Berkeley Climate Change Network

BERKELEY CLIMATE MAP — ECOSYSTEMS/BIODIVERSITY JUNE 2025

Send adds and edits to bruceriordan@berkeley.edu

Berkeley researchers are working on a wide range of ecosystem/biodiversity issues related to climate change. This includes both addressing the impacts of heat, storms, wildfire and drought on the natural world and the ways that ecosystems can reduce carbon in the atmosphere. Much of this work is from individuals and labs in the Rausser College of Natural Resources and L&S Biological Sciences.

Specific topics currently include:

- Impacts of climate change in California
- Ecosystem carbon and nitrogen cycling
- Dating soil carbon and landscapes in Central Valley
- Bioenergy
- How ecosystems function in a warmer world
- Land use management
- California water supplies
- Grasslands, peatlands and wetlands in a changing climate
- Microbes and rainfall
- Climate change impacts on wildlife
- Forest ecosystems
- National parks
- Plant adaptation to historical and contemporary drought
- K-12 science education
- Ecosystem forecasts under uncertainty
- Climate tipping points
- Wild animal consumption
- Evolutionary ecology of fishes
- Wildfire management in Sierra Nevada
- Wetlands ecosystem services in the Delta
- Fog and redwoods
- Tropical Amazon rainforest
- Global change biology
- Habitat destruction
- Water and carbon cycles
- Soil carbon inputs in desert shrub grasslands
- Climate impacts on terrestrial arthropods
- Forest products management
- National parks
- California water resource management
- Drought impacts
- River management and restoration
- Beetles and tree mortality
- Habitat connectivity
- Vineyard land ecology
- 30X30 conservation biology
- Political economy of climate adaptation
- Prioritizing areas for conservation
- Marine heatwaves
- Microbial processes
- Climate change in polar regions
- Soil water hydrology

First	Last	Primary Affiliation	Summary	Selected Projects/Reports/Classes
David	Ackerly	RCNR	Dean, Rausser College of Natural Resources (RCNR). Integrative Biology scientist. RCNR Strategic Plan is based around three priorities: • Build interdisciplinary science initiatives, with strengthened community engagement and private-public partnerships. • Improve undergraduate first-year experience and expand discovery opportunities. • Deepen our diversity, equity, and inclusion commitment and programming.	The Ackerly lab is focused on studies of climate change impacts on California biodiversity, including distribution modeling, long-term vegetation dynamics and focal studies of selected plant species. Our primary field site is the Pepperwood Preserve, Santa Rosa, CA. Graduate students and post-docs are working on evolution of physiological traits, demography of alpine plants, and species distributions on fine-scale spatial gradients. See ackerlylab.org. Lead Coordinating Author: CA 4th Climate Assessment – Bay Area Regional Report.
Ronald	Amundson	RCNR - ESPM	The Amundson laboratory studies (1) the processes of ecosystem carbon and nitrogen cycling, (2) environmental and ecological conditions of the past, and (3) ways of developing improved means of dating soils and landscapes, using a combination of stable and radiogenic isotope geochemistry.	UCOP $100M Climate Action LOI lead The Chemical Behavior of Carbon Dioxide Adsorption to Soils and Minerals -- Seed (Decline) Great Valley and Sierra Nevada, California: Currently studying the rates of carbon and nitrogen cycling in soils that range in age from about 1,000 to 3,000,000 years in the Great Valley of California, and along elevation (climate) gradients of the western slope of the Sierra Nevada.
Adam	Arkin	Engineering - BioEngineering	Systems and Synthetic Biology, Environmental Microbiology of Bacteria and Viruses, bioenergy, Biomedicine,	Director, Center for the Utilization of Biological Engineering in Space CUBES seeks to develop low energy/mass, autotrophic and regenerable in situ resource

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			Bioremediation, space, green and sustainable manufacturing, sustainability	utilizing close-loop biomanufacturing processes for production of food, medicine and incidental building materials for operation in extreme, supply-chain limited environments. Lead Scientist, ENIGMA ENIGMA is a collaborative program to develop a predictive and mechanistic understanding of terrestrial subsurface bioprocesses for the control of major mineral cycles, fate of contaminants and restoration of sediment properties under the action of microbial communities. Lead PI, DOE Systems Biology Knowledgebase The KBase is a collaborative, open and extensible platform for the sharing of complex heterogeneous data, tools and analyses linked to the genomes of microbes, plants and other organisms of environmental and industrial interest.
Dennis	Baldocchi	RCNR- ESPM	Baldocchi's lab measures and models Co2 and Co2 exchange between ecosystems and the atmosphere. The long-term measurements are telling us how ecosystems function in a warmer world, with more Co2 and variable rainfall. Lessons from our work informs us about natural climate solutions.	The Biosphere - ESPM 2 001 - LEC 001 (FALL2023) Ecosystem Ecology, ESPM 111, Spring 2024 Biometeorology, ESPM 129, Fall 2024

