

SPRING 2012



## THE PEREGRINE FUND

CONSERVING BIRDS OF PREY WORLDWIDE

2011  
ANNUAL  
REPORT





**K**illy Hawk, Windhover, Sparrowhawk; regardless of its many nicknames, the American Kestrel is the most common falcon in North America. But we know, from working with previously “common” species, that no bird of prey should be taken for granted. Many respected observers have suspected for decades that American Kestrel populations are declining. Our response is an innovative approach that offers everyone, from kindergarten students to seasoned research scientists, exciting ways to participate with us in the kestrel’s conservation. *Please see page 16 to learn more.*



California Condor | Gyrfalcon | Peregrine Falcon | Prairie Falcon | Aplomado Falcon | American Kestrel | Golden Eagle | Bald Eagle | Red-shouldered Hawk | Rough-legged Hawk | Swainson's Hawk | Osprey | Goshawk | Cooper's Hawk | Great Horned Owl | Short-eared Owl | Andean Condor | Harpy Eagle | Crested Eagle | Peregrine Falcon | Orange-breasted Falcon | Barn Falcon | Collared Forest-Falcon | Barred Forest-falcon | Gundlach's Hawk | Black-and-Chestnut (Isidor's) Eagle | Laughing Falcon | Double-toothed Kite | Plumbeous Kite | Gray-headed Kite | Grenada Hook-billed Kite | Hook-billed Kite | Yellow-tailed Kite | Ridgway's Hawk | Crane Hawk | White Hawk | Gray-backed Hawk | Bicolored Hawk | Great Black Hawk | Roadside Hawk | Ornate Hawk-Eagle | Black Hawk-Eagle | Black-and-White Owl | Crowned Solitary Eagle | Solitary Eagle | White-necked Hawk | Red Owl | Buckley's Forest Falcon | Least Forest Falcon | Slaty-backed Forest Falcon | Snail Kite | White-collared Kite | Galapagos Hawk | Black-collared Hawk | Eleonora's Falcon | Madagascar Serpent-Eagle | Madagascar Roll Call | Madagascar Cuckoo Hawk | Madagascar Fish Hawk | Madagascar Fish Eagle | Madagascar Buzzard | Henst's Goshawk | Frances's Sparrowhawk | Madagascar Sparrowhawk | Banded Kestrel | Madagascar Kestrel | Madagascar Harrier | Madagascar Long-eared Owl | Madagascar Scops Owl | Totoroka Scops Owl | Madagascar White-plumed Owl | Bat Hawk | African Fish-Eagle | Crowned Eagle | Sokoke Scops Owl | Lesser Buzzard | Bearded Vulture (Lammerbein) | Egyptian Vulture | Cape Vulture | Cassin's Hawk Eagle | Martial Eagle | Heila Falcon | Lanner Falcon | Black Eagle | Cape Verde Kite | Cape Verde Buzzard | Yellow-billed Kite | African White-backed Vulture | Pemba Scops Owl | Mackinder's Eagle Owl | Ayre's Hawk Eagle | Black Kite | Rüppell's Griffon Vulture | Black Kite | Philippine Eagle | Oriental White-backed Vulture | Long-billed Vulture | Slenderbilled Vulture | Cinereous Vulture | Himalayan Vulture | Javan Hawk Eagle | Grey-headed Fish Eagle | Pallas's Fish Eagle | Chinese Sparrowhawk | New Guinea Harpy Eagle | Hawaiian Hawk

This past year has been especially busy and productive—we are working with 34 species of birds of prey in 27 countries around the world, the most ever in The Peregrine Fund's 41-year history. And, in response to ongoing economic challenges around the world, we are doing it without extra staff or resources. I am grateful to all the hard-working employees who make this possible and to all the loyal and generous supporters who enable us to carry on.

When the Peregrine Falcon verged on the brink of extinction more than 40 years ago, The Peregrine Fund pioneered techniques for breeding falcons in captivity and releasing them to the wild. That was state-of-the-art stuff back then, and it was (and still is) expensive and time-consuming. Even so, we remain committed to captive propagation when necessary to recover endangered species and are proud of our success rearing and releasing many endangered birds of prey through the years, including our current work with California Condors and Aplomado Falcons.

However, I believe it is more important than ever to stop the downward slide long before a species is in serious trouble. Consider the difference between a smoke detector and a speeding fire engine—the smoke detector saves more lives at significantly less expense.



J. Peter Jenny, President and CEO

Paul Spurling

“It is more important than ever to stop the downward slide long before a species is in serious trouble.”

