

# RIVERBANKS ZOO & GARDEN

columbia south carolina

DATE: 30 August 2016  
TO: SAS, Directors  
FROM: Ed Diebold  
SUBJECT: Summary of Riverbanks Conservation Support Fund activity for Fiscal year 2015-2016 (i.e., total of the 1 December 2015 and 1 June 2016 funding cycles)

In 1996, the Riverbanks Zoological Society Board of Directors approved the establishment of the Riverbanks Conservation Support Fund (CSF) with the objective of providing assistance to carefully selected conservation initiatives originating both from within and outside of Riverbanks.

This is the twenty-first year of existence for the CSF. This year the availability of funding was announced on the Riverbanks Web Site. Twice annual grant submission deadlines were as follows: 1 December 2015 and 1 June 2016.

Grant awards, including Field Conservation Associates grants are summarized below:

## **1 December 2015 Deadline**

- 1) \$5000 to Barry T. Hartup, DVM, MS, PhD of the International Crane Foundation (ICF) and Nyambayar Batbayar, PhD of the Wildlife Science and Conservation Center, Ulaanbaatar, Mongolia for their project titled, "Non-invasive Biomonitoring of Heavy Metals and Persistent Organic Pollutants in the Endangered White-naped Crane in Mongolia."

The project aims to implement a pilot biomonitoring project for heavy metals and persistent organic pollutants (POPs) using non-invasive feather/eggshell collection from White-naped Cranes. Specific conservation/management objectives of this project are to:

- Determine if concentrations of heavy metals are greater in adult crane feathers than young birds.
- Determine if concentrations of metals in feathers vary among birds geographically within the large study site.
- Determine if eggshells of White-naped Cranes contain concentrations of heavy metals and POPs considered elevated based on comparative studies.
- Determine if concentrations of heavy metals and POPs in eggshells vary among birds geographically within the large study site.

- 2) \$6000 to Deborah Olson of the International Elephant Foundation (IEF) for her project titled, "Protecting Elephants, Forests, Wildlife and Communities through Conservation Response Units (CRUs)."

The specific conservation/management objectives of this project are to:

- Protect and restore species and their habitats sustainably.
  - Strengthen local communities' ability in sustainable practices to conserve the natural resources they depend upon.
  - Ensure that the value of nature is reflected in decisions made by individuals, communities, governments and businesses.
  - Mobilize people to support conservation
- 3) \$3805 to Jeff Dawson of the Durrell Wildlife Conservation Trust and Devin Edmonds of the Association Mitsinjo, Moramanga, Madagascar for their project titled, "Listen to the frogs: using bio-acoustics to improve our conservation relevant knowledge of Data Deficient and threatened frog communities in Madagascar."

The project aims to increase conservation-relevant knowledge of amphibian communities in Andasibe and to generate recommendations for a time and cost-effective amphibian monitoring in Madagascar. Specific conservation/management objectives of this project are to:

- Identify species composition, temporal and spatial activity patterns of amphibian communities in Andasibe.
  - Compare data collected by bio-acoustic and VES methods.
  - Critically assess utilizing acoustic recorders to monitor amphibians in a Malagasy context and produce recommendations and guidance for their use.
- 4) \$5000 to Jessica Watermeyer and Rosemary Groom PhD of the African Wildlife Conservation Fund (AWCF), Zimbabwe for their project titled, "Conservation through Education."

The specific conservation/management objectives of this project are to:

- Ensure persistence of viable populations of wild dogs in both the area in both the short and long term.
  - Reduce carnivore deaths due to illegal bush meat poaching through snaring.
  - Have no wild dogs killed by local communities for >1 year.
  - Achieve a measurable improvement in the attitudes of school students towards wildlife.
  - Improve livelihoods - due to reduced conflict with carnivores (and reduced loss of livestock); due to improved livestock husbandry and better understanding of species behavior.
  - Employ local people and provide skills training.
  - Train ranch scouts and National Park's rangers.
  - Provision learning opportunities to undergraduate and graduate students through affiliation with the AWCF team.
- 5) \$1459 to Ken McCravy, PhD of Western Illinois University and Eloisa Rodriguez Alvarez, PhD of Del Campo International School, Tegucigalpa, Honduras for their project titled, "Honduras Hymenoptera Project."

The project aims to improve forest fragments in urban, farm, and natural land across Honduras through a mix of science, education, and media. Specific conservation/management objectives of this project are to:

- Survey insect pollinators and their plant hosts across Honduras.

