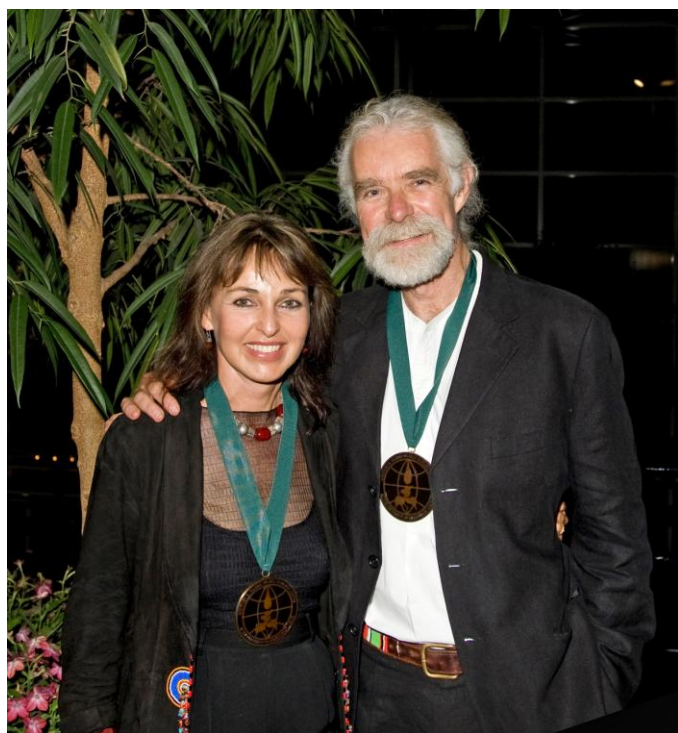


DERECK AND BEVERLY JOUBERT RECEIVE WORLD ECOLOGY AWARD

Dereck and Beverly Joubert, explorers-in-residence at the National Geographic Society, received the Center's World Ecology Award on October, 11 2008. The Jouberts have dedicated their lives to using documentary films to enhance African wildlife conservation. The couple has created numerous films, including *Relentless Enemies: Lions and Buffalo*, *Reflections on Elephants* and *Lions of Darkness*.

Through their films and publications, the Jouberts show the natural beauty and harsh reality of African wildlife, educating people throughout the world on why it is so vital that these wild places be protected and conserved for future generations.



Beverly and Dereck Joubert recipients of the 2008 World Ecology Award (Photo: August Jennewein).

Piper is a tropical plant genus of mostly shrubs, but including a few vines, herbs, and small trees. The most famous species is *Piper nigrum* from which black and white pepper are derived. *Piper* species are hardy plants with numerous medicinal properties that have made them important to humans throughout the world. At least 1,000 species are known, mostly from the New World and Asian tropics. The fruits are an important food for many bat species.

They have won numerous awards including five Emmys, two Chris awards, the Grand Teton award, and a George Foster Peabody award. Their latest film, *Eye of the Leopard*, documents a young leopard's survival in wild Africa over a period of three years, beginning when she was abandoned by her mother eight days after her birth.

The World Ecology Award recognizes eminent individuals who have raised public awareness of global ecological issues and made significant contributions to environmental protection and biodiversity conservation. Past recipients of the award include John Denver, Jacques Cousteau, Dr. Paul Ehrlich, Dr. Richard Leakey, Dr. Jane Goodall, Ted Turner, Dr. Gro Harlem Brundtland, Harrison Ford, Conservation International, the Prince of Wales, the Rockefeller family, Kathryn Fuller and Dr. Peter Raven.

The award was presented at a gala dinner held at the **Missouri Botanical Garden**. Funds raised from the dinner will support the Center's graduate research scholarship program.



Hal Kroeger (Chair, Harris Center Advisory Board), Carole Kroeger, Dr. Peter Raven (President, Missouri Botanical Garden) with World Ecology Award recipients, Beverly and Dereck Joubert (Photo: August Jennewein).