To that end, we spent much of this past year preparing to launch a new program in 2012 that will address the decline in North America of the colorful and charismatic American Kestrel. Like our work to save the Peregrine Falcon, this project also will be state-of-the-art, but using 21st century tools. We are harnessing the power of the internet to team professional researchers with citizen scientists to create a foundation on which to build a sound conservation strategy. Thankfully, the American Kestrel does not yet appear to be in danger of extinction, but we smell smoke. Initiated now, I believe our American Kestrel Partnership can avert an expensive crisis like we once faced with the Peregrine Falcon 40 years ago.

Even as we look for new ways to work harder, faster, and smarter, some things never change. The Peregrine Fund remains a small, nimble, hands-on organization that meets challenges head on. This past year, we sent researchers into the field in countries like Kenya and Uganda in Africa, India, Philippines and New Guinea in Asia, and Ecuador, Dominican Republic, Peru, and Brazil in Latin America to deal with some of the world's thorniest conservation problems.

We also remain committed to education, particularly efforts that empower local people to conserve birds of prey and their habitat and devise grassroots recovery plans that work best for them. People represent both the biggest threat and the solution to raptor recovery. We are making progress with education and awareness campaigns to end the shooting and poisoning of birds of prey.

Whether I am in meetings or out in the field, I am constantly reminded of the importance of The Peregrine Fund's role as an innovative and respected raptor conservation organization. I am confident that The Peregrine Fund is well-positioned to adapt to whatever the future brings, and I am grateful to all those who choose to be part of the journey.

Thank you for your support.

The Peregrine Fund has worked in or supported associates from more than 65 countries.

In 2011

Since 1970

# highlights:

eight of the birds that benefited from your partnership last year

## 1 CALIFORNIA CONDOR Flying free in Arizona and Utah

In FY11, our World Center for Birds of Prey—home to the world's largest flock of captive condors—transferred a record number of eggs to other facilities to ensure genetic diversity and allow infertile eggs in the wild to be replaced with fertile ones. In the wild, three chicks hatched in Arizona, the most in a single year. In another first, a trio of adults produced an egg and successfully reared their chick. Lead poisoning remains a persistent danger to all the birds in the wild, however, claiming the lives of three condors in FY11.

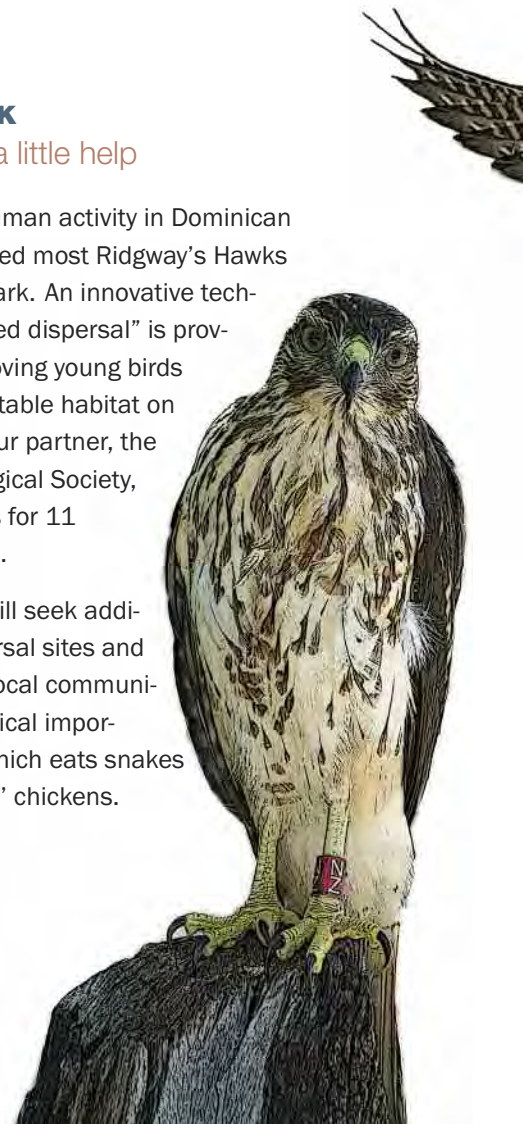
**NEXT STEP:** We expect to release up to 15 captive-bred condors in the next year and continue to test the entire Arizona flock for lead poisoning. Together with state wildlife agencies, our work to increase awareness among hunters continues so they can participate to recover this critically endangered species.