- Build bee habitat at three sites: urban gardens in Tegucigalpa, farms near San Pedro Sula, and natural forest at Cusuco National Park.
  - Develop the EcologicX science radio series to spread information about pollinators and ways to help them.
- 6) \$5000 to Kim Andrews PhD and Terry Norton, DVM, Diplomate ACZM of the Georgia Sea Turtle Center and Katie Parson of the Georgia Sea Turtle Center and AmeriCorps for their project titled, “The Effects of Habitat Quality, Prey Availability, and Wildlife Health on the Reproduction of a Declining Predator in an Urban Landscape.”

The project aims to understand how the elevated energetic costs that female Eastern Diamondback Rattlesnakes (EDBs) experience due to reproduction coupled with less predictable winters influences their survival on a southeastern barrier island. Specific conservation/management objectives of this project are to:

- Quantify reproductive and wintering behavior in female EDBs using radiotelemetry.
  - Assess overall and nutritional health of telemetered animals through the annual collection of blood samples for contaminants, and the biannual collection of morphometric and blood samples, and obtaining monthly weights.
  - Evaluate how reproduction influences survival in the subsequent year(s) for an individual.
  - Identify the optimal temperature and habitat conditions for female success in both active and inactive seasons.
  - Determine the degree to which habitat quality and small mammal abundance are drivers of foraging and reproductive success.
  - Increase public awareness and appreciation for the ecological and conservation importance of snakes through incidental encounters in the field, organized island events, and the launch of a Protect our Predators education program.
- 7) \$4800 to Liba Pejchar, PhD and Sara Bombaci, M.S for their project titled, “Do mainland island sanctuaries to restore bird diversity and enhance seed dispersal in New Zealand.”

The project aims to test whether fenced mainland islands can enhance overall bird community diversity and restore an important ecosystem process (bird-mediated seed dispersal). Specific conservation/management objectives of this project are to:

- Determine whether mainland island sanctuaries enhance the diversity of bird communities and the density of native bird species, especially imperiled species, relative to unprotected areas.
  - Determine whether mainland island sanctuaries enhance bird-mediated seed dispersal relative to unprotected areas.
- 8) \$5000 to Elizabeth F. Ballare and Erin R. Vogel, PhD of Rutgers, The State University of New Jersey for their project titled, “Health effects of rehabilitation and release in Indonesian orangutans (*Pongo pygmaeus wurmbii*).”

The project aims to identify patterns of physiological changes, immune function, and parasitic infections in rehabilitated and released orangutans and enhance rehabilitation protocols and determine ways to improve overall pre- and post-release health and survival in orangutans. Specific conservation/management objectives of this project are to:

- Investigate the physiological aspects (protein balance, muscle mass variation, stress, immuno-responsiveness and GI parasitic infections of orangutans.
- Compare the urinary indicators of physiological and nutritional stress from captive individuals, the released population, and a wild population of orangutans to better inform release monitoring methods and future government initiatives.

9) \$500 to the South Carolina Wildlife Federation Scholarship Program.

The specific conservation/management objective of this project is to:

- Distribute educational grants to full-time students pursuing environmental education at South Carolina schools of higher education.
- Undergraduate and graduate students are eligible, based on their performance in academia and in related community activities.
- Special attention is paid to a student's leadership and volunteer experience when determining winners of these scholarships.

10) \$3500 to Stephen van der Spuy, BVSc of the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) for his project titled, "African Penguin Chick Bolstering Project."

The specific conservation/management objective of this project is to:

- Rescue 700-900 African penguin chicks and admit them to SANCCOB's centers on an annual basis.
- Rehabilitate and release 65-75% of the admitted African penguin eggs and chicks back into the wild.
- Train and maintain 150 volunteers and interns in penguin and seabird rehabilitation.
- Maintain 16 full time employees as part of the core rehabilitation and conservation team.

11) \$1550 to Thai Van Nguyen and Heidi Quine of Save Vietnam's Wildlife for their project titled, "Rescue and rehabilitation of critically endangered pangolins confiscated from the illegal wildlife trade."

The specific conservation/management objective of this project is to:

- Ensure the all confiscated pangolins are placed in an appropriately equipped and resourced rehabilitation center.
- Provide the best chance of survival for confiscated pangolins from illegal trade across Vietnam.
- Increase knowledge on the captive management of Asian pangolins.
- Improve decision-making processes in the placement of Asian pangolins confiscated from the illegal wildlife trade.

- Ensure that rehabilitated pangolins are released into appropriate and well protected areas in support of wild populations.

