Whitney R. Harris World Ecology Center

News

Dr. Patricia Parker Receives the 2014 Saint Louis Zoo Conservation Award

Dr. Patricia Parker, Des Lee Professor of Zoological Studies, Chair of the Department of Biology, and Senior Scientist at the Saint Louis Zoo, accepted the Conservation Award at the 23rd annual Marlin Perkins Society celebration on November 12. In the context of forging close collaboration between UMSL and the Saint Louis Zoo, Dr. Parker created the WildCare Institute Center for Avian Health in the Galapagos Islands. The Center, the first avian health program ever to be established in the islands, has enabled close study of Galapagos birds and the parasites that have evolved (and continue to evolve) alongside them. The development of the WildCare Institute has fostered collaborations not only between St. Louis institutions, but also between international ones, including the Galapagos National Park and the Charles Darwin Foundation. Students have benefitted from the opportunity to work with the WildCare Center. Mari Cruz Jaramillo, a third-year PhD student in Dr. Parker’s

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lab, studies the effect of *Plasmodium* (avian malaria agent) on Galapagos birds. Samoa Asigau, another PhD candidate in the Parker Lab, focuses her attention on the mosquitoes, trapping and dissecting them to find out how they are transmitting *Plasmodium* in the archipelago. The presentation of the award to Dr. Parker was accompanied by a short video featuring a number of UMSL Biology students mentored by Dr. Parker. Says Dr. Parker: “These are the young people, many of whom will go back to those countries and assume positions of influence. We have graduates who are heading up programs for Conservation International in Brazil, who are in professorships, who are heads of environmental ministries in Bhutan. They will have influence in the future, and we’re training them to do that.” The video is available online and can be viewed here: Click here to watch the video.

2014 Whitney and Anna Harris Conservation Forum

The **Whitney and Anna Harris Conservation Forum** took place on November 5 at the Saint Louis Zoo. There were over 200 guests in attendance. This annual forum, organized and co-sponsored by the Harris Center, provides an opportunity for conservation organizations and academics to interact with each other and with the general public. Its goal is to promote collaboration in the field of conservation, and to explore in depth a designated theme related to conservation issues. The title of this year’s forum was *Biodiversity and Human Development in Madagascar: Lessons from the 8th Continent*. Attendees learned about the social, political and economic context of conservation in Madagascar, the history of conservation efforts there, and about current research priorities.

Three presenters spoke to these issues in detail through the lens of their own research. **Dr. Mitch Irwin**, a biological anthropologist at Northern Illinois University who specializes in primate ecology and behavior, studies the ecological adaptations of Madagascar’s lemurs. He addressed the contemporary challenges of conserving biodiversity in Madagascar in the context of the history of conservation there. **Dr. Brian Fisher**, from the California Academy of Sciences, has devoted his life to the study and conservation of ants and biodiversity around the world. His study of ants in Madagascar has helped him identify areas in particular need of protection. **Dr. Kristen Wagner**, assistant professor of Social Work at the University of Missouri-St. Louis, discussed the intersections of biodiversity and human needs in Madagascar.

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While the theme of this year’s forum was Madagascar, it was also an opportunity for local organizations to discuss conservation in a broad sense. This year we were delighted to converse with representatives from the Wildlife Rescue Center, the Academy of Science St. Louis, the Endangered Wolf Center, the Madagascar Flora and Fauna Group, Culver Way Eco Village, The Saint Louis Zoo Education Department, the Saint Louis Zoo Wildcare Institute, The Missouri Botanical Garden, and Friends of the Children’s Eternal Rainforest. We wish to thank the organizing committee for this year’s forum: Dr. Kristen Wagner (UMSL), Dr. Peter Lowry (MOBOT), Dr. Armand Randrianasolo (MOBOT), Dr. James Miller (MOBOT), and Dr. Eric Miller (Saint Louis Zoo). We thank the Saint Louis Academy of Sciences for helping with advertising, the Saint Louis Zoo for allowing us to use the Living World as the venue, and the staff of the Saint Louis Zoo for great support.