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			What are the influences of weather and climate, the structure and function of plants and ecosystems, biological, physical and chemical properties of soils, and land management and land use change on the trace gas (H2O, CO2, 13CO2, CH4, C5H10) exchange of ecosystems? Baldocchi was a member of the 7-person group that developed a proposal for a new standing committee of the Academic Senate on climate change.	
Roger	Bales	Engineering - Civil and Environmental Engineering	Bales' research focus contributes to California's efforts to raise awareness and policy implementation dealing with the state's water supplies, critical ecosystems, and economy directly correlated to the impacts of climate change.	
Jill	Banfield	RCNR - ESPM, Innovative Genomics Institute	Deputy Director, Microbiology, Innovative Genomics Institute. Climate, health and agriculture. Banfield Lab – Nanogeoscience	**"Engineering the Microbiome with CRISPR to Improve our Climate and Health."** Led by IGI Founder **Jennifer Doudna** and IGI's Microbiology Director **Jill Banfield**, the project is a collaboration of IGI, UC Davis, and UCSF and is funded by a $70M grant from The Audacious Project. Working in a large, long term, well replicated grassland climate change experimental system in the Angelo Coastal Reserve, CA, we are studying how microbial communities respond to predicted changes in rainfall timing and abundance.

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				PLANTBI 292 007 (FALL 2023)
Steven	Beissinger	RCNR- ESPM	Beissinger studies conservation, behavior and population biology toward the goals of understanding the influence of climate change, managing endangered or commercially valuable wildlife, or by understanding the factors shaping life histories to satisfy our curiosity about how nature works.	Current research includes "response of California birds and mammals to 20th century climate change as part of the Grinnell Resurvey Project."
	Berkeley Forests	RCNR- ESPM	Bill Stewart, Co-Director. Scott Stephens, Co-Director. Global climate change will have far reaching impacts on forest ecosystems. Conservation in this era of change is confronted by the reality that no ecosystem, no matter how remote or wild, is protected. It is essential to develop and test appropriate management strategies for forested watersheds that will flourish under different climate change scenarios.	20-year study confirms CA forests are healthier when burned or thinned Climate Adaptive Forest Management
	Berkeley Institute for People, Parks and Biodiversity	RCNR	Holly Doremus, Co-Faculty Director. The Berkeley, Institute for Parks, People, and Biodiversity advances science and solutions to halt climate change, conserve biodiversity, and improve the experience of nature for all. The Institute conducts new scientific research and helps managers and policymakers apply	

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			the results to conservation of ecosystems around the world, especially in national parks and other protected areas.	
Benjamin	Blackman	L&S Biological Sciences - Plant & Microbial Biology; Integrative Biology	The Blackman Lab studies how plants adapt to local environments and how crops were domesticated, with an emphasis on studying how these evolutionary processes alter plant-environment interactions during development. Several current projects center on the genetic and phenotypic basis of plant adaptation to historic and contemporary drought, and on the intersection of climate, plant reproductive traits and pollinator interactions.	NSF ORCC: Harnessing Adaptive Variation in Drought Resistance Strategies to Manage Populations Under Climate Change Population responses to a historic drought across the range of the common monkeyflower (Mimulus guttatus). American Journal of Botany 108:284-296 (2021). PMB200C: Plant Diversity and Evolution FALL 2023 Bio1B: General Biology (SPRING 2024)
Benjamin	Blonder	RCNR- ESPM	Blonder is an ecologist focusing on plant response to climate change, past and present. He is also interested in improving science education through experiential approaches. Blonder co-founded and currently works with the University of Arizona Sky School, a program that provides inquiry-based outdoor science education to K-12 students throughout the southwest.	
Carl	Boettiger	RCNR- ESPM	Boettiger works on problems in ecological forecasting and decision making under uncertainty, with applications for global	Bridging the social science dimensions raised by the rise of "conservation by algorithm." See this recording of a recent talk from a virtual seminar at Harvard's

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			change, conservation and natural resource management. In the Boettiger lab, active projects include applications of deep reinforcement learning to complex conservation decision problems, from fisheries to tipping points and climate. Faculty advisor to the Schmidt Center for Data Science & Environment	CRCS, "Will algorithms save our planet and will we regret it when they do?" October 2023 workshop of the Bezos Earth Fund on Tackling the challenges of Climate & Nature with AI. See 9-minute Boettiger talk here. ESPM 157: Data Science for Global Change Ecology (Fall 2023) ESPM-288: Reproducible and Collaborative Data Science (Spring 2023)
Rauri	Bowie	L&S Biological Sciences - Integrative Biology	Evolutionary biology of small mammals, marine mollusks, inshore rockfish and insects.	UCOP climate action proposal
Justin	Brashares	RCNR- ESPM	The biological, economic and social consequences of depauperate oceans, tundras, savannas and forests remain unclear and in desperate need of study. Our research attempts to understand how the consumption of wild animals and conversion of natural habitats affects the dynamics of animal communities and the persistence of populations. Work in the group extends beyond traditional animal conservation to consider the economic, political and cultural factors that drive and, in turn, are driven by changes in wildlife abundance and diversity.	Seminar in Wildlife Biology and Management – ESPM 281 001 (Fall 2023)

