



**UCLA**  
Department of Ecology and Evolutionary Biology

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The first telephone number listed is the office number; the second (if listed) is the laboratory number. The mailing address for all listed faculty is:

UCLA Department of Ecology and Evolutionary Biology  
Box 951606  
Los Angeles, CA 90095-1606

**MICHAEL ALFARO.** My lab studies biodiversity of vertebrates, especially coral reef fishes. We are interested in the tempo and mode of lineage diversification and how morphological evolution relates to functional and ecological diversity. Projects include testing the influence of coral reefs on morphological evolution in fishes, investigation of the role of genome duplication on speciation rate, and studies of morphological evolution in pufferfishes and boxfishes. (Email: [michaelalfaro@ucla.edu](mailto:michaelalfaro@ucla.edu)) (Availability: Unknown)

**PRIYANGA AMARASEKARE.** My research focuses on mechanisms that maintain biological diversity in variable environments. I approach this issue from both an ecological and an evolutionary perspective, and explore it using a combination of observation, experimentation and mathematical modeling. Through investigations of host-parasitoid and other multi-trophic interactions in variable environments, my research encompasses both basic and applied issues in Ecology. (Location: Botany 320, Email: [amarasek@eeb.ucla.edu](mailto:amarasek@eeb.ucla.edu)) (Availability: Unknown)

Lab Website: <http://www.eeb.ucla.edu/Faculty/amarasekare/>.

**PAUL BARBER.** Research in the Barber lab focuses on the evolution and conservation of marine biodiversity. Current work focuses on elucidating biodiversity patterns in the coral reefs of the Coral Triangle, the world's most biologically diverse marine ecosystem, using cutting edge molecular genetic techniques. (Location: Botany 414B, Email: [paulbarber@ucla.edu](mailto:paulbarber@ucla.edu)) (Availability: F, W, S, Sum)

**DAN BLUMSTEIN.** Behavioral ecology and conservation biology. Information on undergraduate research opportunities in our lab is posted at <https://blumsteinlab.eeb.ucla.edu>. (Location: Life Sciences 4808, Email: [marmots@ucla.edu](mailto:marmots@ucla.edu)) (Availability: F, W, S, Sum)

**DONALD BUTH.** Ichthyology; phylogenetic systematics; parasitology. Studies of population structure, hybridization, and phylogeny of North American fishes (especially catostomids, cyprinids, and gasterosteids) using morphometrics and allozymes. Secondary interest in parasites especially of marine fishes. (Location: Life Sciences Building 1331, Email: [dbuth@ucla.edu](mailto:dbuth@ucla.edu))

**PEGGY FONG.** The research in my lab centers around the marine ecology of coastal ecosystems. Projects include nutrient dynamics and algal blooms, invasions of algae into temperate and tropical coasts, the effects of natural and anthropogenic disturbances on coral reefs, modeling seagrass communities in response to human disturbance, and developing bioassays to detect coastal eutrophication. (Location: Botany 419A. Email: [pfong@biology.ucla.edu](mailto:pfong@biology.ucla.edu))

**PATRICIA ADAIR GOWATY.** We study the evolution and ecology of social behavior in field and laboratory populations using naturalistic observations, experiments, analytical mathematical models and very occasionally numerical experiments (simulations). Our focus is on behavior, particularly mating behavior -who mates with whom, how often, when, and, most important, why. Thus, our focus is on MATING BEHAVIOR, but our dependent variables are always about fitness, i.e., relative reproductive success and survival of individuals; our studies are about fitness effects of behavior in demographic context. We are also pursuing long-term multi-generation pedigrees. We use DNA markers to infer kinship, genetic parentage, and population structure of birds and *Drosophila*. (Location: Botany 114, Email: [gowaty@eeb.ucla.edu](mailto:gowaty@eeb.ucla.edu)) (Availability: by email only)

**GREGORY GRETHER.** We approach ecological and evolutionary questions from a behavioral perspective, and study ways in which the behavior of animals influences ecological and evolutionary processes. Most of our current research focuses on the effects of behavioral interference (reproductive interference, aggressive interference)

between species. Aggression, in particular, is understudied compared to other types of species interactions, and we are helping to fill this void with both theoretical and empirical research. Current study systems include insects, birds, mammals and salamanders. (Email: [ggrether@ucla.edu](mailto:ggrether@ucla.edu); Availability: F, W, S, Sum)

Lab Website: <https://sites.lifesci.ucla.edu/eeb-gretherlab/>

Best time for lab assistant applications: students can inquire anytime, but the best time to inquire is near the end of the quarter. We generally conduct interviews for fall during the last week or two of the summer and for the other quarters near the end of the previous quarter. For summer field research positions, students can inquire anytime, but we generally start interviewing for these positions near the end of winter quarter.