## 2 RIDGWAY'S HAWK Moving on, with a little help

Deforestation and human activity in Dominican Republic have confined most Ridgway's Hawks to a small national park. An innovative technique we call "assisted dispersal" is proving successful for moving young birds out of the park to suitable habitat on private lands. With our partner, the Hispaniola Ornithological Society, we found new homes for 11 young hawks in FY11.

**NEXT STEP:** We will seek additional assisted dispersal sites and continue educating local communities about the ecological importance of the hawk, which eats snakes and rats, not farmers' chickens.





### 3 **APLOMADO FALCON** Regaining a foothold in Texas

Annual surveys show that the population of Aplomado Falcons in South Texas is small but thriving. We were pleased in FY11 to find an increase in the number of pairs setting up territories and nests, despite an historic drought in Texas.

Most of those pairs were using the artificial nest boxes that we have erected and adapted to keep chicks safe from predators.

**NEXT STEP:** More precise information will be collected on the species' current status and on what is critical to establishing a lasting and viable population. We will increase the intensity and geographic scope of our survey efforts, place additional artificial nest structures, band young from artificial nests and conduct genetic analysis. We also will work with refuge land managers to maintain open habitat for this and other grassland species.

### 4 **ORANGE-BREASTED FALCON** Bolstering a tiny population

The rare and beautiful Orange-breasted Falcon is found in remote tracts of rainforest in Belize and Guatemala. We produce these birds in captivity and release them to the wild. A male falcon released last year took the FY11 group of five captive-bred chicks under his wing, feeding with them at the release site and alerting them to potential threats. The same bird was spotted with a wild adult female, sparking hopes that more wild pairs of Orange-breasted Falcons will be formed as a result of our releases.



**NEXT STEP:** We will continue releasing as many captive-bred birds as possible and monitoring nest occupancy and productivity of wild and released falcons. Cameras, computer modeling, and other technology will help us increase our understanding of the falcons and their survival needs.

## 5 MADAGASCAR FISH EAGLE

An umbrella for a unique ecosystem

For 21 years, The Peregrine Fund has worked in the richly diverse environment of Madagascar to conserve raptors found nowhere else on Earth. Along the way, we have discovered other animals, too, including a previously unknown lemur and a diving duck, the Madagascar Pochard, once thought to be extinct. In FY11, we helped local communities manage, protect, and restore habitat necessary for both people and endangered species to survive.

**NEXT STEP:** We will continue pressing for permanent protected status for important habitat reserves amid the nation's political uncertainty. With our partners, we will assist with captive breeding of the Madagascar Pochard. As we have for two decades, we will train and support Malagasy students seeking advanced degrees in raptor conservation.

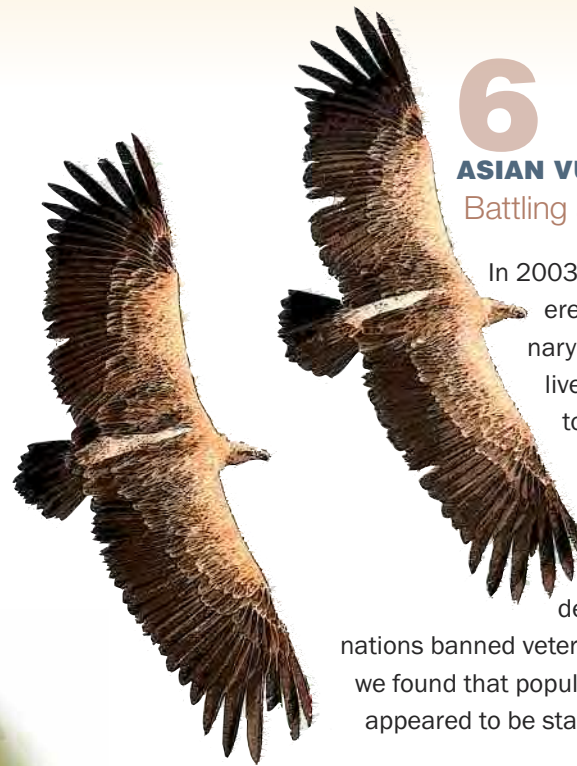


## 6 ASIAN VULTURES

Battling against a toxic drug

In 2003, The Peregrine Fund discovered that diclofenac, a veterinary drug used to treat ailing livestock before they die, is toxic to vultures. The rapid loss of certain Gyps populations in India and elsewhere in South Asia was staggering—up to 99% in only a decade. India and other nations banned veterinary diclofenac, and in FY11 we found that populations of the affected species appeared to be stabilizing.

