



NEWSLETTER

June 2024 | UCLA Institute of the Environment and Sustainability | www.ioes.ucla.edu/ctr

LETTER FROM THE FOUNDER

By Tom Smith

Dear Friends,
Since its inception in 1997 as a research unit at San Francisco State University (SFSU), the Center for Tropical Research (CTR) has been at the forefront of studying the intricate biotic processes that sustain life's diversity in tropical regions. We are thrilled to share some significant milestones and transitions with you.

In January 2002, CTR found a new home at the University of California, Los Angeles (UCLA), becoming a formal research unit of the Institute of the Environment and Sustainability. Our mission, then and now, remains focused on understanding tropical biodiversity and advancing conservation efforts to protect species and their habitats.

Collaborating with a diverse network of esteemed scientists, CTR conducts groundbreaking research across various critical areas. From studying diversity generation in rainforests to exploring the nexus of ecology and disease, from migratory bird conservation to rainforest restoration in human-influenced landscapes, our projects utilize cutting-edge technologies

like satellite imagery and molecular genomics.

Over the years, CTR has been supported by grants from prestigious institutions such as the National Science Foundation (NSF), the Environmental Protection Agency, the Fogarty International Center, the National Institutes of Health, the National Geographic Society, the United States Agency for International Development (USAID), the Natural Sciences and Engineering Research Council (NSERC), as well as numerous foundations and individuals. Our research footprint now spans more than 45 countries across six continents, engaging a global team of over 160 scientists, postdoctoral researchers, graduate students, and research fellows, with alums hailing from countries worldwide.

Recently, I transitioned to a research professor role, passing the baton of CTR's leadership to two exceptional researchers: Professor Felipe Zapata and Dr. Elsa Ordway.

Dr. Zapata, a distinguished evolutionary biologist, brings expertise spanning evolution, ecology, and conservation. His



interdisciplinary approach, from genetic studies to field biology, informs practical solutions for environmental preservation. Dr. Ordway, a leading scholar, focuses on social-ecological systems in forested regions amidst climate change and increasing land demands. Through remote sensing, fieldwork, and socioeconomic analyses, she uncovers critical insights into forest dynamics across scales.

This transition marks an exciting chapter for CTR. With Professors Zapata and Ordway at the helm, we are confident in their ability to uphold CTR's 27-year legacy and tackle the challenges facing tropical regions.

Thank you for your ongoing support and interest in our work.

Warm regards,
Thomas B. Smith

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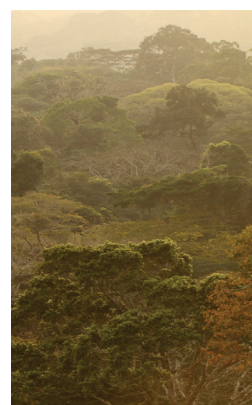
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LETTER FROM CO-DIRECTORS

By Elsa Ordway & Felipe Zapata

Dear Readers,
We are thrilled to introduce ourselves as the new co-directors of the Center for Tropical Research (CTR) at UCLA. As we embark on this journey together, we are excited to share the incredible work being done at the CTR and UCLA to protect and understand our planet's vital tropical ecosystems.

The tropics, with their unparalleled biodiversity and critical role in global climate regulation, are facing unprecedented challenges due to climate change and human activities. The PANGAEA initiative, led by Professor Elsa Ordway, exemplifies our commitment to addressing these challenges. This NASA-funded project aims to understand the varied responses of tropical forests to climate change across the Americas, Africa, and Asia. By combining fieldwork with advanced remote sensing technologies, PANGAEA will fill crucial data gaps and provide insights necessary for conservation and sustainable management of tropical forests.

Our collaborative efforts also extend beyond research. The Governors' Climate and Forests Task Force, hosted at UCLA, is a testament to our global engagement. This network of 43 subnational governments is dedicated to reducing

Meet our co-directors!

Dr. Elsa M. Ordway, Co-Director of the CTR



Elsa Ordway, UCLA assistant professor of Ecology and Evolutionary Biology and IoES affiliated faculty, conducts research on forest responses to climate change and land-use change in the tropics and California. Ordway has extensive experience in the African tropics, where she worked on research and applied conservation projects in marine and forest ecosystems in countries such as Ghana, Madagascar and Equatorial Guinea. She conducted research in

Rwanda while pursuing her master's degree at Columbia University and researched forest transitions and sustainable land use in Cameroon for her Ph.D. dissertation at Stanford University.