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Stephanie	Carlson	RCNR- ESPM	Evolutionary ecology and conservation of freshwater fishes, with a focus on migratory species. • Habitat mosaics and connectivity • Migration • Life history portfolios • Resilience CEEJ Affiliate	
Jeffrey	Chambers	L&S Physical Sciences - Geography	Forest impacts from climate change and other disturbances (hurricanes, drought, fire), biogeography, and land-atmosphere interactions.	Current activities in Puerto Rico, Panama, the Brazilian Amazon, and California.
Brandon	Collins	RCNR- Berkeley Forests	Collins Lab of Fire Dynamics and Forest Management Our research aims to understand how fire influences forest ecosystems and how management in these ecosystems influences fire and forest health. We work directly with forest managers to both address specific research questions and interpret results in a management-relevant context. We frequently communicate our research findings to and learn from a broad host of audiences including policy makers, land management agencies, private forestland managers, students, and interested public.	Managing Natural Wildfires in Sierra Nevada Wilderness Area Spatial Patterns of Large Natural Fires in Sierra Nevada Wilderness Areas Initial Changes in Forest Understory Communities Following Fuel Reduction Treatments Fire regimes of mixed conifer forests in the north-central Sierra Nevada at multiple spatial scales Regional relationships between climate and wildfire burned area in the Interior West, USA

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Kurt	Cuffey	L&S Physical Sciences - Earth and Planetary Sciences, Geography	Cuffey's research emphasizes the environmental change of polar regions, with a focus on glaciologic problems. The choice of polar glaciology reflects the unique and powerful contributions that this subdiscipline makes to environmental change research. Ice core reconstructions of environmental history offer the most comprehensive, varied, and high-resolution view yet achieved of past environments. The ice sheets themselves are a major control on global sea level and albedo, and on high-latitude atmospheric and oceanic circulations, and on physical landscape characteristics. No other topographic features of this size and importance are changeable on such short time scales.	Glaciology (EPS C242 / Geog C241 (SPRING 2024)
Paolo	D'Odorico	RCNR- ESPM	Research focuses on the role of hydrological processes in the functioning of terrestrial ecosystems. Through the analysis of the soil water balance, we have highlighted important nonlinearities in the coupling between soil moisture dynamics and plant water stress, biogeochemical cycling, land-atmosphere interactions, plant community composition, and soil susceptibility to wind erosion.	
Todd	Dawson	L&S Biological Sciences - Integrative Biology	Research in Dawson's laboratory focuses on the interface between plants and their environment. The tools of physiological and evolutionary plant ecology and stable isotope biogeochemistry are currently being applied towards the study and interpretation of this	The Fog and the Redwood on Science Friday 2024 papers on climate change and soil carbon, ag, bats, etc.

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			interface. Projects pay special attention to how aspects of plant form and function combine to permit adaptation to environmental variation, whether naturally or anthropogenically imposed, and how plants and their unique traits influence the structure and function of the communities and ecosystems they compose.	
Richard	Dodd	RCNR- ESPM	Climate change and habitat fragmentation are two major concerns for the future health of forests and woodlands and the diversity of organisms that depend on these ecosystems. Research in the Dodd lab uses molecular methods to investigate the evolutionary dynamics of populations of species and species complexes in response to past and future environmental change	
Iryna	Dronova	RCNR- ESPM, Landscape Architecture (CED)	Dronova is interested in diverse aspects of landscape ecology and its potential to inform sustainable, multi-functional landscape-designs and decision-making in environmental planning. • Dynamics of wetland vegetation and ecosystem services in California's Sacramento-San Joaquin Delta (the Delta). • Effects of city environment on urban ecosystem services. • Coupled thermal-vegetation patterns as indicators of development and socioeconomic context in urban regions	What Putin's War in Ukraine Means for Our Global Climate Crisis (2022) 2023 UCOP Proposal: Planning Restoration of San Francisco Bay's Wetlands to Co-benefit Human- Wildlife Climate Resilience Ecological Analysis LDARCH C110A 001 (Fall 2023)