**Workshop on Biodiversity Inventory and Development in Madagascar**

The Harris Center sponsored a mini-workshop just prior to the 2014 Conservation Forum. It was held at the Saint Louis Zoo on the afternoon of November 5. The topic was the current status of faunal and flora inventory in Madagascar, and biodiversity education there. The main goal of the workshop was to bring together researchers in the St. Louis region who are actively conducting research in Madagascar. The Missouri Botanical Garden and the Saint Louis Zoo have long traditions of working in Madagascar with the goal of conserving its unique flora and fauna. Approximately 20 persons attended the afternoon workshop, with representatives from the Saint Louis Academy of Sciences for helping with advertising, the Saint Louis Zoo for allowing us to use the Living World as the venue, and the staff of the Saint Louis Zoo for great support.

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Louis Zoo, the Missouri Botanical Garden, Washington University, and the University of Missouri-St. Louis. Eight presentations were made covering diverse topics, including current efforts to educate school children in biodiversity issues, inventory of the Madagascar flora, analysis of bones of the extinct Madagascar megafauna, creating novel ways to winnow rice using old bicycles, and disease outcomes of interactions between native mammals and domesticated animals. Efforts are in place to establish an open forum to facilitate future interactions among researchers in St. Louis who have interest in Madagascar. We thank Dr. Kristen Wagner, who was the main organizer of the workshop.

4th Annual St. Louis Ecology, Evolution, and Conservation (SLEEC) Retreat

The annual SLEEC Retreat brings together scientists from across the St. Louis region to present their research, exchange ideas, and build collaborations. We are very grateful to Southern Illinois University Edwardsville for hosting the retreat this year.

Sixteen speakers presented on a wide range of topics over the course of the event, including Steven Callen (SLU graduate student), who spoke about the signatures of niche shift following the introduction of kudzu into North America, Dr. Rick Essner (SIUE), who discussed jumping behavior in frogs, and Bob Merz (Saint Louis Zoo), who addressed American burying beetle conservation. UMSL grad students Robbie Hart, Eliot Miller and Leticia Gutiérrez all spoke as well.

There were more than forty posters displayed by representatives from participating institutions, including the University of Missouri-St. Louis, St. Louis University, Southern Illinois University Edwardsville, the Missouri Botanical Garden, Principia College, Harris-Stowe State University, the St. Louis Department of Conservation, Maryville University, the Saint Louis Zoo, and Clayton High School.

Dr. Townsend Peterson from the University of Kansas Biodiversity Institute was this year’s keynote speaker. His presentation was titled: How complex is biological diversification? What simple virtual species can teach us.

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Student Travel Supported by the Harris Center

Graduate students in the University of Missouri-St. Louis Biology Department may apply to the Harris Center for awards to support travel to academic conferences. This semester, a number of students benefitted from these awards. Vona Kuczynska, Diana Gamba, and Rossana Maguña attended the North American Society for Bat Research Conference (October 22-25) in Albany, NY with support from the Harris Center. Camilo Calderón and Dr. Nathan Muchhala also attended. The Northern American Society for Bat Research (NASBR) is dedicated to the promotion and development of the scientific study of bats (Chiroptera), and holds its annual meeting to bring together bat researchers.

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researchers from all over the world. This was an excellent opportunity for the participating students to present their research, gain experience and practice in discussing their work, and seek out potential current and future collaborations with other researchers in their field. The group presented the following:

- “Effects of Grooming on Pollen Deposition by Nectar Bats”
  Camilo Calderón-Acevedo, Rossana Maguiña, Diana Gamba-Moreno and Nathan Muchhala

- “Nectar Extraction Efficiency in Three Species of Lonchophyllinae and Glossophaginae Bats in a Tropical Cloud Forest (Napo, Ecuador)”
  Nathan Muchhala, Rossana Maguiña, Diana Gamba-Moreno, and Camilo Calderón-Acevedo

- “The Complexity of Background Clutter Affects Nectar Bat Use of Flower Odor and Shape Cues While Foraging”
  Nathan Muchhala and Diana Serrano