12TH ANNUAL WHITNEY AND ANNA HARRIS CONSERVATION FORUM

The **Whitney and Anna Harris Conservation Forum** was held at the **Saint Louis Zoo** on Wednesday, November 5, 2008. The theme for this year's event was *The Galápagos Islands: Guarding an ecological treasure*. The following talks were given in the breakout sessions: **Dr. Noah Whiteman** (Post-Doctoral Associate, Harvard University): *Lousy heirlooms: Co-evolution between birds and parasites in the Galápagos Islands*; **Dr. Rachel Atkinson** (Coordinator, Solutions for Ecological Restoration, Charles Darwin Foundation): *Is ecological restoration possible in Darwin's garden of evolution?*; **Dr. Jennifer Bollmer** (Post-Doctoral Associate, University of Wisconsin): *Low genetic variability in endemic Galápagos birds: Implications for conservation*; and **Patricia Baiao** (Doctoral Candidate, Department of Biology, University of Missouri-St. Louis): *Exploring phenotypic cues to bird movement in the Galápagos "natural laboratory": Implications for conservation*.

Lectures in the keynote session were presented by: **Felipe Cruz** (Director of Technical Assistance, Charles Darwin Foundation): *Restoring the Galápagos Islands*; **Dr. Patricia Parker** (E. Desmond Lee Professor of Zoological Studies, Department of Biology, University of Missouri-St. Louis and Saint Louis Zoo): *Disease threats to Galápagos birds*; and **Dr. Graham Watkins** (Executive Director, Charles Darwin Foundation): *Galápagos: The two sides of the coin*.

In partnership with the Missouri Botanical Garden and the Saint Louis Zoo



Whitney R. Harris, Dr. Patricia Parker, Felipe Cruz, Anna Harris and Dr. Graham Watkins at the Whitney and Anna Harris Conservation Forum following the presentation of the Conservation Action Prize to Felipe Cruz, Saint Louis Zoo, Wednesday, November 5, 2008 (Photo: Kylie Shafferkoetter).

CONSERVATION ACTION PRIZE

Eight years ago, the Harris Center established the **Conservation Action Prize** to recognize individuals who are particularly active in the frontline of biological conservation. The award honors individuals successful in seeking solutions to conservation problems, implementing programs that conserve natural resources, educating the public on issues pertaining to biological conservation, or providing leadership through example.

Previous recipients of this award are **Sharon Matola**, Director of the Belize Zoo, **Doug Ladd**, Director of Conservation Science, Missouri Chapter of the Nature Conservancy, **Mark Jenkins**, Senior Warden, Kenyan Wildlife Service

and **Wilford Guidon** of the Montverde Conservation League in Costa Rica.

At the Whitney and Anna Harris Conservation Forum, held at the **Saint Louis Zoo** on Wednesday, November 5, 2008, the Harris Center presented the Conservation Action Prize to **Felipe Cruz**, Director of Technical Assistance for the **Charles Darwin Foundation** on the Galápagos Islands. Felipe was born on Floreana Island, one of the five inhabited islands in the Galápagos and his interest in the natural history of the Islands began at an early age. He attended the local elementary school until he was twelve when he traveled, for the first time, to mainland Ecuador to continue his education.

Felipe began work as a field assistant with the **Charles Darwin Research Station** in the early

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1980s. His first project on the dark-rumped petrel saved this bird from extinction and has become one of the most successful conservation projects in the Galápagos. He then worked with the Galápagos National Park Service as Head of Protection and later as its Deputy Director.

In 1997, Felipe returned to work for the Charles Darwin Research Station, this time with a focus on the Marine Reserve. His primary role was in conflict resolution aimed at the production and approval of the Special Law for Galápagos. A key component of this law was the extension of the Marine Reserve to forty nautical miles.

He was appointed Technical Director of the Isabela Project which had as its goal, the ecological restoration of the island. Felipe devoted his time to building and supervising the team of hunters working on the eradication of goats from Pinta Island; pigs, donkeys and goats from Santiago Island; and goats and donkeys from Isabela Island. The Isabela Project was ended in June 2006, achieving far more than was planned and is now regarded as a shining example of practical conservation.

In 2006, Felipe started his current position as Director of Technical Assistance for the Charles Darwin Foundation. In this role, he is responsible for the Foundation's department that focuses on capacity building within the local community. Felipe is also a member of the General Assembly for the Charles Darwin Foundation for the Galápagos Islands.