Dr. Ordway can be reached for further information or collaboration opportunities at elsaordway@ucla.edu

Dr. Felipe Zapata, Co-Director of the CTR



Felipe earned his Ph.D. from the University of Missouri - St. Louis and a B.Sc. degree from the Universidad de Los Andes in Bogotá, Colombia. He is currently an Associate Professor in the Department of Ecology and Evolutionary Biology and an Affiliate Faculty member of the Institute of the Environment and Sustainability at UCLA. His research interests include the evolution, ecology, and conservation of biodiversity. As a native tropical biologist, Felipe has extensive experience conducting fieldwork in the American tropics and is eager to expand his work into other tropical regions.

"Stepping in as Co-Director of the CTR alongside Dr. Ordway is a true honor. I look forward to collaborating with Dr. Ordway to shape the future of the CTR, train the next generation of tropical scientists, work towards capacity building in the tropics, conduct inclusive science, and incorporate a transdisciplinary perspective into our work."

Dr. Zapata can be reached for further information or collaboration opportunities at fzapata@ucla.edu or (310) 206-4583.

deforestation and promoting sustainable economic development. Their recent \$1 billion call-to-action at COP28 highlights the urgent need for flexible funding to support these initiatives. Through workshops and technical exchanges, we are fostering partnerships that integrate Indigenous knowledge with scientific research, driving impactful policies and conservation strategies.

“ Together, we can leverage UCLA’s unique strengths to drive transformative research that safeguard the tropics in the globally important roles they play, for future generations. ”

Our partnerships with other UCLA centers are growing and more important than ever. These include the Congo Basin Institute, the

Center for Brazilian Studies, the Latin American Institute, and the African Studies Center, all of which amplify our interdisciplinary approach. The Center for Brazilian Studies, for example, plays a crucial role in linking UCLA’s research with Brazil’s environmental policies and socio-economic dynamics. A recent visit to UCLA from Brazil’s ambassador to the U.S. underscores the potential for future collaborations, enhancing our collective ability to address global environmental challenges.

We are proud to highlight the importance of integrating Indigenous knowledge with scientific research. Our work with the Baka community in Cameroon exemplifies this approach. By co-creating a guided botany tour that showcases traditional ecological knowledge and supports intergenerational knowledge transfer, the Congo Basin Institute’s School for Indigenous and Local Knowledge (SILK) is fostering

mutual respect and understanding. This project is a model for how we can collaboratively achieve meaningful outcomes that respect and preserve Indigenous cultures.

Last but not least, we are excited that our student, postdoc, and faculty affiliates continue working across the globe doing research and training the next generation of tropical scientists.

In closing, we are honored to lead the CTR and work alongside our dedicated colleagues and partners. Together, we can leverage UCLA’s unique strengths to drive transformative research that safeguard the tropics in the globally important roles they play, for future generations. Thank you for your continued support and engagement.

Warm regards,
Professors

Elsa Ordway and Felipe Zapata
Co-Directors, Center for Tropical Research(CTR),UCLA



©Elsa Ordway: the Team in Yaounde, Cameroon 2024

PANGEA: UCLA-LED STUDY FOR NASA'S TROPICAL FOREST CAMPAIGN

Scoping the Future of Terrestrial Ecology Research

By Elsa Ordway

The tropics are experiencing dramatic changes as a result of climate change and land-use change. Shifts in carbon flux dynamics, water cycling, and species composition are resulting in feedbacks with globally important consequences for biodiversity, climate change, and food production. Yet, we also know that tropical forests are not all the same. Their species diversity, climate, soils,

and human impact vary enormously from the Americas to Africa to Asia. As a result, tropical ecosystems are already showing evidence of varying responses to climate and land-use change. However, these differences remain highly uncertain and poorly understood.

