DRAFT NASA Biodiversity and Ecological Conservation

Annual Team Meeting

Yours Truly DC Hotel, Washington D.C.

May 27-29, 2025

MEETING REGISTRATION & INFORMATION

PLEASE UPLOAD YOUR PRESENTATIONS HERE

Tuesday May 27

8:30AM Coffee/Tea

9:00AM **Welcome, Code of Conduct, & Introduction**
Woody Turner/NASA Headquarters

9:15AM NASA Earth Action
Tom Wagner/NASA Headquarters

9:30AM NASA Earth Science Division Research & Analysis Program
Barry Lefer/NASA Headquarters

9:45AM **Project Talks (10 min talk + 2 min Q&A)**
Archipelago-wide rewilding of Galapagos giant tortoises
Giorgos Mountrakis/ State University of New York, Syracuse

Maximizing the effectiveness of area-based conservation strategies for birds in Latin America under a changing environment
Jill Deppe/National Audubon Society, Inc.

Internet of Animals
Antonio Ferraz/ NASA Jet Propulsion Laboratory

Prediction of Individual Coral Organismal Growth, Recruitment, and Mortality (PICOGRAM)
Sam Purkis/University of Miami

Advancing tools to support and test an integrated biodiversity monitoring system for Colombia's protected areas
Mary Blair/American Museum of Natural History

10:45AM **Break (30 min)**

11:15AM **Project Talks (10 min talk + 2 min Q&A)**
Understanding the 3D signature of biodiversity hotspots in Mediterranean forests
Atticus Stovall/ NASA Goddard Space Flight Center

Earth observation-based restoration and monitoring in coastal and forested protected areas of West Africa
Lola Fatoyinbo/NASA Goddard Space Flight Center

Operationalizing dynamic ocean management tools to support a climate-ready network of protected areas in the North Atlantic
Camrin Braun/Woods Hole Oceanographic Institution

Near-real time forecasting and change detection for a fire-prone shrubland ecosystem
Adam Wilson/State University of New York at Buffalo

An ecological toolbox to inform livestock grazing allotments across wildlife conservancies in Kenya
Jared Stabach/Smithsonian Institution

12:15 **Lunch (1 h 15 min)**

1:30PM **Project Talks (10 min talk + 2 min Q&A)**

Biodiversity, connectivity and ecological forecasting: applying NASA earth observation data to conservation management in the Greater Kruger National Park
Jody Vogeler/Colorado State University

Leveraging Earth observation for ecosystem service accounting in large-scale levee setback decisions
Charles Van Rees/University of Georgia, Athens

Act Green: a near-real time integrated mapping and reporting system for re-wilding efforts
Gautam Surya/Wildlife Conservation Society

Developing and implementing a tool for prioritizing the management of an invasive and hyperabundant apex predator – the Barred Owl
Marcus Peery/University of Wisconsin, Madison

FATE: The drifting Fish Aggregating device (dFAD) Trajectory modeling tool for marine protected area management
Daniel Whitt/NASA Ames Research Center

2:30PM **Project talks (10 min talk + 2 min Q&A)**

Implementing the Yurok Natural Resources Portal as a decision support system to inform tribal resource management
Danielle Wood/Massachusetts Institute of Technology

Enhancing biodiversity conservation and ecosystem resilience in dry forest ecosystems
Marcus Peery/University of Wisconsin, Madison

From eyes in the sky to boots on the ground: applying NASA Earth observations to protect critical forests in Mesoamerica through the IUCN STAR program
Nicholas Macfarlane/IUCN

Integrating remote sensing and ecological forecasting into decision support for beaver rewilding
Jodi Brandt/Boise State University

Biggest bang for your buck: using NASA Earth observations to understand and maximize holistic ecosystem benefits from invasive mammal eradications on islands
David Will/Island Conservation

3:30PM **Break** (30 min)

4:00PM **NASA Commercial Satellite Data Acquisition (CSDA) Program**
Melissa Martin/NASA HQ

4 :15PM **Applied Remote Sensing Training Program (ARSET)**
Brock Blevins/NASA Goddard Space Flight Center

4:30PM **Speed Talks on Posters by NASA FINESST Awardees (1 min talks using 1 slide each)**

5:00PM **Poster Session** (list of posters)