**NEXT STEP:** We will continue to collect long-term data to determine the effectiveness of the diclofenac ban. Our field surveys, together with the contributions of others to our online database, will support a sound conservation strategy for endangered vultures.







## 7 HARPY EAGLE

### Tracking from Panama to Belize

For more than 20 years, our efforts to breed Harpy Eagles in captivity, release them to the wild, monitor them intensively, and educate the public have contributed significantly to the conservation of this magnificent forest raptor in Latin America. Two Harpy Eagles were shot and killed in FY11 and eagle habitat continues to disappear at an alarming rate, but our field work offers hope that significant challenges facing this threatened species will be overcome.

**NEXT STEP:** Our ongoing education efforts will include training of three new local volunteers in conservation and research. Nest surveys and monitoring will enable us to learn more about the movements, dispersal, and survival of Harpy Eagles.

## 8 PHILIPPINE EAGLE

### Rearing, releasing, monitoring

The Philippine Eagle is a global icon of the rainforest and a national symbol of pride among the Philippine people. Our guidance and expertise in FY11 helped our partner, the Philippine Eagle Foundation, to raise chicks in captivity, release juveniles to the wild, educate local communities, and conduct monitoring to protect the eagles, whose habitat is greatly reduced by deforestation.

**NEXT STEP:** As many fertile eggs will be hatched in captivity as possible and the young released to the wild. Eagles will be tracked with satellite and radio telemetry to collect research information. Education campaigns will continue in order to deter hunting and trapping of eagles in local communities and build support for habitat conservation.

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# Gulf Oil Spill Monitoring



Our goal, in cooperation with Earthspan, is to evaluate the scope and potential for impact on migrating Peregrine Falcons of exposure to toxic hydrocarbons resulting from the Deepwater Horizon oil spill in the Gulf of Mexico, which began in April 2010 and was capped in July. Migrating Peregrines were trapped, evaluated for external signs of oil exposure, and a sample of blood was collected from the brachial vein. Falcons were banded with U.S. Geological Survey bands and released immediately to continue their migration. Trapping occurred at South Padre Island, Texas, in September–October 2010 and April 2011. The blood samples were analyzed for Polycyclic Aromatic Hydrocarbons (PAH) and results will be used to evaluate the need for further investigations on summer breeding grounds next summer and further migration sampling.

## ▼ Results

In cooperation with Earthspan, a total of 194 blood samples were collected. One hundred and four samples were sent to the Center for Environmental Sciences and Engineering at the University of Connecticut to test for the presence of PAH residues. This laboratory was chosen because it has been conducting the testing for the Natural Resource Damage Assessment (NRDA) on a wide variety of taxa from the oil spill area.

Although we saw no obvious signs of oil contamination on any falcons captured, we still wanted to determine if less obvious exposure could be detected. To our surprise, 18% of the individuals tested contained PAH residues consistent with the BP oil spill. This indicates that a significant percentage of falcons migrating southward along or over the Gulf of Mexico could have been exposed to contaminants from the BP oil spill. These compounds are known to be carcinogenic

and affect survival and reproduction in avian species.

Because this study is not part of the NRDA process and associated non-disclosure mandates, it represents one of the few studies where data are currently available to the public. We now have submitted 53 blood samples from falcons collected north of the oil spill on Assateague Island, Maryland, during the same period, in addition to archived samples collected on Padre Island, Texas, from the year prior to the oil spill, to establish a control data set. These data will be published in peer-reviewed scientific literature when analyses are complete. Our targeted analyses may indicate that highly toxic compounds associated with the BP oil spill, although no longer visible, have been distributed quite widely through the food chain. Once again, the Peregrine Falcon has demonstrated its usefulness as a bioindicator.

Once again, the Peregrine Falcon has demonstrated its usefulness as a bioindicator.



Rob Palmer

# California Condor Restoration



**T**he number of critically endangered California Condors has grown from just 22 in 1982 to nearly 400 today, due to captive breeding, release to the wild, intensive monitoring, and adaptive management. The Peregrine Fund began raising condors at the World Center for Birds of Prey in Boise in 1993 and releasing them in northern Arizona in 1996.

The primary challenge to recovery is lead poisoning, the leading cause of death for condors in the wild. The scavengers ingest lead fragments from spent ammunition in the remains of game animals. The Peregrine Fund assists with education programs that encourage the voluntary use of non-lead ammunition in condor country.