PANGEA, the PAN tropical investigation of bioGeochemistry and Ecological Adaptation, is a NASA

funded effort led by Professor Elsa Ordway ([EEB](#) & [IoES](#)) to scope a 6- to 9-year multi-scale campaign in the tropics focused on improving understanding of the heterogeneous responses to climate change, with broad research focus on biodiversity, biogeochemical cycling, and agriculture. A large, international team of researchers is busily working this year to engage hundreds of



people from international research and user communities to outline a possible campaign in the tropics. The team has led and participated in workshops in Cameroon, Brazil, Peru, Thailand, Washington DC, and Panama. In November 2024, the team will submit a white paper to NASA detailing the proposed campaign. If selected, the campaign would support coordinated fieldwork and airborne remote sensing data collection that will inform our use of satellite remote sensing and modeling to better understand change dynamics in the tropics.

As scientists and practitioners urgently work to understand tropical terrestrial ecosystem changes and their drivers, there is a huge opportunity to leverage the data rich moment we are in. NASA has a fleet of Earth observing satellites that have been used for decades to understand the tropics based largely on variation in greenness, which has been very useful for understanding where deforestation is

happening, for example. However, we can now observe the planet in greater dimensionality, using current and forthcoming space-based sensors like hyperspectral, lidar, and radar datasets that enable unprecedented mapping of ecosystem

“There is a huge opportunity to leverage the data rich moment we are in”

carbon dynamics, biodiversity, and agriculture. Critically, these satellite measurements require careful validation based on field measurements to ensure accurate interpretation and to develop publicly available data products needed by both the research and practitioner communities (e.g., annual maps of carbon stocks and crop productivity maps). Major data gaps in the tropics currently limit these efforts. PANGEA is focused on filling those data gaps

while advancing understanding of tropical forest responses to rapid change.

An additional aspect of PANGEA is training and capacity building. PANGEA will build on the successes of [LBA-ECO](#), a previous NASA campaign in partnership with Brazil in the late 1990s and early 2000’s, that trained over 1000 graduate students, many of whom were Master’s and PhD students from Brazil who have since gone on to become scientific leaders, entrepreneurs, and more. Although there is no guarantee that NASA will support the recommended project, this is a once-in-a-decade opportunity to assemble multi-disciplinary research communities to align efforts and outline a focused campaign that has the potential to change the way we understand and monitor one of the most important biomes on the planet.

To learn more and get involved, visit our website at: <https://tropicalforestscoping.com/>



UCLA STRENGTHENS TIES WITH BRAZIL

By Brian Pitts and Suzanna Hecht

The Center for Brazilian Studies serves as an important nexus between the sciences, the social sciences, and the humanities. Brazil occupies a central position in such diverse fields as tropical sciences, development politics, the history of ideas, and, increasingly, as a laboratory for conservation, planning, urbanism, and new forms of social, and socio-environmental politics. Though we always knew that there were a lot of people at UCLA interested in Brazil, we were in fact surprised when more than 50 people – students and faculty from across the university, as well as community members – showed up during Spring Break for the March 28 visit to UCLA of Brazil's ambassador to the United States, Her Excellency

Maria Luiza Ribeiro Viotti. The ambassador gave brief remarks on the present and future of US-Brazil relations and fielded questions from the attendees.

A couple of important points were made. First, Brazil and California have a great deal in common: incredible nature, stunning beaches, cultures of innovation and civic participation, and a forward-looking and collaborative focus. Both Brazil and California have a commitment to applying research from the natural sciences to address issues of global urgency, most notably climate change. California scholars, such as Susanna Hecht, director of the Center for Brazilian Studies, have a major presence in Amazonian and tropical research, as was highlighted by Center for Tropical Research director Elsa Ordway. Dr. Ordway noted the significant rela-

tions that CTR scholars have with Amazonian climate/environment research and pointed out that the current development of a Pangea decade-long NASA research proposal builds on an earlier Amazonian climate research project. Indeed, an important brainstorming meeting and workshop for CTR is planned for Manaus, in the heart of Amazonia. CTR's emphasis on the importance of indigenous and local knowledge and the collaboration of CTR and the Center for Brazilian Studies with local scholars and the general public will be essential to future research dynamics. The Brazilian ambassador was enthusiastic about the potential for future integration with UCLA institutions. The Consulate General of Brazil in Los Angeles, a longtime collaborator of the Center for Brazilian Studies, vowed to help support such partnerships, especially in light of the highly successful Science without Borders (Ciência sem Fronteiras) program, that a decade ago brought a series of Brazilian scientists to UCLA.