Wednesday May 28

8:30AM Coffee/Tea

9:00AM **Project Talks: Bioscape 1 (10 min talk + 2 min Q&A)**
Biodiversity Survey of the Cape (BioSCape)
Adam Wilson/State University of New York at Buffalo

RadSCape: radiative transfer simulation and validation of the dynamic structural and spectral properties of the vegetation of the Cape
Jan van Aardt/Rochester Institute of Technology

Spectral and spatial scaling in biodiversity remote sensing: research conducive to BioSCape science and implementation activities
John Silander/University of Connecticut

Cyanobacteria and surface aquatic vegetation of the Cape freshwater systems (CyanoSCape): a hyperspectral data campaign and analysis
Liane Guild/NASA Ames Research Center

BioREaCH: biodiversity-remote sensing for estuarine and coastal habitat research
Atticus Stovall/NASA Goddard Space Flight Center

10:00AM **Break** (30 min)

10:30AM **Project Talks: Bioscape 2 (10 min talk + 2 min Q&A)**
Cape Traits: patterns of functional trait variation and diversity across the Greater Cape Floristic Region and comparison with other Mediterranean ecosystems
Philip Townsend/University of Wisconsin, Madison

Impacts of invasive alien species on biodiversity and ecosystem functioning
Peter Adler/Utah State University

BioSCape – Mapping of phytoplankton functional types from space in support of coastal resource management and decision support activities
Jinghui Wu/Columbia University

Intrinsic dimensionality and data fusion to monitor Cape biodiversity
Kerry Cawse-Nicholson/NASA Jet Propulsion Laboratory

Biodiversity across scales: mapping taxonomic, phylogenetic, and functional diversity with eDNA, field surveys, and remote sensing data
Matthew Rossi/University of Colorado, Boulder

11:30AM **Lunch -** Mentor Lunch / Early Career Lunch (2 hrs) (please sign up here)

1:30 PM **Project Talks: Bioscape 3 (10 min talk + 2 min Q&A)**

Plant community assembly and trait evolution in the South African Greater Cape Floristic Region
Jeannine Cavender-Bares/Harvard College

BioSoundSCape : Connecting acoustics and remote sensing to study habitat-animal diversity across environmental gradients
Matthew Clark/Sonoma State University

TraitsCape: understanding the role of microrefugia in buffering fynbos from global change
Corey Merow/University of Connecticut, Storrs

Integrating remote sensing and biodiversity observations to map and monitor plant taxonomic, phylogenetic, and functional beta-diversity in the Greater Cape Floristic Region
Matthew Fitzpatrick/University of Maryland, Cambridge

BioSCape multi-sensor data integration
Philip Brodrick/NASA Jet Propulsion Laboratory

2:30 PM **New & Recent Missions (8 min talk + 4 min Q&A) [PACE, NISAR, SWOT, SBG, and LUCE]**

3:30PM **Break** (30 min)

4:00PM **Breakouts [TBD]**

5:30PM **Adjourn**

Thursday May 29

8:30AM Coffee/Tea

9:00AM **Project Talks (10 min talk + 2 min Q&A)**

Integrated multi-project impact assessment for the contribution of NASA Earth observation products to support biodiversity decision-making in Colombia
Victor Gutierrez-Velez/Temple University

Assessing the efficacy and applicability of dynamic ocean management for the US West Coast
Barbara Muhling/University of California, Santa Cruz

Impact assessment for applying satellite Earth observation data to SDG15 monitoring in Ghana
Danielle Wood/Massachusetts Institute of Technology

Harnessing NASA satellite remote sensing in support of large-scale conservation management on BLM lands: An evaluation of LandCART's role in conservation decision making
Greg Okin/University of California, Los Angeles

9:48AM **Special Invited Talk (10 min talk + 2 min Q&A)**

AI foundation models at NASA
Tsengdar Lee/NASA HQ

10:00AM **Project Talks (10 min talk + 2 min Q&A)**

Ecological forecasting tools for movement-track management at the Yukon-to-Yellowstone migration corridor
Roland Kays/North Carolina State University

Determining forest recruitment change through the integration of NASA Earth observation data and predictive modeling
Tong Qiu/Duke University

Natural resource management with new protected area connectivity tools
Patrick Jantz/Northern Arizona University