## ▼ Results

Since 1996, The Peregrine Fund has released 134 condors, resulting in 15 wild-hatched young. We also documented 67 fatalities and returned nine birds to captivity. Over the years, we have collected and analyzed extensive data that has contributed to the scientific knowledge of the species and particularly those factors that influence its well-being.

A large portion (53) of the wild population has reached breeding age of more than 5 years, 42 of which are more than 8 years of age. One limiting factor has been the number of breeding-age females (14) in the current Arizona-Utah population.

Analysis of mortality data has not revealed a statistically significant higher rate of selection of females to males, but understanding that the maintenance of the adult breeding population is key to reproductive success for long-lived species, we are attempting to adjust the ratio by favoring females to males in new releases when possible. Despite the skewed sex ratio, a total of 15 young have been produced in the wilds of the Grand Canyon, Vermilion Cliffs National Monument, and surrounding area. Seven of those survive today.

We have identified lead poisoning as the principle cause of death in this condor flock. We



*An adult condor soars at sunset; Derek Buechner prepares to release a condor that has been tested for lead exposure (inset).*



Chris Parish

also identified the source of lead and ways to reduce its prevalence and impact. The game management agencies in Arizona and Utah have initiated voluntary mitigating efforts to reduce the amount of lead available to scavengers. During the 2011–12 season in northern Arizona, 90% of deer hunters took measures to reduce available lead to scavengers. These efforts to inform hunters through outreach and education are helping to generate a more widespread understanding of what has long been a hidden threat to wildlife. With continued effort and progress towards reducing lead in the northern part of the Southwest's population, we are confident that the condor population will eventually reach the recovery goal of 150 individuals.

Chris Parish

### ▼ Propagation

The Peregrine Fund had 53 California Condors in Boise: 39 adults, of which 38 are paired for breeding (19 pairs), including one pair in the Condor Cliffs Exhibit; five juveniles; and nine chicks.

The juveniles were hatched in 2009 and 2010 and are being held for the captive breeding program. In 2011, 13 juvenile condors reared in Boise and two juveniles reared in Oregon were transferred from our facility to three separate field sites. Eighteen female condors produced 19 eggs, of which 18 were fertile. Of the 18 fertile eggs, eight stayed in Boise, six were sent to the Los Angeles Zoo to be placed in wild nests in central and southern California, one was sent to the San Diego Zoo Safari Park to be reared for release in Baja California, Mexico, and three were sent to the Oregon Zoo to assist in successful pair bonding. Of the 18 fertile eggs, 16 hatched successfully. In exchange, two fertile eggs were transferred to Boise from the Los Angeles Zoo; both hatched successfully, bringing the total number of chicks reared in Boise to nine.

We attempted to double clutch two of our most genetically valuable pairs, succeeding in one double clutch. We had 94.7% fertility, 94.4% hatchability, and 100% chick survival. Of all the eggs produced in Boise, we had 94.7% fertility, 88.8% hatchability, and

87.5% chick survival. Eight of the chicks at our facility were parent-reared, while one chick was puppet-reared due to parental neglect at four days of age.

Since 2003, the adult condors have been vaccinated against West Nile Virus. We have been trapping each adult to collect and store a blood serum sample for continued titer testing. In 2011, we continued to vaccinate the California Condor chicks in accordance with the protocol established in 2009. Each chick was vaccinated at 30 days of age, given a booster at 60 days of age, and blood was drawn for titer testing between 90 and 100 days of age. We store our vaccine in super cold storage at the Biology Department on the campus of Boise State University in the hope of better maintaining the integrity of the vaccine. We also continued to maintain an aggressive mosquito abatement program at our Boise facility.

### ▼ Facility Improvements

Several changes improved the facility and behavior of the condors. We continued a revamping process of our socialization pens in the incubation and chick rearing barn. We removed a large length of chain link fence that separated the two chambers, opening the space into one large flight pen. Additional natural perching was added to the pen along with a weighing perch

viewable from the observation room. Continued work was done on the large pool that was installed last year that is changed and cleaned remotely from inside of the barn. New perching and access ramps were added to the trap that was built into the pen last year.

We also began the process of improving and repairing the video and camera equipment used to observe the condors in the breeding chambers. New cameras and DVRs were purchased and the installation process was begun. A manual sprinkler system was installed over the exterior portion of the breeding chambers in both breeding barns to allow for cooling during the summer months and smoke suppression in the event of a fast moving grass fire. Major repairs were made during the year to the existing monitored sprinkler system in both breeding barns, which included replacing corroded and leaking pipes, flushing the system clean, and adding corrosion inhibitor.