NEW ENDOWMENT

The Harris Center has established the **Marcelle Kranzberg Undergraduate Research Scholarship** with a generous gift from **Ken and Nancy Kranzberg**. This scholarship will enable undergraduate students to collaborate with faculty and graduate students in field research programs. In 2008, undergraduate **Sally Zemmer** completed an internship working with the avian health program in the Galápagos Islands. With this additional support and the income from the **Thomas F. George Undergraduate Ecology Research Fund**, the Center can now implement

its strategy to provide support to undergraduate students at the University of Missouri-St. Louis.

POSSIBLE MALARIA-CAUSING PARASITE DISCOVERED IN THE GALAPAGOS ISLANDS

A form of avian malaria has been found in Galápagos penguins by a research team led by **Dr. Patricia Parker**, E. Desmond Lee Professor in Zoological Studies. This discovery is a cause for concern since it could be a progenitor of a disease similar to one that led to the extinction of half the endemic birds on the Hawaiian archipelago. The parasite is in the genus *Plasmodium*, a group that includes several malaria-causing species, and is thought to be a species new to science. The research program that led to this discovery is collaborative with scientists based at **UM-St. Louis**, the **WildCare Institute** at the **Saint Louis Zoo**, the **Galápagos National Park** and the **Charles Darwin Foundation**.

HARRIS CENTER STUDENT RECEIVES STEPHEN J. O'BRIEN AWARD

In June 2008, the Council of the American Genetic Association awarded the first annual Stephen J. O'Brien Award for best student-authored article published in *Journal of Heredity's* 2007 volume. The award, which includes a \$1,000 prize, was given to **Patricia Carvalho Baião** for her paper: *The genetic basis of the plumage polymorphism in red-footed boobies (Sula sula): a melanocortin-1 receptor (MC1R) analysis* (advisor: **Dr. Patricia Parker**). The award honors Dr. Stephen J. O'Brien, Chief of the National Cancer Institute's Laboratory of Genomic Diversity and head of the Section of Genetics, who served as Editor-In-Chief for the Journal from 1987-2007. Patricia Baião received the **Stephen Mitchell Doyle Scholarship in Tropical Ecology** in 2008 and the **Jane and Stanley Birge Tropical Research Scholarship** in 2006.



NEWS OF HARRIS CENTER FACULTY, STUDENTS AND ALUMNI

Dr. Robert Ricklefs was awarded \$120,809 for the project: *Community relationships of malaria parasites and their avian hosts* by the **National Science Foundation**.

Juan Martinez (Ph.D. 2007) has been appointed to a post-doctoral position at the Instituto de Ecología funded by the Mexican National Council of Science and Technology. He is working with Dr. Roger Guevara on a project using terminal RFLP's with fluorescent markers to characterize mycorrhizal communities associated with *Brosimum alicastrum*, a common tree in Southeastern Mexico.

Nicholas Barber (Ph.D. student in Biology) was awarded the 2008 **Chancellor's Graduate School Dissertation Fellowship** that covers tuition and a stipend for 12 months. This is the second year in a row a Harris Center student has received this prestigious award. The 2007 Fellowship went to **Renata Duraes**. Nicholas also received the **American Ornithologists Union Student Research Award** and, from the Department of Biology at UM-St. Louis, the **Arnold Grobman Award for Excellence in Field Biology**.

Dr. Patricia Parker (E. Desmond Lee Professor in Zoological Studies) and **Karen DeMatteo** (Post-doctoral Associate) received a

grant of \$25,080 from the **Conservation, Food, and Health Foundation** in support of a project entitled *Identifying habitat corridors that minimize human-wildlife conflict and maximize mobility for landscape species in interior Atlantic forest*. The project involves local collaborators from universities and the government in Misiones, Argentina. Karen will use detector dogs to locate scat from jaguars, pumas, ocelots and bush dogs and using both genetic and GIS analyses will identify wildlife corridors in the region.

Dr. Sharon Deem, and co-investigators **Dr. Patricia Parker**, **Paquita Hoeck**, and **Dra. Marilyn Cruz**, were awarded a 1-year, \$20,052 **Morris Animal Foundation** Grant for a project entitled *Health survey for the re-introduction of the Floreana mockingbird*.