A remote sensing-based bird friendly certification system for sustainable agro-forestry: a multi-sensor approach to evaluating and monitoring avian habitat quality
Qiongyu Huang/Smithsonian Institution

Hot spots in the ice: importance of polynyas for marine ecosystems
Alice DuVivier/UCAR

11:00AM **Break** (30 min)

11:30AM Project Talks (10 min talk + 2 min Q&A)
Ecosystem assessments based on Earth observations to inform management of invasive iceplant for biodiversity conservation
Benjamin Halpern/UC Santa Barbara

Earth observations to combat invasive aquatic vegetation
Erin Hestir/ UC Merced

Mapping and protecting rock habitat in the Cascades Mountains for the conservation of climate sensitive species
Arjan Meddens/Washington State University, Pullman

The University of Connecticut Ecological Modeling Institute Biodiversity Exposure Forecasts (BEFore): anticipating ecological vulnerability to global change
Mark Urban/University of Connecticut, Storrs

I.C.E. C.R.E.A.M.: integrating communication of ECOSTRESS into community research, education, applications and media
Gregory Goldsmith/Chapman University

12:30PM **Lunch -** (1.5 hrs)

2:00PM **Project Talks (10 min talk + 2 min Q&A)**
The Southeast US Marine Biodiversity Observation Network (MBON): toward operational marine life data for conservation and sustainability
Frank Muller-Karger/University of South Florida

Louisiana Deltaic Estuaries MBON: sea Level Rise Sentinels
Cassandra Glaspie/Louisiana State University

AMBON – linking biodiversity observations in the Arctic
Katrin Iken/University of Alaska, Fairbanks

2:36PM **Next Terrestrial Ecology Airborne Campaign (10 min talk + 2 min Q&A)**
Ryan Pavlick/NASA HQ

2:48PM **Break** (42 min)

3:30PM **Plenary Discussion: Program updates, issues and concerns**
Keith Gaddis/NASA HQ

4:00PM **Adjourn**

Friday May 30 - Marine BON All-hands Meeting

9:00AM - 3:00 PM MBON All-hands Meeting

Poster Presentations

Tuesday, May 27

Note: Poster boards are 4'x8' (two posters per side), so all posters should fit in a 4'x4' area.

A.7 Biodiversity (2020)

Identifying population tipping points through imagery super-resolution
Heather Lynch/State University of New York, Stonybrook

Understanding urban centers as ecological traps for avian migrants
Kyle Horton/Colorado State University

Scaling forest diversity across space and time in a non-equilibrial world
Sydne Record/University of Maine

The landscape of fitness: fusing GPS measurements with GEDI and ECOSTRESS data products to map responses of migratory animals to vegetation canopy structure and water stress
Neil Carter/University of Michigan

Multiple spatial scales, long-term trends, and synchrony of the dynamic habitat indices and bird populations
Volker Radeloff/University of Wisconsin, Madison

BioCube: Integrating remote sensing and in-situ dimensions of biodiversity to understand plant and animal community composition and dynamics at large scales
Phillip Townsend/University of Wisconsin, Madison

The size, trophic and spatial-temporal scaling of environmental selection in pelagic species
Matthew Oliver/University of Delaware

Multi-sensor biodiversity framework developed from bioacoustic and space-based sensor platforms
Brian Pijanowski/Purdue University

Assessing spatial biodiversity dynamics in kelp forest ecosystems using spaceborne remote sensing
Tom Bell/Woods Hole Oceanographic Institution

Understanding the global 3D signature of tree biodiversity
Atticus Stovall, NASA Goddard Space Flight Center

MarineVERSE – The Marine Biodiversity and Scaling Project
Sam Purkis/University of Miami

Transcriptomics From Space: Linking Remote Sensing to Tree Gene Expression in a Diverse Set of Species Through the Growing Season and in Response to Water Deficit
Nathan Swenson/Notre Dame University

A.7 Biodiversity (2024)

Linking Biodiversity Observations Across Multiple Scales to Assess and Monitor Alterations in Planktonic Community Composition of the Arctic Ocean
Rick Reynolds/University of California, San Diego

Understanding marine microbial community dynamics using satellite-derived observations
Julia Brown/Bigelow Laboratory for Ocean Sciences

Soaring Across Scales: The Effects of Wind on Individuals, Populations, and Flyways Among Atlantic Pelagic Seabirds
Francesco Ventura/Woods Hole Oceanographic Institute