### ▼ Release and Transfers

Ten captive-bred condors (three females and seven males) were transferred to the flight pen at the Vermilion Cliffs release site, all from the 2010 cohort. Seven of the condors were produced in Boise, one at the San Diego Wild Animal Park, and two at the Portland Zoo. Prior to release, candi-

dates are housed in a 60-by-40-foot flight pen, where they are monitored and evaluated before being deemed “fit for release.” We released nine condors through November 2011 in four release events (six females and three males), bringing the total of free-flying condors in Arizona and Utah to 73.

We continue to provide contaminant-free food every three days at the release site in the form of dairy-calf carcasses. We intensely monitor newly released condors and aggressively haze them away from unsafe roosts in an attempt to avoid predation by coyotes. We observed no deaths from predation during the reporting period.

Although condors have gone missing in the past, we always hope they will one day return, just as Condor 176 reappeared after being out of contact for nearly five months. This year, however, we added two captive-reared condors and three wild-hatched young to the “missing and unknown” category. The synchronicity of the loss of these birds suggests a common source of mortality, and the timing is consistent with the period typical of lead-related death. The flock’s ever-increasing independence and use of habitats in Utah, combined with the large areas of inaccessible private property, continue to increase difficulty in tracking and monitoring condor behavior in Utah.

### ▼ Lead Exposure and Mortality

Our research has included observations of lead pellets and fragments in the digestive tracts of lead-poisoned condors and the discovery of bullet fragments in rifle-killed deer and coyotes fed on by condors. Radiographed remains of deer harvested with standard lead-based rifle bullets have revealed numerous metal fragments as the normal condition. The Peregrine Fund continues to focus on lead exposure detection and treatment as the essential element in maintaining the condor population. Since the summer of 2000, we have annually trapped all condors possible, obtained blood for lead-level analysis, and treated those with elevated blood lead-levels.

Note that the fall 2011 data will appear in next year’s report, which will cover the 2011 exposure year, extending from 1 October 2011 to 30 September 2012. The period of highest exposure is October and November when the deer hunting seasons are underway, and the period of greatest lead-caused mortality among condors is December and January, reflecting the latency of effect. We collected 102 blood samples (including re-samples) during the reporting period, representing 68 of the 71 condors in the wild for the respective season. Forty-nine (72%) of the trapped birds showed lead levels indicative of

### ▼ Wild Reproduction

Nine pairs exhibited breeding behavior during the reporting period, three of which were confirmed incubating within their respective nest caves and later confirmed to have viable young. This makes 15 wild-hatched young observed since 2003.

#### Highlights:

Condors 187M98 and 133F96 were successful in producing a chick (633) within the red-wall formation of the South Rim of the Grand Canyon, just as they had done in 2008. Peregrine Fund biologists visually confirmed the chick on 30 August 2011. The chick was found dead below its nest cave by Grand Canyon National Park biologists prior to the expected fledging date. Cause of death was not gleaned from necropsy.

Surprisingly, the trio of Condors 193M98, 243M01, and 241F01 appeared to have produced an egg, just as they had done the previous year, but in a new location. We observed steady incubation by all three, then a chick, and finally, a healthy fledged condor. This is the second account of a trio involved in courtship and breeding behavior throughout the history of the recovery effort, but the first record of a viable chick. All three adults participated in caring for the young condor. We trapped and tagged it 21 December 2011 and found no traces of lead or any other maladies. Feathers and blood will be sent out for sexing and determining parentage.

The pair of Condors 234M00 and 280F02 were thought to have produced eggs in previous years, but failed to produce young until this season. In a new location near the Battleship formation at the South Rim of the Grand



Alan Koch

**Condor 23 is accompanied by its wild-hatched offspring at about a year of age. Juvenile condors are recognized by their black heads.**

Canyon, they produced Condor 634. Due to the remote location of the nest cave, this chick wasn’t confirmed until 30 August 2011. The young condor fledged on 20 November 2011 and has been observed multiple times since, alive and well in the Grand Canyon.

Proven breeding pair 114M95 and 126F95 appeared to produce another egg around 24–26 March 2011, but their previous year’s chick, Condor 558, was observed entering the nest cave, possibly disrupting the pair. They abandoned the cave soon after. This behavior is not entirely unexpected because condors generally produce only one young every two years.

Condor 223M00 paired again with 10-year-old 253F01 and appeared to have produced an egg, but failed in the late stages of incubation for unknown reasons. Condor 223M00 was later found dead of lead poisoning.