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			CEEJ Affiliate	
Emiley	Eloe-Fadrosh	LBNL - DOE Joint Genome Institute	LBNL lead for the National Microbiome Data Collaborative (NMDC), an initiative for sharing environmental microbiome data, allowing microbial ecologists to explore relationships between microbiome communities and environments. One of our driving strategic intents over the next few years is exploring the relationships between microbes and climate change.	Microbes and Climate Change- Science, People, and Impacts (Colloquium Report) Microbes and Climate Change: a Research Prospectus for the Future. mBio, 13, e00800-00822
Paul	Fine	L&S Biological Sciences - Integrative Biology	Director, Pt. Reyes Field Station Fine's research investigates the origin and maintenance of Amazonian rain forest tree diversity. He is especially interested in the role that biotic interactions and environmental heterogeneity play in the morphological, functional, and genetic diversity of tropical trees, and how these factors influence the distribution and speciation of plants. NRS University-wide Advisory Committee	Pt Reyes Field Station research: Researchers from the Terrestrial Ecosystem Sciences group in the Earth and Environmental Sciences Division at Lawrence Berkeley Lab are conducting a soil warming experiment to measure changes in soil carbon and respiration in grassland habitat dominated by perennial grasses. Ecosystems of California - INTEGBI 157LF 001
Christine	Gehrig-Downie	RCNR- ESPM	Global Change Biology, habitat destruction, ecosystems in climate change.	Teaching: ESPM 152 – Global Change Biology (SUMMER 2023) Course focuses on understanding how anthropogenic changes to the global environment (e.g., climate change, habitat destruction, global trade) impact organisms.

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				We will evaluate responses to global change in a wide diversity of organisms (from microbes to mammals) and ecosystems (from arctic to temperate to tropical).
Cynthia	Gerlein-Safdi	Engineering - Civil and Environmental Engineering	Water and Carbon Lab leader. Water and Carbon Lab is a team of hydrologists and ecohydrologists interested in understanding the links between the water and carbon cycles at various temporal and spatial scales. They are specifically curious about the influence of climate change-induced shifts in water resources on the ability of plants to uptake carbon dioxide or for wetlands to produce methane.	Projects at UC research stations and other sites.
Lau	Gherardi	RCNR- ESPM	Plant Ecology at multiple scales looking at above- and below-ground responses to Climate Change. Research focused on soil carbon inputs and cycling in desert-shrubland-grassland ecosystems. Field experiments combined with remote sensing and data synthesis.	NSF-CAREER proposal submitted looking at the effect of precipitation extremes and nutrient deposition on carbon sequestration and cycling in California annual grasslands. ESPM 116B - Grassland and Woodland Ecology SPRING 2023 Enhanced precipitation variability decreases grass- and increases shrub-productivity Effect of interannual precipitation variability on dryland productivity: A global synthesis

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Rosemary	Gillespie	RCNR- ESPM	PI, EvoLab with focus on terrestrial arthropods Berkeley Evolab is the combined research group of Rosemary Gillespie and George Roderick. Our focus is terrestrial arthropods, the most diverse macrobiota on earth, and the biological communities of which they are a part, from microbes to top predators. The work includes studies of natural biodiversity in the Pacific and California, as well as the impacts of global change on biodiversity, and solutions. .	
Keith	Gilless	RCNR- ESPM	Research uses economic analysis and operations research modeling techniques to address forest resource management issues such as: forest products market forecasting, analysis of resource-dependent local economies, the role of forestry in international development, forest harvest scheduling, protected area management, non-market valuation, the impact of climate change on fire control, structure survival in large urban-wildland fires, and wildland fire protection planning.	Former Dean, RCNR
Louise	Glass	RCNR- Plant and Microbial Biology	Biofuels, biotechnology, fungal genetics, fungal cell biology	First patent granted for research at EBI -- biofuels
Patrick	Gonzalez	RCNR-ESPM	Climate change impacts on ecosystems, biodiversity, wildfire, biome shifts, national parks; Forest carbon solutions. Previously Principal Climate Change Scientist, U.S.	Lead author, four reports of the Intergovernmental Panel on Climate Change

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			National Park Service; Previously Assistant Director for Climate and Biodiversity, White House Office of Science and Technology Policy http://www.patrickgonzalez.net/	Impacts on ecosystems - Climate change in U.S. national parks - Global biome shifts - Forest carbon and wildfire in California
Ted	Grantham	RCNR- ESPM	Cooperative Extension Specialist and Adjunct Professor, ESPM Grantham's research focuses on the relationships between hydrological and ecological processes in studies relevant to the management of water resources. An overarching goal is to improve the ability to predict the effects of climate change and management actions on freshwater ecosystems, and the socio-economic and ecological benefits they provide. · environmental flow science · California water management and policy · climate change risk assessment and adaptation	UCOP Climate Action Initiative Project: COEQWAL: Equitable stewardship of California's water in a changing climate $8M FUNDED Coordinating Lead Author: California 4th Climate Change Assessment, North Coast Region Report UC Water Academy (Spring 2024)
Junko	Habu	L&S Social Sciences - Anthropology	Habu conducts research on human-environmental interaction, human rights, and the long-term sustainability of human cultures and societies in the past and present.	Environmental Archeology ANTHRO 135B 001 - LEC 001 FALL 2023