- “Plants Used by Bats as Nectar-pollen Resources in a Tropical Cloud Forest (Cusco-Peru)”
  Rossana Maguiña and Luis Huamán

- “Effects of *Lonicera maackii* on Arthropods and Bat Foraging Activity”
  Vona Kuczynska and Robert Marquis

**Alicia Marty**, a M.S. candidate in the Parker Lab, is interested in working with zoo-based conservation programs, captive animal management, and public education. Her particular focus is on primates. She attended the 11th annual Midwest Primate Interest Group Conference in Wisconsin in October, where graduate students, undergraduate students, and faculty had the opportunity to discuss new theoretical research and present recent research.

**Mari Cruz Jaramillo** is a PhD student in the Parker Lab studying disease ecology of malaria (*Plasmodium*) parasites in Galapagos avifauna. Her research involves collaboration between the Saint Louis Zoo, Galapagos National Park, the Charles Darwin Foundation, and the Wildcare Institute for Avian Health. In early December, Mari attended the *Simposio Colombiano sobre patógenos y huespedes en vida salvaje in the IV Congreso Colombiano de Zoología* (focusing on wildlife pathogens and hosts) in Cartagena, Colombia. A native of Ecuador, Mari was excited and nervous to present for the first time in her native language. We heard that her presentation was a big success, and that she was invited to meet with other parasitology researchers present at the conference.

![Mari Jaramillo presenting her research in Cartagena, Colombia in December.](image)
Oyamoare Osuzawa-Peters attended the 99th Ecological Society of America meeting in Sacramento, California (August 10-15). The title of her presentation was: *Increasing temporal turnover in an East African tropical forest challenges the disturbance-recovery hypothesis.*

Camilo Calderón Acevedo attended the First Latin American Bat Research Meeting (Primer Congreso Latinoamericano de Murciélagos) in Quito, Ecuador (August 6-9). The title of his presentation was: *Comparison of two bat assemblages exposed to different anthropogenic pressures in the Colombian Caribbean.*

Elizabeth Karslake attended the 51st Annual Conference of the Animal Behavior Society in Princeton, New Jersey (August 9-14).

**Organization for Tropical Studies**

The University of Missouri-St. Louis is a member of the Organization for Tropical Studies (OTS), which provides courses in tropical ecology, many in Costa Rica. This December through January, the Harris Center is funding three students who will travel to Costa Rica to attend the month-long training course, *Field Ecology: Skills for Science and Beyond*. This fundamental OTS field course has trained tropical biologists since 1960. Students learn about formulating research questions, experimental design, data collection, analysis, oral presentations and written papers. This year there will be particular focus on science communication in the digital age, including writing blogs, recording podcasts, and making short films. By situating the course at the field station, the OTS team is able to train students to do their work in challenging field conditions. This is a huge benefit to students, who must learn to problem-solve efficiently and resourcefully in remote locations. This year, the participating students are Whitney Collins, Diana Gamba, and Rossana Maguña. In addition to covering tuition and travel costs associated with the course, the Harris Center pays the annual dues to OTS to maintain the membership. We look forward to hearing from the students about their experiences when they return to UMSL in January.

**Welcome New Christensen Fellows**

Diana Gamba is a PhD candidate in the Muchhala Lab. Originally from Colombia, she completed her M.S. at the Institute for Biodiversity Science and Sustainability at the California Academy of Sciences. Her current research interests are biodiversity, biogeography and evolution of flowering plants, specifically Melastomataceae, with a focus of studies on the Neotropics, particularly in the Chocó and northern Andes. We are very excited that she has joined the UMSL Biology Department as a Christensen Fellow, and welcome her to St. Louis.

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Rossana Maguiña is an M.S. student in the Muchhala Lab interested in bat-plant interactions and pollination biology. Rossana is from Peru, and we extend her a big welcome. She, along with Christensen Fellow Diana Gamba, will be participating in the Organization for Tropical Studies field course in Costa Rica in December 2014 – January 2015. We wish them both safe travels and incredible learning experiences.