**Biologist Andria Kroner releases wild-hatched condor 389 after a successful blood lead test and transmitter change.**



Eddie Feltes

lead exposure ( $>15 \mu\text{g}/\text{dl}$ ), down from 52 birds in 2009. Nineteen individuals (28%) revealed lead levels greater than  $65 \mu\text{g}/\text{dl}$ , and 24 condors were treated with chelation therapy.

The treatment threshold for chelation continues to vary from year to year, case by case in an effort to reduce mortality of birds that have been repeatedly exposed for numerous years. Each individual case of lead exposure is independently diagnosed, and is based not only on blood-lead level, but on body condition, frequency of previous known exposures, nesting activity, and other variables. Numbers of birds treated from year to year may therefore not be as indicative of

the severity of seasonal exposure as are the toxic blood-lead levels.

We collected four dead birds that were recovered in time to perform necropsies to determine lead toxicosis as the cause of death during the reporting period. Condor 366F05 was found dead on the Kaibab Plateau on 8 March 2011. Unfortunately, she was likely paired with condor 203M99 in a remote section of the Grand Canyon; at the time of writing this report, it was unknown if they had a viable chick. Condor 203M99's location data show a strong affinity to the nesting area, but further investigation will be completed to ascertain the results of their breeding attempt.

Condors 223M00, 270M02, and

367F05 were found within 10 days of one another, and based on sparse location data and the presence of lead pellets in their digestive systems, it is likely they were each exposed during the same poisoning episode in early spring.

With the aid of both GPS-satellite telemetry and ground tracking VHF telemetry, we again found an abrupt increase of blood lead levels corresponding with increased use of deer-hunting areas on the Kaibab Plateau and the Kolob range in southern Utah in the weeks prior to testing. The worrisome disappearances of six additional condors during winter and early spring, the period of highest incidence of death from lead poisoning since condors be-

gan exploiting gun-killed animal remains in 2002, suggest that lead could have been implicated in those losses.

### ▼ Monitoring

Our reduced staff of seven to eight biologists and field workers tracked the daily movements and activities of condors throughout the reporting period, a task made more difficult by the increasing numbers of free-ranging birds and their widening tendencies toward long-range movement in this rugged region of limited access. We continue therefore, to rely on satellite-reporting PTT/GPS transmitters (Microwave Technology) on selected condors. These transmitters recorded hourly position fixes to within roughly 50 meters of the actual locations, and transferred accumulated data each day to orbital satellite arrays. The technology was especially useful in the case of increasingly self-sufficient condors that failed to regularly return to the release site, as is now the case for many.

Twelve individuals currently wear PTT/GPS transmitters; we selected those condors on the basis of their representation of flock movement or other considerations important to management. We were able to map entire sequences of movement by GPS-equipped condors; for example, when pairs were forming or later prospecting for nest caves, or when they made incubation exchanges. The transmitters were especially valuable in revealing

locations of condor concentration and prolonged activity in difficult-to-access (for us) canyon regions and remote private lands of southwestern Utah. We used the transmitters to locate areas of foraging, especially in connection with lead exposure.

We continued to see what has become the normal trend by condors of extended use of Utah, the northern end of their home range. From there in the hills just outside Zion National Park, most of the birds eventually returned to the release site as the winter snows made carrion more scarce. This period is characterized by an increasing use of the Kaibab and Paria plateaus. GPS transmitters have been especially valuable in revealing the exact locations of condor activity both in real time and in retrospect.

Close monitoring of movements has also aided us in quickly averting behavioral problems that still occasionally develop among inexperienced condors. We continue to condition them by hazing, installing aversive conditioning devices in highly used areas, and confinement. These measures are intended to break patterns of undesirable behavior as it relates to humans and artificial structures, and our records show that such conditioning results in improved behavior as the birds mature. We continue our public education and outreach efforts in areas where condors and humans overlap.

# Northern Aplomado Falcon Restoration



**T**he Northern Aplomado Falcon disappeared from the American Southwest in the 1950s, leaving its niche in the grassland ecosystem unfilled for decades. The

Peregrine Fund began raising the birds in captivity and releasing them to the wild shortly before the falcon was added to the U.S. Endangered Species List in 1986. We also monitor the population status and analyze eggs and tissue samples to determine whether contaminants are accumulating in this “indicator species.”