In short, as a result of the ambassador's visit, CTR and the Center for Brazilian Studies are now solidly on the Brazilian government's radar.



©Susanna Hecht, Maria Luiza Ribeiro Viotti



WEAVING INDIGENOUS KNOWLEDGE AND WESTERN SCIENCE

SILK: the School for Indigenous and Local Knowledge

By Virginia Zaunbrecher

Five years ago, I sat at the Congo Basin Institute's Bouamir Research Station with some members of the indigenous Baka community in Cameroon watching an exposé about international tour operators paying Baka communities to go into the forest, build leaf shelters, strip down, and perform the parts of their culture that matched what tourists wanted and expected to see. Together, we

had a great conversation at the time, and we have had many since, about how that particular Baka community wants (and doesn't want) to share their incredible culture and traditional ecological knowledge with others.

Earlier this year I had the opportunity to take a guided botany tour created by colleagues from that community. It grew out of a collaboration we have to track tree phenology, which led them to create their own forest plot in their village. We helped them create signs to label the

trees with the Baka and Latin names, uses in traditional medicine, and what other animals use the trees and for what. They gave us a guided tour, explaining their knowledge of the species and answering questions. It was fantastic to watch them share their culture and traditional knowledge on their terms, and offered an amazing contrast to the exposé we had watched together years earlier.

It also raises an important question: what made this possible?

Certainly the generosity of that Baka community to share their culture and knowledge is integral, as is the relationship that has developed between our team and their community. It has taken time, understanding, and many conversations. The five years that separated the discussion about performative culture and the opening of the botany walk is longer than most grant cycles. And I hope we're much nearer the beginning of that relationship and its mutual benefits than the end.

It also takes people—tourists, donors, staff—who are willing to have experiences (and project outcomes) that are outside the bounds of their own perceptions and notions. Ex-



©Virginia Zaunbrecher

periences that are also shaped by the wishes and desires of the people they are interacting with—even if they don't match their perception of what that community will be like or what counts as an important impact. Even if it doesn't lend itself to evocative photos.

A lot of us know and say that this is how programming should work even if we often fall short. Seeing just this small example in person reminded me of why it is so vital, and how great the outcomes can be when we succeed in living our aspirational principles.



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GCF TASK FORCE OVER THE FISCAL YEAR

By Jason Gray



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their sleeves in co-design working groups together with Indigenous leaders and local community members, donor partners, environmental organizations, and private sector actors to assess ways to broaden access to existing funding mechanisms to support implementation of jurisdictional strategies and investment opportunities on the ground. We continued our work to integrate Indigenous Peoples and local community leaders together with state-level policymakers on co-creating laws, policies, and joint actions, and advanced on the development of bioeconomy strategies to increase value in sustainably produced Brazil nuts, local fisheries, and agroforestry practices, among other initiatives.

The GCF Task Force is co-hosting a remote sensing workshop with UCLA's Center for Tropical Research, the US Forest Service, and the Pontificia Universidad Católica del Perú in Lima, Peru at the beginning of June 2024, and looks forward to exploring ways to involve more students and faculty from the Emmett Institute and broader UCLA community in the coming year.

The Governors' Climate and Forests Task Force ([GCF Task Force](#)), a network of 43 subnational governments focused on protecting tropical forests and supporting sustainable economic development, has now been housed at UCLA's Emmett Institute and the Institute of the Environment and Sustainability for more than two years. Over the last year, there have been important reductions in deforestation levels globally, including in some of our member jurisdictions. However, much more work remains to drive further reductions and ensure they last over the long run. This year, we ramped up our advocacy efforts on the urgent need to secure

larger-scale, more flexible funding to support robust jurisdictional strategies and investment plans to drive down tropical deforestation at jurisdictional and regional scale. This included the launch of a \$1B call-to-action to finance the "New Forest Economy" during the 28th Conference of the Parties (COP28) to the United Nations Framework Convention on Climate Change in December 2023 and a companion report on shovel-ready, investable actions within our membership base.