New Students Supported by the Missouri Botanical Garden

Serena Achá is a PhD candidate in the Muchhala Lab. She is from Bolivia, and is supported by a fellowship from the Missouri Botanical Garden. Her research interests are Systematics of *Prunus* (Rosaceae) and *Passiflora* (Passifloraceae), species delimitation and geometric morphometry.

Isabel Loza is a PhD student in the Ricklefs Lab from Bolivia. She is supported by a fellowship from the Missouri Botanical Garden. She is interested in rarity and beta-diversity of trees of the Bolivian forests.

Media Coverage

The Harris Center, as part of a developing partnership with the Bellefontaine Cemetery to inventory Bellefontaine’s native biodiversity, sponsored an evening of bat and moth sampling on the cemetery grounds. On August 28, All Things Considered aired a story based on this work. Click here to listen to the piece.

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Dr. Gary Langham, Vice President and Chief Scientist at the National Audubon Society, delivered the 2013 Jane and Whitney Harris Lecture at the University of Missouri-St. Louis. On September 9, Audubon published an article highlighting the science behind Dr. Langham’s results. In the continent-wide study currently under peer review, Dr. Langham and his team found that 314 of 588 North American bird species are at risk of being “climate-endangered” or “climate-threatened”. Dr. Langham and his team are turning their focus to identifying priority areas for conservation, the “climate strongholds” that will be essential for multiple species to survive in the future. To read the latest article on his work, click here.

The UMSL Daily featured Dr. Aimee Dunlap’s work in the article UMSL Scholar Examines Evolution of Learning in August. Dr. Dunlap’s study, co-authored with David Stephens from the University of Minnesota in St. Paul, addresses the question of why animals learn some things more easily than others. Click here to read the article.

The UMSL Daily covered the presentation of the Saint Louis Zoo Conservation Award to Dr. Patricia Parker. Click here for UMSL Daily’s report

Student Activity

Eliot Miller, a PhD student advised by Dr. Robert Ricklefs, defended his dissertation on September 19, 2014 before his committee, which included Robert Ricklefs, Mark Westoby, Bette Loiselle, John Bates, and Iván Jiménez. Also in the audience were members of Eliot’s family, his fiancé Sarah Wagner, fellow students from the UMSL Biology Department, and faculty members. The title of Eliot’s dissertation is: Evolution and ecology of two iconic Australian clades: the Meliphagidae (birds) and the Hakeinae (plants). We extend our warm congratulations to Eliot on his success!

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Oyamoare Osuzawa-Peters presented “Tropical forest functional trait variation: a view from many scales”, as part of the CTFS- Forest Geo Seminar Series on November 7th, 2014 at the Smithsonian Institute’s National Museum of Natural History, Washington D.C.

Report from a Student

Leticia Soares: “This year I've been putting my energy towards wrapping up the first chapter of my dissertation, in which I'm investigating the temporal turnover of avian malaria parasite assemblages in the West Indies. My advisor, Dr. Bob Ricklefs, has been working in the West Indies since the early 1990's, and in collaboration with several graduate students, post-docs and researchers throughout the years, the Ricklefs lab has built a very extensive database on avian communities and their parasites across most islands of the archipelago. This year we received around 500 blood samples from birds occurring across an elevation gradient in the Dominican Republic. These samples were collected by Dr. Steven Latta and team from the National Aviary, and will be incorporated into the analysis of temporal dynamics of parasite assemblages. I also completed the laboratory analysis of 700 blood samples collected by Dr. Graciela Escudero in Argentina – this is a side project that involved the participation of three undergraduate students, and aims to describe the assemblage composition of malaria parasites found in an area where there's co-occurrence of terrestrial and shorebird species, which are known for being malaria-free, according to conventional PCR screening. In October, I will be helping a graduate student from Brazil, Carol Schutz, who will bring 1000 samples from Amazonian birds to investigate parasite prevalence and host abundance relationships.”
New Publications


**Ricklefs, Robert E., Diana C. Outlaw, Maria Svensson-Coelho, Matthew C. I. Medeiros, Vincenzo A. Ellis, S. Latta.** Species formation by host shifting in avian malaria parasites. PNAS. vol. 111 no. 41, 14816-14821 (August 2014). [Read more](#).