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			Using the theoretical framework of historical ecology, the research focuses on the importance of food and subsistence diversity, social networks and local autonomy for understanding the resilience of socioeconomic systems.	
Trevor	Keenan	RCNR- ESPM	Understanding the response of terrestrial ecosystems to climate variability and long-term change, as well as related feedbacks to the atmosphere through ecosystem carbon cycling and water use. Using ML for studies on carbon cycling. Data-driven models produce new insights into carbon cycling.	We need a solid scientific basis for nature-based climate solutions in the United States (2024) Exacerbated drought impacts on global ecosystems due to structural overshoot. Evidence and attribution of the enhanced land carbon sink. Nature Reviews Earth and Environment, 4, 518–534 Exacerbated drought impacts on global ecosystems due to structural overshoot. Nature Ecology and Evolution, 5, 1490–1498 Spring 2024: ESPM 15, Intro. to Environmental Sciences
Maggi	Kelly	RCNR- ESPM	The Kelly Lab's motto is "Mapping for a Changing California." We use a range of geospatial data and analytics – from spatial modeling, remote sensing, drones, lidar, historical archives, surveys, participatory mapping, and the field - to gain insights about how and why California landscapes are	Canopy structure: An intermediate factor regulating grassland diversity-function relationships under human disturbances Modeling spatial distributions of Amah Mutsun priority cultural plants to support Indigenous cultural revitalization.

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			changing, and what that change means for those who live on, use, and manage our lands.	
Matt	Kondolf	CED - Landscape Architecture and Planning	Geomorphologist specializing in environmental river management and restoration He has served as advisor to US and state agencies on river management and restoration, and provided expert testimony before the US Congress, the California Legislature, the US Supreme Court, and the International Court of Justice and Permanent Court of Arbitration in the Hague.	
Lara	Kueppers	RCNR- Energy Resources Group	Ecological responses and feedbacks to climate change. Bark beetles tree mortality Kueppers is an interdisciplinary environmental scientist, whose research focuses on ecological responses and feedbacks to climate change. She uses field experiments and observations, as well as models, to understand climate-ecosystem interactions in forests and agroecosystems. to climate change.	"Warming increased bark beetle-induced tree mortality by 30% during an extreme drought in California"(2021) Kueppers is deputy director of Next Generation Ecosystem Experiments—Tropics, a long-term, multi-institution project funded by the Department of Energy, to better understand and project tropical forest feedbacks
Laurel	Larsen	L&S Physical Sciences - Geography	Larsen's research tries to tease apart the direct and indirect ways in which hydrologic changes impact ecosystems, and,	Just Transitions in Large Social-Ecological Systems: Drought, Sea-Level Rise, and Salinity in the Delta; Understanding and

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			conversely, how those ecological changes impact hydrology. It is only through a firm understanding of these dynamic interactions that we can predict future change in the hydrological and ecological components of landscapes. Using ML in studies of hydrology. Environmental Systems Dynamics Laboratory	modeling controls on greenhouse gas emissions from boreal peatlands GEOG 259 001 - SEM 001: Post-normal science: Theory and methods for advancing equitable, defensible decision-making in complex social-ecological systems. SPRING 2024
Cindy	Looy	L&S Biological Sciences - Integrative Biology	Looy is a plant ecologist who investigates the response of Paleozoic plants and plant communities to environmental change during periods of mass extinction and deglaciation, and the possible evolutionary consequences. Her primary research is focused on several aspects of the end-Permian biotic crisis and its aftermath, and the transition from a glacial-dominated world to an ice-free one during the Late Carboniferous to the Middle Permian.	In Earth's largest extinction, land die-offs began long before ocean turnover
Charles	Marshall	L&S Biological Sciences - Integrative Biology	Director, Museum of Paleontology Marshall is a paleontologist /deep-time evolutionary biologist broadly interested in how life has evolved on Earth, and in understanding the processes responsible for shaping life's long-term evolution. His primary sources of data are from the fossil and geological records, as well as historical information derived from the living biota (including their genomes).	Biology 1B (Evolution) Paleobiological Perspectives on Ecology and Evolution (IB 113L) SPRING 2023

