

PiperNotes Newsletter of the



News and Events

An Introduction to the 2016 World Ecology Award Recipient: Dr. Silvia A. Earle



Dr. Sylvia A. Earle will receive the 21st World Ecology Award from the Whitney R. Harris World Ecology Center on October 16, 2016. The Award will be presented at a [Gala dinner](#) to be held at the Missouri Botanical Garden.

[National Geographic](#) Society Explorer-in-Residence, Dr. Earle, called "Her Deepness" by the *New Yorker* and the *New York Times*, a "Living Legend" by the Library of Congress, and the first "Hero for the Planet" by *Time magazine*, is an oceanographer, explorer, author, and lecturer. She has experience as a field research scientist, government official, and director for corporate and nonprofit organizations, including the Kerr McGee Corporation, Dresser Industries, Oryx Energy, the Aspen Institute, the Conservation Fund, American Rivers, Mote Marine Laboratory, Duke University Marine Laboratory, Rutgers Institute for Marine Science, the Woods Hole Oceanographic Institution, National Marine Sanctuary Foundation, and Ocean Futures.

Formerly chief scientist of NOAA, Earle is the founder of [Deep Ocean Exploration and Research, Inc.](#), founder of [Mission Blue](#) and SEAlliance, and chair of the Advisory Councils of the Harte Research Institute and the [Ocean in Google Earth](#). She has a B.S. degree from Florida State University, M.S. and

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PhD from Duke University, and 22 honorary degrees. She has authored more than 190 scientific, technical, and popular publications; lectured in more than 80 countries; and appeared in hundreds of radio and television productions.

Earle has led more than a hundred expeditions and logged more than 7,000 hours underwater, including leading the first team of women aquanauts during the [Tektite Project](#) in 1970; participating in ten saturation dives, most recently in July 2012; and setting a record for solo diving in 1,000-meter depth. Her research concerns marine ecosystems with special reference to exploration, conservation, and the development and use of new technologies for access and effective operations in the deep sea and other remote environments.

Her special focus is on developing a global network of areas on the land and in the ocean to safeguard the living systems that provide the underpinnings of global processes, from maintaining biodiversity and yielding basic life support services to providing stability and resiliency in response to accelerating climate change.

Earle is the recipient of more than a hundred national and international honors and in 2014 was named a [Glamour Woman of the Year](#). Other honors include the [2011 Royal Geographical Society Gold Medal](#), 2011 [Medal of Honor from the Dominican Republic](#), 2009 TED Prize, Netherlands Order of the Golden Ark, Australia's International Banksia Award, Italy's Artiglio Award, the [International Seakeepers Award](#), the [International Women's Forum](#), the [National Women's Hall of Fame](#), Academy of Achievement, Los Angeles Times Woman of the Year, and medals from the Explorers Club, the Philadelphia Academy of Sciences, Lindbergh Foundation, National Wildlife Federation, Sigma Xi, Barnard College, and the Society of Women Geographers.

HWEC Outreach Events



The biennial [USA Science and Engineering Festival](#) took place in Washington D.C. this year on April 15-17. Thanks to a table sponsorship from [SCOPE](#), the Harris Center was able to send two graduate students to represent us and teach kids and their families about conservation! Emma Young and Leticia Soares attended on behalf of the center and did a fantastic job spreading the love of science and conservation. They estimated that they speak with about 2,000 attendees.

April 19th was [Missouri's Conservation Day at the Capitol](#) and the Harris Center attended for the first time! Ashley Johns, our administrative assistant, and Isabel Loza, one of our graduate students at MOBOT, were able to attend on behalf of the Center. It was a great day of networking and gaining new student interest!



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[Saint Louis Earth Day](#)'s Earth Day Festival in Forest Park took place on April 24th and saw over 62,000 attendees! The Harris Center had a booth in the Youth Corner with an ecosystem matching game, plus information about sustainable palm oil for the parents. We were able to engage a lot of attendees and spread the word about conscious shopping and the Harris Center! This booth could not have been possible without volunteers from the [Biology Graduate Student Association](#).



Ashley Johns has also attended the Healthy Planet's "Natural Living Expo" on March 20th, Great Rivers Greenway's "Life Outside" on June 11th, and the Wildlife Rescue Center's open house on July 10th. She also led a seven-week "Sustainability Club" at South City Prep during their summer curriculum.

2016 Jane and Whitney Harris Lecture



[The Jane and Whitney Harris Lecture](#) took place on Tuesday, April 5th at the Missouri Botanical Gardens. Frances Beinecke, Senior Fellow at the [Natural Resources Defense Council](#), gave a lecture entitled "[The World We Create: Our Role in Confronting Climate Change](#)". (Please click the link to watch the lecture in full.)