**DAVID K. JACOBS.** My lab is devoted to the study of evolution of marine animals. There are currently two areas of research in the lab. One involves the use of molecular techniques to address questions of population divergence and speciation along the coast, especially in estuarine taxa. This work involves aspects of conservation genetics and the history of environmental change. One of our favorite research areas is the Gulf of California. The second area of research involves the use of developmental genes and gene expression to understand the evolution of animal form. We are particularly interested in the way in which different animal phyla evolved around the time of the Cambrian Radiation approximately 600 million years ago. This research involves the study of the evolution of development (EvoDevo). We are currently examining the evolution of eyes in jellyfish in this context. In the lab we also explore other aspects of invertebrate paleontology and evolution including the functional biology of invertebrates and how physical factors, such as climate, have influenced animal diversity through time. We prefer to take students in the lab that can make more than 1 quarter commitment (Location: Life Sciences Building 5127B, Email: [djacobs@ucla.edu](mailto:djacobs@ucla.edu))

**PETER KAREIVA** Current research concerns the connection between humans and nature, and the varied ways people of different cultures value nature, as well as inequities in access to nature and decent environments. (Location: Suite 300 La Kretz Hall)

**NATHAN KRAFT** Plant community ecology, with an emphasis on functional and phylogenetic approaches to understanding community assembly and species

coexistence; tropical forest dynamics; biogeography and the assembly of regional biotas. (Location: Life Sciences Building 3219, Email: [nkraft@ucla.edu](mailto:nkraft@ucla.edu))

Lab Website: <https://sites.lifesci.ucla.edu/eeb-kraft/>

**JAMES LLOYD-SMITH.** Research in my group centers on the ecology and evolution of infectious diseases, with particular emphasis on emerging pathogens. We apply mathematical and computational methods to understand the dynamics of disease spread in human and wildlife populations, so potential students should have strong quantitative skills and programming ability. Projects include the dynamics of leptospirosis in California sea lions, spillover of monkeypox from wildlife reservoirs into humans, and theoretical studies of evolutionary emergence of novel human pathogens such as SARS or avian influenza. (Location: Terasaki Life Sciences Building 4135, Email: [jloydsmith@ucla.edu](mailto:jloydsmith@ucla.edu)) (Availability: S, Sum)

**KIRK E. LOHMUELLER** My research focuses on population genetics and genomics. I develop and implement computational approaches to interpret genetic variation data to learn about evolution and disease. Specifically, I am interested in understanding how natural selection has shaped patterns of genetic variation across the genome and in different species, as well as the role that population history has played in this process. Additionally, I use genetic variation data to learn about population history. Finally, I am exploring how population genetic approaches can contribute to finding genes responsible for complex traits. My group combines the development of new computational methods with the analysis of cutting-edge genomic data. In both cases, our work relies heavily on population genetic models. (Location: Life Sciences Building 4312, Email: [KLOHMUELLER@UCLA.EDU](mailto:KLOHMUELLER@UCLA.EDU))

Lab Website: <https://www.eeb.ucla.edu/Faculty/Lohmueller/> (Prefers applications on a rolling basis)

**GLEN M. MACDONALD.** Our research group consists of climate change scientist working on questions of long-term climate dynamics and the impacts of future climate warming. In our work we reconstruct past climates and the response of vegetation, rivers and lake ecosystems to climate change. We are particularly interested in Arctic climate change. We also work on the impacts of prolonged droughts on water resources and fire regimes. We are also working questions of carbon and methane stored or released from

organic-rich soils. To produce long records of climatic and ecosystem change we analyze chemistry and fossil content. The lake sediment records can go back tens of thousands of years. Finally, we also obtain cores from peatlands and other wetlands. Our samples come from the western U.S., Hawaii, Canada and Russia. In the lab students learn how to prepare wood, lake sediment samples and organic soils for analysis and how to use software to analyze and graph the results of their work. Opportunities also exist to work on library research and occasional field trips (Location: LaKretz Hall, Suite 300, Email: [macdonald@ioe.ucla.edu](mailto:macdonald@ioe.ucla.edu) or [macdonal@geog.ucla.edu](mailto:macdonal@geog.ucla.edu), [www.biogeographer.com](http://www.biogeographer.com))