**Hart, Robbie, J. Salick, S. Ranjitkar, Xu Jianchu.** Herbarium specimens show contrasting phenological responses to Himalayan climate. PNAS. vol. 111 no. 29, 10615-10619 (June 2014). [Read more](#).


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Serena Achá has two chapters in the upcoming Catalogue of the Vascular Plants of Bolivia:


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News from Alumni

Sangay Dema, who received her Masters of Science degree from UMSL in 2007, is now the Deputy Chief Biodiversity Officer at the Bhutan Royal Botanical Garden. The Royal Botanical Garden, Serbithang (RGBS) is a conservation area for Bhutan’s flora and a facility designed to educate the public on the importance of conservation. Bhutan is part of the Eastern Himalaya biodiversity hotspot. To learn more about Bhutan and Biodiversity, take a look at the website maintained by Sangay Dema and her team: http://biodiversity.bt/

The Muriqui Award honors individuals and organizations committed to environmental conservation in Brasil. In June, the 2014 Muriqui was awarded to SAVE Brasil, an organization dedicated to the protection of birds and forest habitats of the Atlantic Forests of southeast Brasil. Jaqueline Goerck, Executive Director of SAVE Brasil, received her PhD from UMSL in 1999. Her studies were supported in part by a Harris Tropical Research Scholarship. We applaud Dr. Goerck and her team for their hard work, and for the inspiration they provide to current and future students. To read more about the Muriqui Award and SAVE Brasil, click here.

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Susana León-Yánez (M.S. 2000, Robert Marquis’ lab) was the lead author on the publication of the second edition of the “Libro Rojo” (the Red Book), the listing of endemic plant species of Ecuador. The endemic species of Ecuador, because they occur nowhere else in the world, are of particular conservation priority. The high levels of endemcity in Ecuador, and other Andean countries, make these countries important targets for conservation efforts. Susana is a curator of the herbarium of the Catholic University Pontificia of Ecuador, in Quito.

Danielle Lee (PhD 2010), a former student of Dr. Zuleyma Tang-Martinez, was selected as an Obama administration White House Champion of Change for her work on minority outreach and public education on STEM. From the White House website:

“Dr. Danielle N. Lee is a biologist who studies animal behavior. Her current research examines the natural history and individual differences of African Giant Pouched Rats. Her science outreach efforts emphasize sharing science to general audiences, particularly under-served groups, via outdoor programming and social media. She blogs about her research, evolutionary biology, as well as diversity and inclusion in the sciences at The Urban Scientist hosted by Scientific American Scientific American Blog Network. She is also a founder of the National Science and Technology News Service, a media advocacy group to increase interest in STEM and science news coverage within the African-American community.”

Read the UMSL Daily piece about Dr. Lee here: http://blogs.umsl.edu/news/2014/12/03/danielle-lee/
World Ecology Award Winners in the News

Harrison Ford and Conservation International (2002 WEA Recipients): Harrison Ford is one of the Voices of Nature in Conservation International’s Nature is Speaking campaign, which outlines an approach to conservation based not on nature’s need for human help, but on human need for nature. Harrison Ford is the voice of the ocean in the series of eight short films, which also feature Robert Redford, Lupita Nyong’o, Ian Somerhalder, Edward Norton, Penélope Cruz, Julia Roberts, and Kevin Spacey. (http://natureisspeaking.org/theocean.html)

Jane Goodall (1999 WEA Recipient): In a recent interview with Mongabay.com, Jane Goodall gave five reasons for hope in the face of dire environmental news. (http://news.mongabay.com/2014/1119-jane-goodall-interview.html#sthash.zxt1Dogm.dpbo)


The Rockefeller Family (2004 WEA Recipient, David Rockefeller Jr.) The Rockefeller Family announced that the Rockefeller Brothers Fund, its $860 million philanthropic organization, will divest from fossil fuels. Read the charity’s divestment statement here: http://www.rbf.org/content/divestment-statement

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