### 1 June 2016 Deadline

- 12) \$8759.96 to Jeff Camper, PhD of Francis Marion University, Scott Pfaff and Karyn Wheatley of Riverbanks Zoo & Garden for their project titled, “Emerging Infectious Disease Survey of Wildsumaco, Ecuador.”

Specific conservation/management objectives of this project are to:

- Determine the incidence and infection prevalence of chytrid fungi and *Ranavirus* in amphibian and reptile populations at the Wildsumaco Wildlife Sanctuary in Napo Province, Ecuador.

- 13) \$4870 to Besa Kaoma, Shaina Irwin and Ian Stevenson of Conservation Lower Zambezi (CLZ) for their project titled, “‘NZOU’ Environmental Education Programme, Lower Zambezi, Zambzi”

The project aims to achieve a high level of engagement and interest within local communities in the protection of wildlife and natural resources of the Lower Zambezi National Park. Specific conservation/management objectives of this project are to:

- Improve the level of interest in and knowledge of the value of the environment in the areas surrounding the Lower Zambezi National Park by engaging with scholars and teachers from 56 schools, reaching over 2,000 scholars every year (2,500 reached in 2015).
- Increase community engagement in wildlife protection through school conservation clubs.
- Monitor and evaluate engagement levels of local school pupils in environmental education and conservation initiatives.

- 14) \$4759 to Brian Keller of Florida State University/Global Eco Adventures, Dean Grubbs, Ph.D of Florida State University and Bryan Frazier of the South Carolina Department of Natural Resources (SCDNR) for their project titled, “Assessing the role of magnetic-based navigation (MBN) in the bonnethead shark, *Sphyrna tiburo*.”

The specific conservation/management objectives of this project are to:

- Determining if *Sphyrna tiburo* uses MBN, in order to assess the potential for protecting similar, but endangered species, during seasonal migrations.
- Develop a type of geolocation to be used by researchers around the world that is more precise than current standards and will allow for the delineation of migration paths and identify habitat use patterns, such as areas for parturition, mating or aggregation.
- Provide underrepresented students in this field with a path to success by conducting outreach presentations in the area and selecting especially interested students to participate in research.

- 15) \$1655.17 for Silver Level Sponsorship of the 9<sup>th</sup> International Penguin Congress (IPC9) in Capetown, South Africa from 5-9 September 2016. .

Every three years, the international penguin community meets to present their latest research. Presentations at these meetings include those that highlight the state of the penguin species throughout the world, the nature of the threats they face and how these threats impact the various species of penguins, as well as make recommendations as to how these species can be protected for future generations.

- 16) \$10,000 to Rick Hudson of the Turtle Survival Alliance (TSA) for operating support of the TSA Turtle Survival center (TSC) in Cross, South Carolina.

The specific conservation/management objectives of this project are to:

- Establish captive assurance colonies for carefully selected species of critically endangered turtles.
- Provide emergency veterinary back-up for the Turtle Survival Center, as needed and as is practical.

- 17) \$5045 to Diana Koester, PhD and Adrienne Crosier, PhD of the Smithsonian Conservation Biology Institute for their project titled, "Non-invasive identification of protein biomarkers for early pregnancy diagnosis in the cheetah (*Acinonyx jubatus*)."

The specific conservation/management objectives of this project are to:

- Confirm earlier findings by looking for these key biomarkers in additional fecal samples from cheetahs known to be pregnant versus non-pregnant after natural breeding
- Verify detection of at least two other candidate proteins using immunoblotting, all to generate a pregnancy biomarker 'panel' of proteins.
- Assess candidate protein abundance at multiple time points after mating to shed light on how early pregnancy is established or fails in this rare species.
- Use collective knowledge and tools to develop an inexpensive, rapid, bench-top assay to regularly diagnose pregnancy in the cheetah, with likely relevance to other endangered carnivores.

- 18) \$4500 to Brad Lock former Curator of Herpetology at Zoo Atlanta for his project titled, "Conservation of the Critically Endangered alligator lizard *Abronja campbelli* in eastern Guatemala through Habitat Restoration and Community Forest Management- Phase II."

The specific conservation/management objectives of this project are to:

- Create and integrate mixed use forest that will benefit both the environment and the areas human inhabitants.
- Expand awareness and conservation education that will cement the skills needed to manage the forest in the short and long-term, to engender an atmosphere of conservation and community pride and to allow for participation in the process for the children of all 12 communities within the range of the project.

- 19) \$5257 to Colleen Lynch, MS of Riverbanks Zoo & Garden and Mark Meyers of the Woodland Park Zoo for their project titled, "Blue-crowned Laughingthrush

(*Dryonastes courtoisi*) Global Species Management Plan/One Plan Development Workshop.”