**PETER NARINS.** Evolution of acoustic communication: physiology, mechanics and behavior. Our research focuses on the question of how animals extract relevant sounds from the often highly noisy backgrounds in which they live. The techniques we use are the quantitative analysis of vocal behavior of animals in their natural habitats, followed by single fiber neurophysiological recordings in order to elucidate mechanisms underlying signal processing in noise. A second research direction is based on the discovery of the remarkable sensitivity to substrate vibrations possessed by burrowing animals. (Location: Life Sciences 4835, Email: [pnarins@ucla.edu](mailto:pnarins@ucla.edu))

Lab Website: <https://www.ibp.ucla.edu/Faculty/Narins/pnarins/pnarins.html>

**BARBARA NATTERSON** I develop interdisciplinary programs that bring together the fields of veterinary medicine, human medicine, evolutionary and wildlife biology to explore the potential for a species-spanning approach to health. The potential for comparative clinical medicine and evolutionary medicine to yield new approaches and novel hypotheses for important health challenges is only now emerging. Some of the initiatives I have developed to expand the interface between these related but too often disconnected fields have included: Conferences bringing physicians and veterinarians together to discuss the shared diseases of different species, Medical school course on comparative clinical medicine, Novel research initiative pairing UCLA medical students with UC Davis veterinary students to explore important health concerns relevant to both humans and animals, Evolutionary Medicine Month at UCLA - "Darwin on Rounds" Project, Develop undergraduate, graduate and medical school curriculum in evolutionary medicine. (Location: 47-123 CHS, Email: [BNATTERSON@MEDNET.UCLA.EDU](mailto:BNATTERSON@MEDNET.UCLA.EDU)).

**PETER NONACS.** Research in behavioral ecology and social evolution, using both theoretical and experimental approaches. Areas include: foraging behavior and life history trade-offs in ants, bees and wasps; social behavior in colonies; and the evolution of parental care strategies. (Location: Life Sciences Building 3125, Email: [pnonacs@biology.ucla.edu](mailto:pnonacs@biology.ucla.edu)) (Availability: F, W, S, Sum).

Lab Website: <https://www.eeb.ucla.edu/Faculty/Nonacs/>

**NOA PINTER-WOLLMAN** Many biological systems are complex aggregates of multiple agents working together towards collective, higher-order goals, and evolution acts on variation in these emergent collective properties. There is no central control dictating the activities of members in the assembly. Instead, agents use local signals that determine their behavior and are received through an intricate interaction network resulting in collective phenotypes. Thus, the composition of a group and the way its members interact affects the success of the group as a whole, just as the composition of any sports team dictates its success in the league. The Pinter-Wollman lab examines the emergence of collective outcomes from group composition by combining field and lab studies with computer simulations, theoretical work, image analysis, and social network analysis. (Location: Life Sciences Building 4106, Email: [nmpinter@ucla.edu](mailto:nmpinter@ucla.edu)).

Lab Website: <https://pinterwollmanlab.eeb.ucla.edu/> (applications preferred on a rolling basis)

**VAN SAVAGE** Biological systems display extraordinary diversity in form and function. By understanding this diversity, we can discover mechanisms that provide critical new insights into biomedical problems. My overall research goal is to combine novel mathematical models with newly collected or analyzed empirical data to understand how biological systems are organized, constrained, and controlled across multiple levels of organization. This approach often relies on an evolutionary understanding of the factors that drive biological systems. These evolutionary factors are often revealed through comparative analyses of organisms and species. In this way, I have found new results and published papers in diverse areas such as tumor growth, animal and plant vascular networks, sleep times, cell size, and even the effects of global warming on ecosystems. (Location: 5205 LSB, Email: [vsavage@ucla.edu](mailto:vsavage@ucla.edu))