Dr. Sharon Deem spent 12 days working on Floreana Island in the Galápagos. During this trip, Sharon and colleagues collected samples from 189 passerine birds as part of the health study for the re-introduction of the Floreana mockingbird. Sharon also worked with **Eloisa Sari** (Ph.D. student in Biology) on her Galápagos flycatcher colonization study and **Jenni Higashiguchi** (Ph.D. student in Biology) on her avian pox virus study.

On Floreana, an additional 2 penguins were sampled as part of the *Plasmodium* study, bringing the total penguin samples in the archipelago for July 2008 to 162 penguins.

GALAPAGOS HAWK: ECOLOGICAL RESTORATION MAY BE CAUSING A POPULATION DECLINE

Many introduced species are found in the Galápagos Archipelago, each with different impacts on the ecology of these special islands. Goats were introduced there by seamen in the 16th century, and the goats were used to supply fresh meat. Goats were direct competitors with the Galápagos tortoise and were probably responsible for the extirpation of several tortoise populations. Goats became the most important herbivore on the islands and their grazing changed the vegetation and upset the islands' ecological balance.

Systematic goat eradication started in the 1990s and the program intensified with the Isabela Project conducted by the Galápagos National Parks and the Charles Darwin Foundation and finished in 2006. This led to the eradication of feral goats on Isabela and Santiago Islands and confirmed their absence on Pinta Island. The eradication was successful leading to the restoration of Galápagos ecosystem and the conservation of native species. However, changing the habitats where those species were living with goats through the last century may change our understanding of the ecology of these islands.

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The Galápagos hawk is endemic to the Galápagos Archipelago and is known for its small populations and low genetic variability. This species is one of the few true cooperative polyandrous raptors, having groups of one female with up to 8 males. However, there is variation between islands and in some cases breeding occurs between a female and a single male. Each group defends a territory where they hunt for lizards, grasshoppers, birds and opportunistically take advantage of any other available food such as sea lion placenta or carrion. This species has been studied since the early 1970s and large numbers of non-reproductive individuals (mostly juveniles) were present on Santiago Island. After the goat removal, the breeding population of hawks has declined. Many hypotheses have been proposed to account for it, including lead poisoning, consuming poisoned rats, or even a restoration towards the natural pre-goats equilibrium.

Dr. Patricia Parker (UM-St. Louis) and **Dr. Hernan Vargas (The Peregrine Fund)**, with two Ecuadorian students, have begun to investigate the effect of the goat eradication on the Galápagos hawk. **Jose Luis Rivera** is the first of these students and he will analyze the population dynamics of already identified territorial groups, continuing the effort begun by the Parker group in a long term study of the hawks (now with eleven years of data).

Other major points of interest are overall changes in population structure and the population biology of the non-breeding fraction of the population, apparently the most affected by the goat-removal. In order to compare how ecological changes driven by the removal of the major herbivore of the islands has affected the Galápagos hawk, a study will be carried out on Santiago and Espanola, where the goats were eradicated in 1978. Other islands, such as Pinta and Isabela (where groups of non-breeding individuals used to be common too) are being considered for inclusion in the study depending on the funding availability.



Galapagos hawk (left) and a group of hawks (right) attracted to a goat carcass set as bait on Santiago Island, Galápagos Islands (Photos: Jose Luis Rivera).

PiperNotes is the newsletter of the **Whitney R. Harris World Ecology Center**. In collaboration with the **Missouri Botanical Garden** and the **Saint Louis Zoo**, the Center promotes research and education in biodiversity conservation and the sustainable use of natural resources and ecosystems. The Center provides an academic, international environment for graduate education in ecology, evolution, systematics and conservation. The Center supports undergraduate education in conservation biology and promotes awareness within the St. Louis community of the importance of conservation and environmentally sustainable practices.



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Cyrtorchilum macranthum - Yanayacu, Eastern Ecuador (Photo: Eliot Miller).

TOP STORIES

DERECK AND BEVERLY JOUBERT receive the World Ecology Award.

12TH ANNUAL WHITNEY AND ANNA HARRIS CONSERVATION FORUM focuses on the Galápagos Islands.

FELIPE CRUZ receives Conservation Action Prize.

MARCELLE KRANZBERG UNDERGRADUATE RESEARCH SCHOLARSHIP established.

DR. PATRICIA PARKER'S team discovers a form of avian malaria in the Galápagos penguin.

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