Frances Beinecke is currently the McCluskey Fellow at the Yale School of Forestry and Environmental Studies and a Senior Fellow at the Natural Resources Defense Council (NRDC). She is the past President of the NRDC, 2006 to 2015.

Under Ms. Beinecke's leadership, NRDC focused on finding solutions to some of the biggest environmental challenges of our time, including establishing a clean energy future that curbs climate change, reviving the world's oceans, defending endangered wildlife and wild places, protecting our health by preventing pollution, fostering sustainable communities, and ensuring safe and sufficient water.

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Prior to becoming the [NRDC President in 2006](#), Ms. Beinecke served as the organization's executive director for eight years.

In 2010, Ms. Beinecke was appointed by President Obama to the [National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling](#). She has been a member the [Secretary of Energy's Advisory Board \(SEAB\)](#) under both Secretaries Chu and Moniz; the [Advisory Board of the MIT Energy Initiative](#), and sits on the boards of the [NRDC Action Fund](#), [World Resources Institute \(WRI\)](#), [Climate Central](#) and [Client Earth](#).

New Scholarship Announced

Patrick Osborne and Nancy Birge have established a \$30,000 endowment to support graduate and undergraduate student participation at scientific meetings. The Osborne-Birge Travel Scholarship will provide funds to cover travel, lodging, and registration costs so that students can present the results of their research in a professional setting, be it local, national, or international. "Attending scientific meetings is an important component of a graduate student's education. The first international conference I attended was held in Winnipeg and it was exciting to meet authors of papers I had read and to hear the latest ideas that awaited publication. Meetings provide an opportunity for students to present their research results and have them critiqued and questioned. Graduate students are also likely to meet other scientists who may well impact their future careers", wrote Patrick Osborne, scholarship co-founder.



Extramural Research Funding

The Terracon Foundation, the funding agency of the Terracon Corporation, recently donated \$5,000 to the Harris Center to support research by undergraduate and graduate students in local conservation issues, including invasive species and use of native plants to encourage native bee species. [Terracon](#), which has 130 offices nationwide, including one in St. Louis, is an environmental consulting firm offering services in environmental assessment, planning, and remediation. In particular, the Harris Center would like to thank Max McCombs for making the connection to Terracon, and Nicole Azmanov and Brian Porter at Terracon. Brian, Professional Engineer and manager of the environmental department of the St. Louis Terracon branch office says, "The Harris Center is a great cause and giving to it is a great way for us to positively support the community. We're happy to do it."



Patricia Parker, Robert Marquis, and Nicole Azmanov, Staff Environmental Scientist at Terracon with Terracon Foundation award letter (Photo: Deborah Godwin)

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of the UMRS as part of the flyway and for nesting grounds. This summer stipend adds to the two years of support that Audubon and the Army Corps have already provided to support Emma's education, for a total just over \$57,000.

The Audubon Center at Riverlands, in conjunction with the Army Corps of Engineers, St. Louis District, is supporting Emma Young (PhD candidate with Robert Ricklefs) with a summer stipend to complete the Avian Stewardship Plan for the Upper Mississippi River System (UMRS). The UMRS is part of the greater Mississippi flyway, by which innumerable birds fly north each spring from their wintering grounds, and south again for the winter. In addition UMRS provides nesting grounds for many species, but has been impacted by human land use. The stewardship lays out a comprehensive guide for maintaining the integrity

News from the Field

In February Anna Harris was able to visit the Charles Darwin Research Station in the Galapagos where Dr. Patricia Parker and her students spend a lot of time conducting their research. She was given a behind-the-scenes tour from research assistants Gustavo and Kelsey.



"I'm two weeks into my field season at Palo Verde Biological Station in Costa Rica. After two years of drought associated with El Niño, I'm pleased to report that it's raining quite a bit. I'm studying caterpillars that build leaf shelters to find out what benefits the caterpillars get from the shelters. As part of this research, I'm moving very small (1/4-1/2 inch) caterpillars into different shelters to see what happens when they grow up in different shelters." - Christina Baer, PhD student



"I went to Ecuador from March to May to set up my dissertation project. I visited two sites (Santa Lucía in Pichincha, and Bosque Protector Golondrinas, in Carchi, both cloud forests in the western slope of the Andes). I collected common understory plants, material for herbarium specimens and leaf tissue for population genomics work. I completed 15 species (10-25 individuals per site). My study seeks to evaluate the effect of asynchrony in flowering phenology on gene flow among populations for several species of angiosperms." – Diana Gamba, PhD student