The specific conservation/management objectives of this project are to:

- Conduct a husbandry and stakeholder workshop at Nanchang Zoo to improve husbandry of BCLT in Asian collections and develop relationships between the GSMP and Asian holders.
- Execute renewal of the EAZA Memorandum of Understanding (MOU) regarding field conservation support to the Forestry Bureau of Wuyuan County. This agreement provides for funding from
- Conduct field site visits in Jiangxi Province to determine GSMP role in in situ conservation efforts.

20) \$4988.85 to Mallory Rice and Deron Burkepille, PhD of the University of California, Santa Barbara for their project titled, “Role of nutrient pollution and fish excretion in exacerbating or aiding coral recovery from predation during bleaching events.”

The specific conservation/management objectives of this project are to:

- Determine what are the interactive effects of anthropogenic- vs. fish-derived nutrients and bleaching events on coral growth and health after a predation event?
- Conduct a factorial lab experiment with seawater temperatures associated with bleaching events and nutrient treatments on common coral species.
- Better understand the role of nitrogen identity in exacerbating or mitigating the effects of bleaching and predation to enable researchers to target conservation of specific coral species and sites.

21) \$3183.91 to Tim Snow of Wildlife Poisoning Prevention and Conflict Resolution in Kwazulu Natal for his project titled, “Wildlife Poisoning Forensic Training for Rangers in Africa.”

The specific conservation/management objectives of this project are to:

- Train and mentor at least 100 rangers per annum (500 rangers by December 2020) to effectively and safely collect data samples to identify poisons used and to provide evidence which can be used in court to prosecute poachers.
- Track poisoning incidents via a database to build the case for stricter control of poisons and law enforcement.
- Work with law enforcement agencies regionally towards the prosecutions of poachers.
- Lobby Southern African Development Community (SADC) governments to address pesticide control and legislation around their use or abuse.

22) \$4446 to Shawn Stone of the Gila Watershed Partnership of Arizona for his project titled, “Critical Habitat Restoration on the Upper Gila River.”

The specific conservation/management objectives of this project are to:

- Pro-actively restore critical habitat for federally listed species.
- Establish innovative revegetation techniques in arid riparian ecosystems and share lessons learned with projects throughout the desert southwest.

- Complete threatened/endangered species surveys, analyze the survey results and determine productivity and use of habitat on the Gila River.
- Develop an innovative tool to update existing restoration practices.
- Actively re-establish native riparian habitat through strategic out-planting efforts.
- Design an inundation model to upgrade our active restoration techniques and pair this model with USGS stream gauges to predict floodplain inundation events

23) \$5000 to Amy A. Waters and John D. Waters, MS of the Aquatic Research and Conservation Society, Inc. for their project titled, "Commercial Fisheries Management Project."

The specific conservation/management objectives of this project are to:

- Determine sustainable levels of harvest in order to produce harvest quotas to avoid overfishing.
- Monitor commercially managed fish to determine the number, age, extent, patterns and biology of these species.
- Work closely with state and federal agencies to eradicate invasive Asian carp.

24) \$ 5951.07 for the Riverbanks Field Conservation Associates (FCA) Program.

- Stacy Hitt conducted field work from 15 January – 15 March 2015 with Susan Loeb, Research Ecologist, US Forest Service, Southern Research Station, Clemson University on the summer and winter roosting and foraging ecology of Southeastern Myotis (*Myotis austroriparius*) bats at Congaree National Park.
- Karyn Wheatley and Casey Lown traveled with professors Dr. Brian Arbogast of the University of North Carolina-Wilmington and Travis Knowles of Francis Marion University to participate in the camera trapping studies of the mammalian biodiversity of Ecuador's Sumaco National Park (SNP) from 15 July – 4 August 2015. Professor Dr. Arbogast and Knowles' project was funded by the Riverbanks CSF in the 31 March 2103 cycle.

A total of \$110,030 in grants was distributed during fiscal year 2015-2016 (i.e., a combination of the 1 December 2015 and 1 June 2016 funding cycles). Note that grants awarded during the 1 June deadline were distributed during the first part of fiscal year 2016-2017, but have been included in this summary for the sake of consistency with previous year's summaries.

This brings the total support granted by the Riverbanks Conservation Support Fund to \$767,102 since its inception and the CSF has now funded 221 projects in 36 countries around the globe.

Select projects funded by the Riverbanks Conservation Support Fund are featured in the *Conservation Corner* section of the Riverbanks Magazine.