We paired this launch with workshops in Brazil, Peru, Indonesia, Mexico, and beyond. And, we held an important technical exchange in April 2024 in Santa Cruz, Bolivia. Our member jurisdictions rolled up

GUARDIANS OF THE TROPICS

CTR and UCLA Leaders in Global Conservation and Sustainability Efforts.

By Felipe Zapata

The tropics are the lungs of the planet. From the rainforests of the Congo and Amazon basins to the coral reefs of the South Pacific Ocean, these ecosystems teem with life. Beyond their ecological significance, the tropics are also bastions of human culture, home to diverse indigenous peoples whose traditions and knowledge are intricately woven into these landscapes. However, as the global climate crisis intensifies and pressures from human activities escalate, the tropics face unprecedented threats, from deforestation and habitat destruction to biodiversity and cultural loss. Protecting these regions is not only a matter of ecological conservation but also a moral imperative to safeguard these unique places and cultures for future generations. UCLA has the opportunity to become a world leader in research and policy efforts to achieve this critical goal. At the forefront of these efforts are several centers and institutes on campus, including our own Center for Tropical Research, but also the Congo Basin Institute, the Latin American Institute, the Center for Brazilian Studies, the African Studies Center, and the Governors' Climate



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and Forests Task Force. These entities coalesce around a shared vision of addressing pressing environmental and socio-economic challenges

“ Synergies among the Center for Tropical Research and other centers on campus make UCLA a global leader in tropical research and policy efforts”

in tropical regions, leveraging their collective expertise and resources to drive meaningful change.

The Center for Tropical Research (CTR) has stood as a cornerstone of UCLA's tropical research endeavors for 25 years, pioneering innovative approaches to the conservation of biodiversity and sustainability in tropical ecosystems. Through interdisciplinary collaboration and strategic partnerships, the CTR fosters cutting-edge research that informs policy and management decisions, working closely with local communities, governments, and NGOs to promote sustainable development



©Virginia Zaunbrecher: Baka friends

practices. The Congo Basin Institute (CBI) leads efforts for research, education, and training focused on critical issues facing the Congo Basin, with implications for both the developing and developed world.

The CBI facilitates collaborative research projects, student exchange programs, and capacity-building initiatives to empower local communities and stakeholders to find innovative solutions to complex challenges in tropical Africa. Complementing the efforts of the CTR and CBI mostly centered around the natural sciences, the Latin American Institute (LAI) serves as a nexus for scholarship with the diverse cultures and environments of Latin America. With a focus on fostering cross-cultural understanding and collaboration, the LAI supports research by funding grants for analyzing the complex historical, social, and economic challenges of Latin American countries. Similarly, the Center for Brazilian Studies (CBS) provides a platform for multidisciplinary studies related to Brazil, one of the world's most diverse countries. The CBS promotes cooperation

between UCLA and Brazil to develop a deeper understanding of Brazil's environmental policies, socioeconomic dynamics, and academia while promoting initiatives to tackle challenges such as climate change, deforestation, social inequality, and indigenous rights. Meanwhile, the African Studies Center (ASC) brings a unique perspective to UCLA's tropical research efforts, focusing on the African continent. The ASC cuts across natural and social sciences as well as the arts and humanities to promote Africanist research and provide UCLA and African scholars with opportunities for academic and professional development. In addition to these centers, the Governors' Climate and Forests Task Force (GCF Task Force) based in the Law School brings to UCLA a global perspective to shape policies and initiatives aimed at reducing deforestation, mitigating greenhouse gas emissions, and promoting sustainable land use practices in tropical forest regions. Through capacity-building and workshop activities, the GCF Task Force fosters international col-



©Chloe Orland: eDNA workshop in Rwanda

laboration to support innovative approaches to sustainability.

Together, these initiatives across campus underscore UCLA's unique opportunity to become a leader in tropical research and policy efforts on a global scale, with the CTR playing a central role in spearheading interdisciplinary efforts. By harnessing the expertise and resources of its diverse community, UCLA is not only generating new knowledge about the tropics but can also drive transformative change for a more sustainable and equitable future for tropical regions and beyond.



