modernist landscape architect Roberto Burle Marx's work in Brazil in support of biodiversity and species conservation during the military regime in the late 1960s thru early 1970s. Later work centers on protecting the Amazon rainforest. Would love to learn more from botanists and ecologists on campus.

ORCID: [0000-0003-4646-9181](https://orcid.org/0000-0003-4646-9181)



## KRYSTINA LYONS

SAS, Department of Anthropology

Expertise: Amazon agro- and aquatic biodiversity

Long-term fieldwork and participatory action research in the Colombian Amazon related to agrobiodiversity and aquatic biodiversity. Interested in transdisciplinary collaboration and find it invaluable to work with soil scientists, environmental lawyers, geologists, hydrologists, cultural managers (gestores), artists, and community practitioners.



## BRIANNA PARSONS

PennVet, Sustainable Agriculture

Expertise: Sustainable food systems

She studies and implements sustainable agricultural practices in US and Sub-Saharan Africa. Focused on the interplay between conservation and agricultural production, her work includes Social Entrepreneurship, Sustainable Agriculture and One Health in The Gambia and Botswana. She is also engaged in the New Bolton Center's riparian buffer and agroforestry demonstration site with grazing cattle.

Seeking collaborations with experts in policy/law, economy, ecology/biology, anthropology, impact assessment and fundraising.

ORCID: [0000-0001-8481-1975](https://orcid.org/0000-0001-8481-1975)





## CARLOS SANTANA

SAS, Department of Philosophy

Expertise: Social element in conservation and restoration

He works on including the social element in conservation and restoration. To date, that's mostly involved theoretical and ethical work, but increasingly working on community science projects as well as science communication infrastructure. Mostly worked with applied ecologists—urban ecologists, conservation biologists, and restoration ecologists. But open to other collaborations.

ORCID: [0000-0002-9570-1904](https://orcid.org/0000-0002-9570-1904)



## KAREN VERDERAME

PennVet, Shelter Medicine and Community

Engagement

Expertise: Outreach and education

She develops scientific outreach programs centered in biodiversity and declining species to raise awareness within broad audiences.



## HELENA VAN VLIET

Weitzman School of Design, Design for Sustainability

Expertise: Biophilic architecture

Her work integrates biophilic architecture and urbanism, landscape architecture, cognitive neuroscience, evolutionary biology, biopsychology, chronobiology. Her focus is on the connection between daily biodiversity exposure and physiological well-being in built environments, particularly in terms of immune system support and the reduction of inflammatory conditions. Seeking collaborations with Neuroscience, Evolutionary Biology, Biopsychology, Landscape Architecture, Chronobiology, Clinical Ecology.

See recent paper: [Buildings as Habitat: Adaptive Investments in Public Health](#)





## DORIS WAGNER

SAS, Department of Biology

Expertise: Interest in native plants, plant climate resilience.

She is the Director of The Penn Plant Adaptability and Resilience Center ([PlantARC](#)). A center leveraging fundamental research to address climate change threats on human health, food security, infrastructure, and wild ecosystems.

ORCID: [0000-0003-4656-2490](#)



## AMANDA LLOYD

Penn Institute for Urban Research

Expertise: Policy pathways for financing urban nature and climate projects

Her work is at the intersection of global and/or regional funders and policy makers. In partnership with NGOs and funded by the UNEP, recent documents released include:

- [From Grey to Green: Better Data to Finance Nature in Cities - State of Finance for Nature in Cities 2024](#)
- [Unlock Finance Report](#)

Interested on exploring the implications of biodiversity, Nature-Based Solutions, and ecosystem services on urban planning.



## CAROLINA ANGEL BOTERO

SAS, Center for Latin American and Latinx Studies

Expertise: Rights of Nature and environmental law

She is a Colombian lawyer and anthropologist. She approaches biodiversity research through a justice lens including conservation initiatives that encompass both judicial and legal efforts.

ORCID: [0000-0002-1798-3256](#)

Recent highlights:

- Podcast: [Integrating Ecosystems into Political Communities](#)
- Post: [What Will Be Lost: A Cat, a Man with a House, and the Battle at Court](#)

Seeking collaborations with the arts and filmmaking, and also peat ecosystems in the southern Andes



## Biodiversity Working Group



### JULIE ELLIS

PennVet, Department of Pathobiology

Expertise: Wildlife ecology and One Health

She has experience leading projects and programs in wildlife health and one health. She is currently working on wildlife diseases, health data sharing, wildlife biobanking, and student training. She is the recipient of a Draw Down the Lightening grant titled, "Accessing Nature: Using Trail Cameras to Foster Inclusive Learning and Discovery in Urban Communities". Seeking interdisciplinary collaborations with Social Ecology/Sociology, Urban Ecology/Design.



### FERNANDA JIMENEZ

SAS, Center for Latin American and Latinx Studies

Expertise: Environmental and International Law

Her work has primarily involved international public policy related to biodiversity, with a focus on marine biodiversity and regulation of genetic resources. Examples of projects she has been involved include the Nagoya Protocol to the Caribbean region, Project Lifeplan, and the development of a roadmap for a regional binding document for CMAR. Funders of these projects include GEF, UNEP, ERC, and Pew Charitable Trust. Interested in collaborations with natural sciences to inform public policy.