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Adina	Merelender	RCNR- ESPM	Current focus is on habitat connectivity and climate change resilience of protected area networks and vineyard landscape ecology. The students and staff who work with me study wildlife in the agricultural matrix, watershed restoration, and sustainable land use. Founder of CA Naturalists and Climate Stewards programs. This community of practice introduces Californians to the wonders of our unique ecology and engages the public in environmental stewardship.	In the process of developing a new certification course to prepare UC Climate Stewards to communicate and engage in local solutions to advance community and ecosystem resilience.
Arthur	Middleton	RCNR- ESPM	Conservation biology, 30x30, and wildlife corridors. Middleton's group studies the effects of environmental change on the behavioral, population, and community ecology of wide-ranging wildlife. They also contribute to efforts to conserve and restore wildlife habitat, and to reduce human-wildlife conflicts. They partner with interdisciplinary scholars as well as agencies, non-profits, and private landowners. The group also works with photographers, artists, storytellers, and media organizations to communicate about science and conservation to the public. Senior Advisor for wildlife conservation for USDA	More Than Twice the Size of Texas - That's how much land Biden wants to conserve over the next decade. But is it possible? (New York Times Op-Ed) Plasticity in elk migration timing is a response to changing environmental conditions

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Meg	Mills-Novoa	RCNR- ESPM, ERG	Director, Climate Futures Lab As a human-environment geographer, research focuses on the enduring impact of climate change adaptation projects. Collaborates closely with communities and practitioners to improve the design, implementation, and outcomes of adaptation projects that promote inclusion and equity. Most recently, she served as the outreach coordinator for the Climate Impacts Research Consortium at Oregon State University, a climate science-to-action team funded by NOAA. Climate Equity Environmental Justice Core Faculty	What happens after climate change adaptation projects end: A community-based approach to ex-post assessment of adaptation projects Intervention: The Invisible Labor of Climate Change Adaptation. Political Ecologies of Climate Adaptation **ENERES C266 001** Climate Justice (ESPM C160/ENERES C176) FALL 2023
Brent	Mishler	L&S Biological Sciences - Integrative Biology University and Jepson Herbaria	Flora of California. Mishler's team has created a computer model for the flora of California to prioritize areas needing preservation, linking this for the first time with the areas' suitability for preservation. The model will allow conservation groups, ranging from state and national parks to the Nature Conservancy, to determine whether land harboring species in need of preservation is already protected, unprotected but salvageable or degraded to the point where	As Climate and Land Use Change Accelerate, So Must Efforts to Preserve State's Plants *(2018)* Mishler contributed to an analysis documenting which plants in North America have already gone extinct. Available data suggest 65 vascular plant taxa from this region have become extinct since European settlement, 19 from California alone (*2020*): https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/cobi.13621 Speciesism in Biology and Culture: How Human Exceptionalism is Pushing Planetary

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			saving it would be pointless: necessary triage given limited funds for preservation.	Boundaries. Springer Nature. [*2022.* Open access book] A new NSF grant will study the drivers of plant functional diversity, phylodiversity, and geographic distributions, past, present, and future for the whole North American Flora. This work will be usable for predicting the resilience of lineages and communities in the face of rapid global change, and for assessing conservation priorities.
Nigel	Mouncey	LBNL - DOE Joint Genome Institute	Nigel Mouncey, Facility Director, DOE Joint Genome Institute Director of the DOE Joint Genome Institute and also the Program Head for JGI's Secondary Metabolites Science Program. The mission of the JGI is: As a US Department of Energy User Facility, we provide advanced genomic capabilities, large-scale data, and professional expertise to support the global research community in addressing energy and environmental research grand challenges. We optimize our service to the community through responsibly managing our people and resources	When "The Blob" Made It Hotter Under the Water: Data from marine heatwave event may foreshadow climate change impact on marine microbial communities. Multi-omics of permafrost, active layer and thermokarst bog soil microbiomes Switchgrass and Sustainable Biofuels
Chris	Mungall	LBNL - Environmental Genomics and Systems Biology	Head of the Biosystems Data Science dept in Environmental Genomics and Systems Biology Division at LBNL.	Co-lead for development of the Environment Ontology. Metadata lead for National Microbiome Data

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			A growing area of interest is translating curated basic research data into clinically actionable frameworks.	
Rasmus	Nielsen	L&S Biological Sciences - Integrative Biology	Rasmus Nielsen's research focuses on statistical and computational aspects of evolutionary theory and genetics. One of the central problems of interest is the molecular basis of evolutionary adaptation. What happens at the molecular levels as one species is transformed into another over evolutionary time?	Temporal genomic contrasts reveal rapid evolutionary responses in an alpine mammal during recent climate change (2019)
Celine	Pallud	RCNR- ESPM	Soil carbon removal and storage. The Soil and Environmental Biogeophysics Lab focuses on the analysis and prediction of transport and fate of chemical species that are of importance to the functioning, quality and remediation of soils, surface sediments and water. More specifically, the research aims at a mechanistic understanding and quantitative characterization of microbial processes and their impact on the mobility, bioavailability and distribution of nutrients, metals and contaminants.	
Matthew	Potts	RCNR- ESPM	Associate Director for Sustainable Development, Blum Center for Developing Economies, where he leads an interdisciplinary lab that focuses on the co-production by human and natural systems of ecosystem services and natural pathways for carbon sequestration.	2023 UCOP Proposal: Proposal for Increasing CO2 Removal in California Through Science-Based Standards and Industry Engagement Criteria for High Quality Carbon-Dioxide Removal