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UPDATES



©Chris Sayers



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GENOMICS REVEAL PANGOLIN POACHING HOTSPOTS

CTR scientists and international colleagues have developed a genomic approach to map the illegal trade routes and poaching hotspots of the pangolin, the world's most trafficked mammal. They created a detailed source-to-destination map by analyzing genetic samples from white-bellied pangolins and confiscated scales. This method can pinpoint an animal's origin within about 125 miles, aiding law enforcement in tracking and disrupting the illegal trade.

The study, published in *Science*, highlights the trafficking of white-bellied pangolin scales predominantly from Africa to Asia, with Nigeria identified as a major hub.

However, most poached animals originate from other regions, notably Cameroon.



©Tim Wachter

This genomic technique offers new real-time monitoring and enforcement opportunities, potentially curbing the \$20 billion illegal wildlife trade. The study was a collaborative effort involving various international organizations to support ongoing global conservation efforts.

You can read the full article on [Science's website](#) for more details.

Follow [this link to figures and photos from the paper](#) and the blog from ESRI.

FIELD RESEARCH UPDATES

CTR Researchers are involved in a wide variety of projects worldwide. Here are some highlights of their field work, news, and publications.



Hannah Stouter is working with a team of researchers across California and Cameroon on a NASA funded project to examine drivers of land use change in Central Africa. She spent two weeks in Cameroon this winter conducting meetings with NGOs in Yaoundé and communities near Somalomo to understand the role that conservation and livelihood projects play in shaping local patterns of land use change.

Hannah will return to Cameroon this summer to conduct formal household surveys in communities along the periphery of the Dja Biosphere Reserve to better elucidate local drivers of land use change.



Chris Sayers is a PhD student and NSF Graduate Research Fellow in the Tingley Lab at UCLA. Chris is currently based in Madre de Dios, Peru where he studies the impacts of artisanal and small-scale gold mining on Amazonian bird communities.

By employing bird banding, bioacoustics, and remote-sensing tools, Chris seeks to isolate the impacts of toxic mercury pollution from deforestation on avian diversity and population structure. As he continues to accumulate data, Chris's results will inform resource extraction and conservation decision making throughout the region.



Gabriel Suchodolski obtained a grant (with Susanna Hecht) from the Luskin Center for History and Policy to conduct fieldwork in the Brazilian Amazon in 2022. His research examines the political and social factors of land governance and deforestation. He will join Georgetown University as an Earth Commons Postdoctoral Fellow for two years, starting in Fall 2024, to analyze land titling effects and quantify local political factors of deforestation in Amazonia.

The above picture shows an Amazonas frontier town with booming businesses, aerial seeding for pasture formation over recent deforestation, and political support for Bolsonaro, 2022.



Sara Pedraza is conducting fieldwork in the Colombian Andes during the summer and part of the spring. The fieldwork is for her doctoral project, which focuses on exploring the relationship between plant thermotolerance and speciation in tropical mountains. She will evaluate thermotolerance in populations of dominant mountain tree species across elevation gradients and conduct population genetic analyses to evaluate the degree of isolation among these populations. Additionally, Sara has joined a project investigating the acclimation of tropical montane species to understand how tropical plants respond to temperature changes. As part of this project, she will analyze the thermotolerance and transcriptomics of trees in a transplant experiment located in the northwest Colombian Andes.

This research project is being conducted in collaboration with the UCLA Herbarium, Universidad del Rosario in Colombia, researchers from Universidad Nacional in Medellín, Colombia, and the University of Exeter, England.

Sara obtained funding for her research from the Seed Research Grant from the Association for Tropical Biology and Conservation (ATBC), the UCLA Latin American Institute, and the UCLA Department of Ecology and Evolutionary Biology.



Dr. **Greg Grether** (EEB) and postdoc Dr. **Fernando Soley** completed their fifth and penultimate season of fieldwork on rubyspot damselflies (*Hetaerina* spp.) in Costa Rica. The overarching goal of the project, which combines behavioral ecology fieldwork with landscape genomics, is to test the hypothesis that reproductive interference between species limits range expansion.

The research in Costa Rica involves carrying out field experiments and collecting phenotypic data on both coasts of Costa Rica simultaneously. Greg and Fernando thus led separate teams of Costa Rican students, one based on the Pacific coast (near Golfito) and the other on the Atlantic coast (near Limón). Jonathan Drury, former PhD student and postdoc in the Grether lab and now professor at Durham University, is heading the landscape genomics. The results are expected to show how taking species interactions into account could enhance our ability to predict of how species ranges will shift as the climate changes.