“The OTS Plant Systematics course has been a wonderful experience. We have visited several biological stations and enjoy the beauty of different ecosystems such as the premontane forest at Las Cruces, oak forest and paramo at Cuericí, dry forest and wetlands at Palo Verde and lowland rainforest at La Selva. The success of this course has been possible thanks to our plant passionate coordinators Dr. Robbin Moran and Dr. Mauricio Bonifacino and the invited professors Dr. Amanda Grusz, Dr. Jay Horn and Dr. Lena Struwe. For me, it is a huge privilege to be able to wake up every day and learn about tropical plants. Pura vida!” - Miguel Chaves, PhD student



News from Alumni and Harris Associates



Dr. Jeff Ettling, curator of herpetology at the Saint Louis Zoo, was recently awarded the [Louie Porras Award from the International Herpetological Association](#) for his achievements in herpetology. Jeff received his doctoral degree from the Department of Biology in 2013, under the mentorship of Dr. Patricia Parker. He conducted his research on the Armenian Viper, and is now director of the [STL Zoo's Wildcare Institute's](#) Conservation Center for Western Asia. As a result of Jeff's studies, the boundaries of Khosrov Forest State Reserve were enlarged, and data he collected were used in part to establish the Zangezur Sanctuary and Arevik National Park, all in Armenia.



Dr. Cheryl Asa received the [Peter H. Raven Lifetime Achievement Award from the St. Louis Academy of Sciences](#) in April. Dr. Asa is Director of Research at the Saint Louis Zoo and Director of the Association of Zoos and Aquariums Reproductive Management Center. Her research focuses on assessing noninvasive reproductive conditions in endangered mammals, necessary information for controlled breeding. Her efforts have helped in the recovery plans for a number of endangered species, including the Island Fox of the Channel Islands off the coast of California. Cheri has been an adjunct professor of the Department of Biology since 1990.

Scholarships Awarded

Calderon-Acevedo, Camilo (PhD, Muchhala): Travel scholarship to attend 2016 International Bat Research Conference and present his poster “*Species limits in the neotropical nectar bat genus Anoura*”. Stokes Family Scholarship in Tropical Conservation \$500.

Calderon-Acevedo, Camilo (PhD, Muchhala): Travel scholarship to attend 2016 American Society of Mammalogy annual meeting to present two abstracts, “*Species limits in the neotropical nectar bat genus Anoura*”, and “*Discovering the diversity of the Andes: Long-term mammal survey in Parque Nacional Natural Las Orquideas*”. Stokes Family Scholarship in Tropical Conservation \$500.

Loza, Isabel (Ph.D., Ricklefs): Travel scholarship to attend the 2016 Ecological Society of America annual meeting to present her poster “*Phylogenetic patterns of rarity in a regional species pool of tropical woody plants*”. Mallinckrodt Graduate Fellowship in Tropical Ecology \$500.

Mills, Itachi (M.S., Dunlap): “*The behavioral ecology and evolution of predation risk in fruit flies, Drosophila melanogaster*”. Leo and Kay Drey Scholarship for \$500, and a Peter H. Raven World Ecology Scholarship for \$2000.

Rasambainarivo, Fidisoa (PhD, Parker): Travel scholarship to attend the 2016 Annual conference of the Wildlife Disease Association and present his poster “*Prevalence of antibodies to selected viruses and parasites in introduced and endemic carnivores in western Madagascar*”. Van Trease Graduate Scholarship \$300.

Soares, Leticia (PhD, Ricklefs): “*A handbook on higher-education resources bridging the University of Missouri-St. Louis and the Saint Louis Zoo*”. Whitney R. Harris Community Partners Scholarship, \$7,000.

Sterling, Analea (undergraduate, Ricklefs): “*Using genetic markers to determine the breeding location of two North American migratory passerine species*”. Thomas F. George Undergraduate Ecology Research Scholarship for \$500 and a Marcelle Kranzberg Undergraduate Research Scholarship for \$500.

Young, Emma (PhD, Ricklefs): “*Impacts of forest maturity and El Niño cycles on the body condition and pattern of malaria prevalence in a community of tropical forest birds*”. John Denver Memorial Scholarship in Tropical Ecology for \$4000.

The **Antionette McGrath Memorial Book Scholarship** was awarded to Leticia Soares, Heritiana Ranarivelo, Samoa Asigau, and Christina Baer for their service during 2015-2016 to the Harris Center (\$500 each).

Ben Abts, Miguel Chaves, and Mayra Ninazunta have taken OTS courses funded through the Harris Center in the 2015-2016 academic school year.