### CINDY SKEMA

Morris Arboretum

Expertise: Flowering plants and plant biodiversity evolution

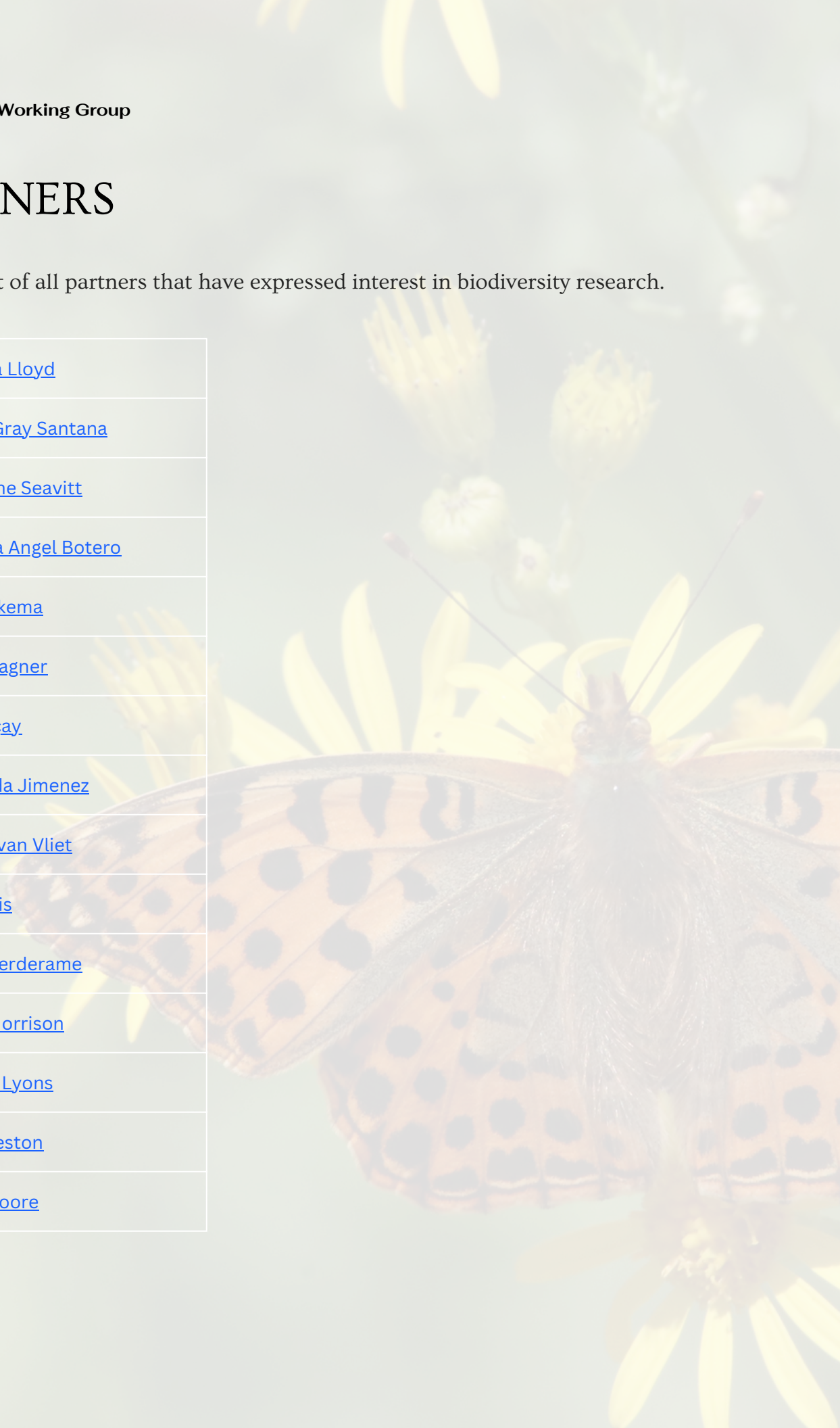
Her research focuses on the evolution and systematics of flowering plants, utilizing various tools to examine their relationships, distribution, morphology, and molecular data. She aims to describe plant biodiversity and its evolution to develop a natural classification system, with a particular interest in the floras of Pennsylvania and Madagascar and the evolution of separate sexes in flowering plants. She specializes in the Cotton Family. Seeking collaborations with bioinformatics experts experienced in phylogenomics and transcriptomics, especially regarding taxa affected by hybridization and polyploidy.



# PARTNERS

Here is a list of all partners that have expressed interest in biodiversity research.

<a href="#"><u>Amanda Lloyd</u></a>
<a href="#"><u>Carlos Gray Santana</u></a>
<a href="#"><u>Catherine Seavitt</u></a>
<a href="#"><u>Carolina Angel Botero</u></a>
<a href="#"><u>Cindy Skema</u></a>
<a href="#"><u>Doris Wagner</u></a>
<a href="#"><u>Erol Akçay</u></a>
<a href="#"><u>Fernanda Jimenez</u></a>
<a href="#"><u>Helena van Vliet</u></a>
<a href="#"><u>Julie Ellis</u></a>
<a href="#"><u>Karen Verderame</u></a>
<a href="#"><u>Kathy Morrison</u></a>
<a href="#"><u>Kristina Lyons</u></a>
<a href="#"><u>Rita Hueston</u></a>
<a href="#"><u>Scott Moore</u></a>





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## CONTACT US

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<https://environment.upenn.edu/>