The project is jointly funded by NSF-DEB and NERC.



Dr. **Peggy Fong** (EEB) and 14 UCLA undergraduate students enrolled in the Department of Ecology and Evolutionary Biology's Field and Marine Biology Quarter traveled to Moorea, French Polynesia in Winter Quarter of 2024 to conduct student-centered original research on coral reef ecology. In this capstone experience, teams of students develop their own projects, from generating ideas to communicating their results as presentations and ultimately manuscripts for publication. Winter Quarter in the US is the wet season in Moorea, which, even in the best of times, presents significant challenges.

In 2024, these challenges included a series of tropical storms and a 'near miss' by a cyclone that restricted our ability to get in the water and continue their planned projects. These extremely resilient UCLA students reimagined their research and all groups pivoted to studying the effects of tropical storms on the functional ecology of coral reef macroalgae. This research is important as coral reefs are transitioning from coral to emergent and novel macroalgal communities due to climate change. In addition, tropical storms and cyclones in

the South Pacific are predicted to increase in frequency and intensity and these amazing students discovered that the combination of these events will reshape the structure and functioning of tropical reefs. Understanding these emergent communities provides critical information for conservation and restoration of coral reefs.



© Sara Pedraza



OTHER CTR NEWS

Thomas Smith elected as member of the American Academy of Arts and Sciences.

We are excited to announce that Dr. Thomas “Tom” Smith, Distinguished Research Professor in the Department of Ecology and Evolutionary Biology and the Institute of the Environment and Sustainability and founder of the Center for Tropical Research and the Congo Basin Institute, was elected as a member of the American Academy of Arts and Sciences last April.

As one of the leading ornithologists in the world, Tom’s

work revolutionized the use of genetic data for ecology, evolution, and conservation biology. He has used natural diversity present in populations to unlock the genetic basis of evolution, and conversely, genetic and field data to document the effects of climate change in natural populations. Tom’s work over the years has revealed the origins and evolution of bird species, illuminated the biological bases of

organismal adaptation, tracked the evolutionary potential of species to respond to climate change, and set priorities for conservation efforts.

The American Academy of Arts and Sciences has a membership comprised of leading scientists across disciplines, and it has been active since 1780. Election as a member is one of the highest honors that a scientist can receive. Congratulations, Tom!



Meet the 2024 Practicum team.

The Ecosystem Restoration in Cameroon Environmental Science senior practicum team researched forest restoration techniques, causes of deforestation and local perspectives on forests in the Congo Basin. They also performed a soil analysis and raised funds to perform land remediation. Over spring break, the students traveled to Cameroon for 10 days to meet with their collaborators at the National Forestry School in Mbalmayo and planted 1,200 trees. They also shared presentations on environmental topics and led tree-planting activities at local schools.

Advisor: Dr. Kevin Njabo

Team Members: Jordan Corral, Katryn Heine, Anna Novoselov, Laine Nowak, Alexandra Preston, Davina Truong, Kimberlee Wong.





The CTR Monthly Seminar Series has returned.

Since October 2023 we've been hosting monthly talks, both online and in person, to draw participants from diverse backgrounds to offer their insights into the complex web of life in the tropics. Our discussions aim to be as diverse as the ecosystems we seek to understand,

spanning topics from the carbon cycling in African tropical forests, touching how to advance new forest economies through the Green Climate Fund (GCF) and discussing how Amazonian water stress and the socio-political climate can influence deforestation. As we move forward, we aim to serve as a hub of connection and collaboration for all things tropics within UCLA.

PUBLICATIONS & PRESS

Felipe Zapata was part of a large international team of Latin American researchers who published a paper in CSH Perspectives in Biology entitled "Neotropics as a Cradle for Adaptive Radiations". This article reviews the geological, ecological, and historical factors contributing to the spectacular adaptive radiations of plants and

animals in the Neotropics, including classic examples such as the Espeletia complex, the bromeliads, the Darwin's finches, and the anoles lizards. Additionally, this study proposes new examples of poorly studied adaptive radiations mediated by ecological interactions and outlines outstanding questions for future research.