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			Potts is the Chief Science Officer at Carbon Direct Inc. where he leads an international science team working on decarbonizing the global economy. Potts helps clients assess high quality carbon removal from managed landscapes and works to ensure climate actions are just and equitable. He also works closely with Carbon Direct's technology team to integrate science, software, and product	Redefining "abandoned" agricultural land in the context of reforestation. Frontiers in Forests and Global Change . Rates and drivers of aboveground carbon accumulation in global monoculture plantation forests.
Mary	Power	L&S Biological Sciences - Integrative Biology	Director, Angelo Coast Reserve. River food webs. Power's research centers on river food webs—interactions among fish, birds, invertebrates, and algae in temperate and tropical rivers. She is particularly interested in how attributes of species affect food web structure and dynamics, and how strengths of these interactions change under different environmental regimes.	
George	Roderick	RCNR- ESPM	Roderick's research focuses on global change, especially the impact of global biological homogenization caused by biological invasions. The work addresses basic and applied questions, taking advantage of the opportunities associated with the geography of the Pacific Basin, Pacific Islands, Pacific Rim, and California. Research includes studies of the origins of both endemic and non-indigenous organisms,	

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			processes associated with colonization and invasion, population structure, species interactions, and response to climate change.	
Bree	Rosenblum	RCNR- ESPM	Global Change Biology. The Rosenblum lab studies the processes that generate and impact biological diversity. They are particularly interested in both sides of the evolutionary speciation/extinction "coin" and in determining the mechanisms of rapid adaptation of animals to changing environments. Rosenblum is also deeply committed to educational transformation and holds several leadership roles focused on promoting institutional and cultural change to support diversity, creativity, and self-actualization in academia.	
Albert	Ruhi	RCNR- ESPM	Ruhi's research seeks to understand how freshwater communities and food webs respond to global change, with a focus on the effects of hydrologic alteration and drought.	
Nathan	Sayre	L&S Physical Sciences - Geography	Fire restoration Sayre is a human geographer with interests in the transformation and management of the earth's environment. His research centers on semi-arid rangelands, especially in the southwestern United States: how they have	Research on the 1861-62 California mega-flood and subsequent drought. Co-teaches a course on Global Warming.

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			changed, how they have been understood and managed, and the politics and economics surrounding land use change, fire restoration, and endangered species conservation.	
Christopher	Schell	RCNR- ESPM	Schell studies the intersections of society, ecology, and evolution to understand how wildlife (mainly mammalian carnivores) are rapidly adapting to life in cities. The work of the Schell lab combines behavioral, physiological, and genomic approaches to demonstrate the myriad consequences of historical and contemporary inequities on organismal, population, and community-level dynamics of wildlife. In addition, Schell and his lab leverage human dimensions and community-engaged data streams to decipher how wildlife adaptation and human perceptions create landscapes of risk that contribute to human-carnivore conflict. Climate Equity Environmental Justice Core Faculty	UCOP $100M Climate Action LOI lead – January 2023n - Urban coyotes as ecosystem sentinels of societal and climate-induced health hazards -- Seed (Decline) "Ecological and evolutionary consequences of systemic racism in urban environments," "Urbanization, climate and species traits shape mammal communities from local to continental scales." Coexistence across space and time: Social-ecological patterns within a decade of human-coyote interactions in San Francisco. Urban Biodiversity and Equity: Justice-Centered Conservation in Cities. ESPM 189A – Urban Ecology and Evolution SPRING 2023 ESPM 257 – Creative Writing in Environmental Science SPRING 2024
Patrick	Shih	RCNR- Plant and Microbial Biology	Carbon removal and climate innovation. Assistant Professor in PMB with appointments at IGI and JBEI. At JBEI Shih's lab is focused on	

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			plant synthetic biology. He is involved in carbon removal and climate innovation work at IGI.	
Whendee	Silver	RCNR- ESPM, Innovative Genomics Institute	Her work seeks to determine the biogeochemical effects of climate change and human impacts on the environment, and the potential for mitigating these effects. The Silver Lab is currently working on drought and hurricane impacts on tropical forests, climate change mitigation potential of grasslands, and greenhouse gas dynamics of peatlands and wetlands.	Silver is the lead scientist of the Marin Carbon Project, which is determining the potential for land-based climate change mitigation, particularly by composting high-emission organic waste for soil amendments to sequester atmospheric carbon dioxide. The Silver lab is investigating the potential of ground rock amendments to sequester carbon and lower greenhouse gas emissions via enhanced weathering. The Silver Lab is exploring the use of biochar alone and in combination with ground rock and compost amendments to sequester carbon and lower greenhouse gas emissions. Using machine learning for studies on greenhouse gas emissions and carbon sequestration in forests and on working lands. Global observation gaps of peatland greenhouse gas balances: needs and obstacles - Biogeochemistry Soil carbon sequestration in global working lands as a gateway for negative emission technologies