Mega impacts of megaherbivores: unraveling the role of rhino restoration in savanna-fire dynamics
Jessica Rothman/Hunter College

Quantifying relationships and feedback between vegetation structural complexity and biodiversity in the Congo Basin
Andrew Davies/Harvard College

Can remote sensing help solve the mystery of disappearing Ondrata zibethicus?
Laurence Smith/Brown University

HI-GRASS - Holistic Investigation of Grassland Systems Across Scales
Hamed Gholizadeh/Oklahoma State University

Understanding the scale of migratory birds' attraction to artificial light in the era of LEDs
Kyle Horton/Colorado State University

From species to landscapes: integrating multi-scale data to characterize the spatial and temporal dynamics of plant phenology
Brooke Rose/San Diego State University

Enhanced marine biodiversity monitoring in the Northern California Current through coupled remote sensing and integrated observations across spatiotemporal scales and trophic levels
Dawn Barlow/Oregon State University

A.7 Ecological Conservation 2024

Increasing scale and ensuring sustainable transfer of the Mesic Restoration Monitoring aid (MRRMaid) decision support tool for beaver rewilding
Jodi Brandt/Boise State University

A post-fire reforestation assessment and prioritization tool for the western United States
Zachary Holden/US Forest Service

Expanding the geography and user base of the Atlantic Sturgeon Occurrence Model
Matthew Oliver/University of Delaware

Multi-scale remote sensing models to improve decision making around waterbird and wetland diversity
Jessica O'Connell/Colorado State University

Decision and Information System for the Coastal Ocean waters of the South African Cape (DISCO-SCAPE)
Joaquim Goes/Columbia University

A Cloud-based Data Science Open Platform for the Ross Sea Marine Protected Area Research and Management Decisions
Boyang Pan/Ocean Motion Technologies, Inc.

Leveraging NASA Data to Guide Biodiversity Conservation Investments with the Trust for Public Land
Carl Boettiger/University of California, Berkeley

Highlighting and expanding the value of private, working forests for migratory bird conservation
Courtney Davis/Cornell University

Coordinating conservation across landscapes: Using NASA data to understand relative responsibility
Sam Veloz/Point Blue

Upscaling the Connecting Landscapes (CoLa) decision support system for range-wide conservation of priority wild cat species
Patrick Jantz/Northern Arizona University

Expanding and Scaling a Decision Support System to Inform Conservation Actions with Local Communities and Governments in Africa Using OPERA Land Surface Disturbance Alerts
Lilian Pintea/Jane Goodall Institute

A.45 Ecological Conservation

Continuing Impacts of Ocean Observing Data for Protected Species Modeling and Management
Patrick Halpin/Duke University

Assessing the Local and Regional Impact of the Palau Aquaculture Suitability Tool
Anne Holland/Space Science Institute

The benefits of SaWS to stakeholders and decision makers
Chuanmin Hu/University of South Florida, Tampa

Assessing the Impact of a Satellite Based Atlantic Sturgeon Forecasting Tool
Matthew Oliver/University of Delaware

Impact Assessment of the Decision and Information System for the Coastal Waters of Oman (DISCO)
Dale Kiefer/Systems Science Applications

Measuring the Impacts of Workshops on the Use of Earth Observations in Coastal Ecosystems Valuation
Valerie Seidel/The Balmoral Group, LLC

Redefining Decision Making: Implications of a Habitat Monitoring System on Conservation Actions at the Local and National Levels
Lilian Pintea/Jane Goodall Institute

FINESST

Integrating Field Observations and Multi-scale Remote Sensing to Understand the Environmental and Biological Controls of Tall Shrub Distribution in Arctic Tundra
Dedi Yang/State University of New York, Stonybrook

Linking emerging threats to wildlife and human health to climate change effects on boreal forest ecosystems
Ben Tonelli/University of California, Los Angeles

Examining Responses of Phytoplankton Community Composition to Climate-Related Changes in the Arctic Ocean Using Multiyear Observations from Multiple Satellite Mission
Anjali Narayanan, University of California, San Diego

Detecting disturbance legacy effects in functional trait phenology using imaging spectroscopy data from the SHIFT campaign
Natalie Queally/University of Wisconsin, Madison