[Guevara-Andino, J.E., Dávalos, L.M., Zapata, F., Endara, M.J., Cotoras, D.D., Chaves, J., Claramunt, S., López-Delgado, J., Mendoza-Henao, A.M., Salazar-Valenzuela, D. and Rivas-Torres, G., 2024. Neotropics as a Cradle for Adaptive Radiations. Cold Spring](#)



Cold Spring Harbor
Perspectives in Biology

Sara Pedraza recently published a paper in Biotropica. Her study, entitled "Leaf traits and leaf-to-air temperature differences in tropical plants suggest variability in thermoregulatory capacities across elevations", examines changes in thermoregulatory capacities and functional traits among species of the Melastomataceae family across a tropical elevation gradient in Costa Rica. The research reveals evidence

of variation in leaf functional traits and leaf-to-air temperature across this gradient. These findings support the existence of distinct plant adaptations to thermoregulation across different elevation zones and underscore the importance of plant thermoregulation in understanding the potential impacts of climate change on terrestrial ecosystems. This project originated from a summer course in field tropical

biology that Sara attended last year at the Organization for Tropical Studies.

[Pedraza, S., 2024. Leaf traits and leaf-to-air temperature differences in tropical plants suggest variability in thermoregulatory capacities across elevations. Biotropica, p.e13332.](#)



Jen Tinsman and 38 co-authors published a study in Science mapping the trafficking of White-Bellied Pangolins from Africa to Asia. CTR scientists collaborated with researchers at Hong Kong University to generate the first origin-to-destination schematic of the illegal

trade in pangolins. They found that Cameroon is a major source of poached pangolins in international trade, and that Cameroon's role in the trade increased from 2012 to 2018, the latest year for which data were available.

[Tinsman, J.C., Gruppi, C., Bossu, C.M., Prigge, T.L., Harrigan, R.J., Zaunbrecher, V., Koepfli, K.P., LeBreton, M., Njabo, K., Wenda, C. and Xing, S., 2023. Genomic analyses reveal poaching hotspots and illegal trade in pangolins from Africa to Asia. Science, 382\(6676\), pp.1282-1286.](#)

Science

Nick Russo and coauthors published a paper in *Ecology Letters* describing the interactions between vegetation structure and ecological roles of animals. This paper synthesized research on how vegetation structure influences animal behaviors, and how animals shape vegetation structure in turn by dispersing seeds, distributing nutrients, and consuming vegetation. This study proposed a framework for describing animal vegetation

feedback and its consequences for how terrestrial ecosystems respond to global change.

Nick also coauthored a paper describing a canopy net method for safely capturing large birds of tropical rainforest canopies. This technique has been refined over the past 30 years in southern Cameroon and has resulted in the successful capture of more than 70 hornbills, turacos, and bats for movement

tracking research.

[Russo, N.J., Davies, A.B., Blakey, R.V., Ordway, E.M. and Smith, T.B., 2023. Feedback loops between 3D vegetation structure and ecological functions of animals. *Ecology Letters*, 26\(9\), pp.1597-1613.](#)

[Russo, N.J., Holbrook, K.M., Dietsch, T., Forzi, F.A., Tekam, A.S. and Smith, T.B., 2024. A maneuverable canopy net for capturing large tropical birds. *Journal of Field Ornithology*, 95\(1\).](#)



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[Flores, B.M., Montoya, E., Sakschewski, B., Nascimento, N., Staal, A., Betts, R.A., Levis, C., Lapola, D.M., Esquivel-Muelbert, A., Jakovac, C. and Nobre, C.A., 2024. Critical transitions in the Amazon forest system. *Nature*, 626\(7999\), pp.555-564.](#)

nature

Susanna Hecht co-authored a paper entitled "Critical transitions in the Amazon forest system" published in *Nature* earlier this year. This study analyzes five major drivers of water stress on Amazon forests and identifies critical thresholds that could trigger forest collapse. The research highlights three plausible ecosystem trajectories and underscores the need for local

and global efforts to preserve forest resilience, mitigate deforestation, and curb greenhouse gas emissions to maintain the Amazon's stability in the Anthropocene. The Amazon's ecological complexity adds uncertainty but also opportunities for proactive measures to sustain its critical role in global biodiversity, climate regulation, and regional hydrology.

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