Spring and Summer Theses and Dissertations Completed

Rossana Maguiña, “Bat-plant interactions and the effect of artificial feeders in an Ecuadorian cloud forest”, M.S. thesis, Nathan Muchhala, advisor (June 27, 2016).

Isabel Rojas-Ferrer, “Predicting choices in bumblebees (*Bombus impatiens*): Learning rules and the two-armed bandit.” M.S. Thesis,, Aimee Dunlap, advisor (July 15, 2016).

Student External Research Grants

Baer, Christina: 2016-2017 Trans World Airlines Scholarship and the Raven Fellowship for Fall 2016. (Robert Marquis, advisor)

Gamba, Diana: \$500 Graduate Research Student Award from Botanical Society of America (BSA); \$325 travel grant from the American Society of Plant Taxonomists (ASPT) to attend Botany 2016 in Savannah, Georgia. (Nathan Muchhala, advisor)

Young, Emma: \$1,500 Smithsonian Tropical Research Institute (STRI) Short-term Fellowship (Robert Ricklefs, advisor)

New Publications

Albrecht, M., **R. Becknell**, and Q. Long. 2016. Habitat change in insular grasslands: Woody encroachment alters the population dynamics of a rare ecotonal plant. *Biological Conservation* 196, 93–102.

Jaramillo, M., M. Donaghy-Cannon, M., F. H. Vargas, and **P. G. Parker**. 2016. The diet of the Galapagos Hawk (*Buteo galapagoensis*) before and after goat eradication. *Journal of Raptor Research* 50(1), 33-44.

Jaramillo, M. “What do Galapagos Hawks eat after the goats are gone?”
<http://www.bou.org.uk/jaramillo-galapagos-hawks/>

Salazar, D., A. Jaramillo, and **R. J. Marquis**. 2016. The impact of plant chemical diversity on plant-herbivore interactions at the community level. *Oecologia* DOI [10.1007/s00442-016-3629-y](https://doi.org/10.1007/s00442-016-3629-y)

Reid, J.L., **J. M. Chaves-Fallas**, K. D. Holl, and R.A. Zahawi. 2016. Tropical forest restoration enriches vascular epiphytes recovery. *Applied Vegetation Science* 19, 508-517.

World Ecology Award Winners in the News

Jacques Cousteau (1992 WEA Recipient): Jacques Cousteau’s famed ship, the Calypso, has been retrieved from the sea and is set for restoration. <http://www.dcelocity.com/articles/20160606-jacques-cousteaus-famed-ship-hitches-a-ride-across-the-mediterranean/>

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Dr. Richard Leakey (1997 WEA Recipient): Dr. Leakey has taken over the chairmanship of the Kenya Wildlife Services. http://www.the-star.co.ke/news/2016/03/21/its-time-to-fence-kenyas-parks-dr-richard-leakey_c1316261

Ted Turner (2000 WEA Recipient): Turner received the Forbes 400 Lifetime Achievement Award for Philanthropy. <http://www.forbes.com/sites/forbespr/2016/06/08/forbes-hosts-fifth-annual-forbes-400-summit-on-philanthropy/#2b9020abd989>

Dr. Gro Harlem Brundtland (2001 WEA Recipient): Dr. Brundtland received the Zayed Future Energy Prize. <http://www.thenational.ae/uae/environment/norways-iron-lady-gro-harlem-brundtland-honoured-with-zayed-future-energy-prize#full>

Harrison Ford (2002 WEA Recipient): Ford to receive Murie Conservation Award in August. http://www.jhnewsandguide.com/news/environmental/ford-to-receive-murie-conservation-award/article_5469f73f-1856-50fc-8a3e-ae7bc6a73921.html

Dereck and Beverly Joubert (2008 WEA Recipients): The Jouberts appeared on The Ellen Show in February to discuss their newest documentary *Soul of the Elephant*. <http://traveller24.news24.com/Explore/conservation-couple-holds-southern-african-name-high-on-the-ellen-degeneres-show-20160203>

The **Jouberts** also hosted a fundraiser for their nonprofit “Rhinos Without Borders” and were able to raise \$90 million to move African rhinos to safety in Botswana.

<http://loudounnow.com/2016/06/09/stone-tower-event-raises-90k-to-save-rhinos/>

Howard G. Buffett (2011 WEA Recipient): Buffett was featured in a PBS interview about his work in African agriculture to help end hunger. <http://www.pbs.org/newshour/bb/how-farmer-philanthropist-howard-buffett-is-planting-hope-in-africa/>



Mayra Ninazunta, Dr. Robbin C. Moran (New York Botanical Garden) and Miguel Chaves at the Palo Verde Field Station in Costa Rica during the Organization for Tropical Studies' course in Tropical Plant Systematics, June 2016.