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				Carbon-sink potential of continuous alfalfa agriculture lowered by short-term nitrous oxide emission events - Nature Communications Compost amendment to enhance carbon sequestration in rangelands Assessing the climate change mitigation potential from food waste composting - Scientific Reports
Jennifer	Sowerwine	RCNR- ESPM	Sowerwine's research and outreach program engages diverse stakeholders across the food system to examine barriers and co-create solutions to achieve healthy, equitable, culturally relevant, and sustainable food systems under changing climate conditions. In partnership with Tribes, immigrant and urban communities, she examines the cultural politics of resource access and governance, and the relationship between Indigenous and western science, bio-cultural diversity, food security, and health. CEEJ Affiliate	Co-founder of the Karuk Tribe-UC Berkeley Collaborative, a partnership working to advance Tribal food sovereignty and eco-cultural revitalization of ancestral lands, practices and foodways. Managing Cultural Foods in a Changing Climate: Karuk Agroecosystem Resilience and Cultural Foods and Fibers Revitalization Initiative: xúus nu'éethti – we are caring for it. Understanding the conservation challenges and needs of culturally significant plant species through Indigenous Knowledge and species distribution models. Conceptualizing Indigenous Cultural Ecosystem Services (ICES) and benefits under changing climate conditions in the

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				Klamath River Basin and their implications for land management and governance.
William	Stewart	RCNR- ESPM	Co-Director, Berkeley Forests. Improving the positive financial linkages between working forests and rangelands on one hand and our urban residents on the other.	
Sunaura	Taylor	RCNR- ESPM	Taylor's research is rooted in understanding the social and cultural meanings of disability and illness, and their relationship to environmental processes and ecological thought. The social and cultural meanings of disability and illness, and their relationship to environmental processes and ecological thought. Climate Equity Environmental Justice Core Faculty	Disabled Ecologies: Lessons from a Wounded Desert (forthcoming from UC Press) suggests that new and generative understandings of disability and nature emerge when we follow the trails of disability that are created when ecosystems are contaminated, depleted, and profoundly altered.
Neil	Tsutsui	RCNR- ESPM	The research in Tsutsui lab focuses on the evolution and behavior of social insects, using tools from genetics, genomics, chemical ecology, and behavioral ecology. One line of research examines the thermal physiology and genetics of a cold-adapted species (the winter ant) to understand how species may be affected by a changing climate.	Director of the five Central Sierra Field Research Stations —Sagehen Creek Field Station, the Central Sierra Snow Lab, Chickering American River Reserve, Onion Creek Experimental Forest, and the North Fork Association Lands. Vice-chair of the Parks Advisory Committee for the East Bay Regional Parks District.

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				Body size and cuticular hydrocarbon composition determine desiccation resistance in the invasive Argentine ant (*Linepithema humile*). J. Experimental
	UC Botanical Garden		Lewis Feldman, Director. Research museum open to the public and displaying a notably diverse plant collection of over 12,000 different kinds of plants, including many rare and endangered species. The Garden holds one of the most taxonomically diverse collections in the United States, with the largest known percentage of documented wild origin materials. The California collection, which contains about 25% of the state's flora, is the largest of its kind in the world.	The documented wild origin of the collections facilitates their use for many areas of plant research, from discerning evolutionary relationships to climate change responses. Plant materials are sent all over the world to support research projects. Publications resulting from use of the collection are posted on the Garden's web site.
Haruko	Wainwright	LBNL - Earth and Environmental Sciences Area	Wainwright is a research scientist using ML for detailed ecosystem models. Wainwright's research focuses on environmental informatics, aiming to improve understanding and predictions in Earth and environmental systems through mechanistic modeling and machine learning.	
Ian	Wang	RCNR- ESPM	Landscape genetics, ecological and conservation genomics, adaptive radiation	2023 UCOP Proposal: A Conservation Genomics Analysis Pipeline for Spatial Conservation Prioritization

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Caroline	Williams	L&S Biological Sciences - Integrative Biology	The Williams lab studies the evolution of metabolic physiology in ectotherms, using insects as models. We are interested in the mechanisms and consequences of metabolic responses to emerging winter environments. This is important because *winter climate change* is altering energy balance, phenology, and cold stress in overwintering organisms leading to cascading biological impacts that carry over into the growing season and affect survival and fitness. Academic Senate committee on climate	
Robert	York	RCNR- ESPM	York works at the intersection of forest science and management, exploring novel approaches to forest management treatments that are guided by ecosystems' disturbance regimes.	As Assistant Cooperative Extension Specialist and through active work at a network of research forests operated by UC Berkeley in the Sierra Nevada, York applies research to management by extending information to a wide variety of stakeholders.