Lab Website: <http://faculty.biomath.ucla.edu/vsavage/>

**KAREN SEARS** Organismal form is the product of a complex suite of interacting developmental processes. Variation in these processes allows mammals to adapt to changing environments, but also generates congenital malformations in humans. Developmental variation therefore presents a unifying concept for evolutionary biology and biomedicine, whose understanding is critical to the success of both fields. My primary research goals are to determine how developmental variation interacts with environmental factors within a species to produce congenital malformations in humans, and among species to generate new evolutionary adaptations in mammals. To pursue these goals, I characterize developmental variation across biological scales, and interpret how this variation drives evolution and malformations in form. I incorporate data from fields from paleontology to mathematics to genomics to developmental biology. I also study multiple model and non-model mammals (e.g., mouse, bat, cat, deer, horse, pig, opossum). I use this approach to investigate three major topics: mammalian limb evolution and development, major evolutionary transformations during mammalian evolution, and mammalian sensory system evolution. (Location: BOX 951606 4113 LSB, Email: [ksears@ucla.edu](mailto:ksears@ucla.edu)).

Lab Website: <https://searslab.eeb.ucla.edu/>

**H. BRADLEY SHAFFER** Evolutionary biology, ecology and conservation biology of amphibians and reptiles. Recent research projects include comparative phylogeography of amphibians and reptiles in California and the central U.S., systematics of freshwater turtles and tortoises in Australia, California, and the rest of the globe, and conservation genetics of endangered California amphibians and reptiles. Recently, we have focused a great deal of ecological and genetical work on the California tiger salamander, an endangered species native to central California grassland habitat. (Office: La Kretz Hall, Suite 300, Lab: Terasaki Life Sciences Building, Room 4163, Email: [brad.shaffer@ucla.edu](mailto:brad.shaffer@ucla.edu)).

Lab Website: <https://sites.lifesci.ucla.edu/eeb-shafferlab/>

**THOMAS SMITH** Evolutionary ecology, speciation, conservation of vertebrates, and ecology of disease, especially in the tropics. (Location: La Kretz Hall, Suite 300, Email: [tbsmith@ucla.edu](mailto:tbsmith@ucla.edu) , <http://www.environment.ucla.edu/CTR/>). The Congo Basin Institute: <https://www.cbi.ucla.edu/>

**BLAIRE VAN VALKENBURGH** Paleobiology, ecology, and functional morphology of vertebrates. Emphasis is on biomechanical approaches to the study of vertebrate skeletal and dental adaptation. (Location: Terasaki Life Sciences Building 2163, Email: [bvanval@ucla.edu](mailto:bvanval@ucla.edu)) (Availability: F, W, S, Sum).

Lab

Website: [https://www.eeb.ucla.edu/Faculty/VanValkenburgh/Van\\_Valkenburgh\\_Lab/Welcome.html](https://www.eeb.ucla.edu/Faculty/VanValkenburgh/Van_Valkenburgh_Lab/Welcome.html) (applications on a rolling basis)

**PAMELA YEH** My lab is interested in measuring, understanding, and predicting the ecological and evolutionary trajectories of populations when they encounter novel environments, particularly environments with multiple disturbances or stressors. We are especially interested in how the stressors interact, and how these interactions ultimately affect populations. We incorporate field, lab, and theoretical tools in our work. We work on two systems, one lab-based, and one field-based. In the lab, we work on microbial evolution and how bacteria respond to multiple stressors, using antibiotics as stressors. In the field, we work on avian urban ecology and evolution, specifically on how dark-eyed juncos and house sparrows are affected by the urban landscape and unique urban stressors. (Location: Life Science 4227, Email: [pamelayeh@ucla.edu](mailto:pamelayeh@ucla.edu))

Lab Website: <https://www.eeb.ucla.edu/Faculty/Yeh/>

**FELIPE ZAPATA** I am interested in understanding how biological diversity originates and evolves. My research is focused on three inter-related and overlapping topics: i) the discovery and description of biological diversity, ii) the reconstruction of the evolutionary histories of genes, species, and clades, and c) the evaluation of ecological and evolutionary hypotheses to study what factors allow and promote genetic, species, and phenotypic diversity. Current research areas include: systematic biology, plant biology, statistical phylogenetics, quantitative taxonomy, macroevolution, bio- and phylogeography, computational biology, phylogenetic comparative functional genomics, adaptation, speciation, and tropical biology. (Location: Life Sciences Building 3205, Email: [fzapata@ucla.edu](mailto:fzapata@ucla.edu))

Lab Website: <http://zapatalab.org>