Using detailed human activity and remote sensing data to assess wildlife responses to altered human behavior during the COVID-19 pandemic

Diego Ellis-Soto/Yale University
Characterizing immediate and mid-term climate effects on boreal forest dynamics to model long-term forest dynamics and management outcomes
Shelby Sundquist/Northern Arizona University

Evaluating the influence of biocontrol program on the Colorado River biodiversity with multi-source time series imagery
Yilun Zhao/University of Illinois, Urbana-Champaign

Integrating ships and satellites to understand the global biogeography and biophysical coupling of surface and deep ocean ecosystems
Emmett Culhane/Woods Hole Oceanographic Institute

Multi-Source Detection and Monitoring of Ephemeral Shorebird Habitats in an Agricultural Prairie System
Jennifer Linscott/University of South Carolina

Integrating models of ephemeral water and wildlife energetics using synthetic aperture radar
Amelia Zuckerwise/University of Michigan

Geographic Variation in Primary Productivity Synchrony Across the United States
Ryan Buron/University of Wisconsin

Advancing bat conservation and management in the western US through GEDI-derived forest structure
Brent Barry/University of Idaho

Satellite-based Mapping of Freshwater Resilience and Conservation Potential on 270 Remote Pacific Islands
Michael Burnett/University of California, Santa Barbara

Detection, driver-response analysis, and forecasting of Cyanobacterial Harmful Algal Blooms in inland waters under a changing climate
Chintan Maniyar/University of Georgia, Athens

Does ecosystem engineering by beaver increase distribution, abundance and connectivity of biodiversity in the Greater Yellowstone Area?
Kathryn Davis/University of Wyoming

Integrating Climate Projections into Snow-mediated Habitat Selection for Carnivores and Ungulates
Benjamin Sullender/University of Washington

Sensing the biodiversity impacts of gold mining in the Peruvian Amazon
Christopher Sayers/University of California, Los Angeles

Uncovering water and carbon tradeoffs in three California oak species with hyper spectral remote sensing
Anna Ongjoco/University of California, Los Angeles

Remote-Sensing Resilience: An Exploration of Caribou Winter Habitat in the Changing Arctic Environment
Skye Salganek/Northern Arizona University

Explainable AI to model avian hierarchical habitat selection, and accurately predict their distribution and richness
Akash Anand/University of Wisconsin, Madison

Analyzing Spatial Co-benefits of Carbon and Structural Diversity in South East Asia with GEDI
Paromita Basak/University of Maryland, College Park

Assessing the impacts of invasive plants on ecosystem characteristics using multi-scale imaging spectroscopy
M. Ny Aina Rakotoarivony/Oklahoma State University

Characterizing Habitat Requirements (Characteristics, Configurations, and Thresholds) of Grassland Birds in Illinois Through a Cross-scale Remote Sensing Framework
Wendy Dorman/University of Illinois, Urbana Champaign

Impacts of rebounding Asian elephant populations on forest structure and carbon storage
Brandon Hays/Duke University

Predicting species composition and extinction risks for montane mammals across dynamic patchy environments
Andrew Gaier/City College of New York

Grassland degradation patterns and causes, and the effectiveness of protected areas in Mongolia
Elbegjargal Nasanbat/University of Wisconsin, Madison

Others

NASA CATALYST - Preserves Project
Kimberly Miner/NASA Jet Propulsion Laboratory

Mapping Catalyst requirements to NASA's Information Systems Inventory
Ian Brosnan/NASA Ames Research Center

Workshop on community-developed cyberinfrastructure for efficient ecological forecasting
Rob Cardeiro/NERACOOS

Wildlife Conservation Agencies and NASA Earth Observation Data: a needs assessment analysis for using NASA data to conserve biodiversity and facilitate landscape conservation.
Tony Wasley/Wildlife Management Institute

Understanding and Predicting Ecological Change in Mountain Ecosystems: The Colorado Headwaters Ecological Spectroscopy Study (CHESS)
Ian Breckheimer/Rocky Mountain Biological Laboratory

Remote sensing of biodiversity across trophic levels
Anna Schweiger/Montana State University

Mapping biocrust community composition and functional diversity across global drylands
William Smith/University of Arizona

Soilborne plant pathogen dispersal and assessment: Building a remote sensing-based global surveillance system for plant disease

Katie Gold/Cornell University