This effort has been an ideal vehicle for promoting creative and innovative solutions to problems associated with the Endangered Species Act for private landowners. The Peregrine Fund’s effort to obtain Safe Harbor Agreements with ranchers and others has opened more than 2 million acres of privately-owned, wide-open grasslands for potential Aplomado Falcon habitat.

## ▼ Results

Among the many innovations that have benefited this endangered species is a unique artificial nest structure developed and deployed by The Peregrine Fund that improves Aplomado Falcon nest success and productivity. The artificial nest is applicable to other species throughout the world where habitat and nest sites may be limited. To date, we have installed 77 structures throughout the range of the recovering South Texas population. Among the 34 known breeding pairs, 24 are using our artificial structures. Such approaches al-

low for the type of adaptive management necessary for a restoration program to work efficiently and effectively in the contemporary landscape.

## ▼ Propagation

In 2011, 25 captive Aplomado Falcons laid 207 eggs, of which 111 (54%) were fertile. Seventy (63%) hatched, and 68 (97%) survived to release-age.

## ▼ Monitoring

In spring 2011, Peregrine Fund biologists returned to South Texas for field work in support of the recovery of the Aplomado population. We surveyed 44 nesting territories and observed 34 territorial pairs primarily in the areas of Matagorda Island National Wildlife Refuge (MINWR) area and Laguna Atascosa National Wildlife Refuge (LANWR). Our results were similar to those in 2010, and we were surprised by this indication of stability, considering the suboptimal weather and habitat conditions during the past several years. We were encouraged by the lower presence of unpaired adult females on territories during 2011, particularly in the LANWR area where we also noticed a net increase of pairs. However, we still observed juvenile males paired with adult females. While this illustrates recruitment of males into the breeding population, it also demonstrates a lack of non-breeding adult males available in the landscape.

Precipitation levels for South Texas during the 2010–2011 season were once again showing severe drought in the region, however, surveys this season revealed a slight increase in occupied territories. Our modifications to new and existing nest structures have remedied the nest depredation problem detected in earlier years.

We also conducted Aplomado Falcon nesting surveys in the Chihuahuan Desert area of West Texas and New Mexico. During spring surveys in 2009, we had located 10 breeding pairs of falcons in these new recovery areas, but the 2010 survey efforts indicated a loss of eight of those pairs in West Texas. This year, surveys revealed just one nesting pair in West Texas and one pair in New Mexico. The West Texas pair managed to fledge two young and the New Mexico pair three.

Following the 2010 survey results, a telemetry study was implemented for the 2011 release season. Either PTT (satellite) transmitters or conventional VHF transmitters were placed on every falcon released. We wanted to discover what may have caused these breeding adults to disappear and the sources of high mortality rates observed from released young, and determine whether releases should continue there in the future. The telemetry study revealed a high incidence of mortality of released falcons, the majority of which was attributed to avian and mammalian predation. The results of the



*A female Aplomado Falcon perches on a rock; biologists erect a new nest structure (inset).*

telemetry study and the loss of 90% of the breeding pairs provides strong evidence that recovery of the Aplomado Falcon throughout the Chihuahuan Desert is highly unlikely.

## ▼ Releases

During the 2011 field season,





Jeff Wendorf



Joell Brown

we released a total of 66 Aplomado Falcons from four sites in New Mexico and two sites in West Texas. A total of 1,831 captive-bred falcons have now been released in Texas and New Mexico. During the previous five years, 469 of 742 (63%) falcons released became independent. This year

only 19 of the 66 released falcons survived (29%).

In New Mexico we continued our release efforts on land administered by Bureau of Land Management, White Sands Missile Range (WSMR), New Mexico State Land Office (WSMR release site), the Armendaris Ranch (En-

gle, NM), and on two private ranches near Deming, New Mexico. We released 47 falcons in New Mexico in 2011: 12 at the WSMR site, 10 on the Armendaris Ranch, 18 on the Delk Ranch, and seven on the Cole Ranch. These falcons were released under the 10(j) Rule, which designates the

population in New Mexico as a “Nonessential-Experimental Population.” Nineteen falcons were released at two sites in West Texas on private ranches, the Means Ranch, and the Baeza Ranch.

LightHawk and its team of volunteer pilots (Ken and Gabrielle Adelman, David and Patty Miller,

Among the 34 known breeding pairs, 24 are using our artificial structures.

Despite the developing dry conditions along the coast, the prey available to the falcons seems more than adequate.



Cal Sandfort

Jack Long, Joy Covey, Tom Haas, and Janice Newman) safely transported by air all of the falcons for releases from our breeding facility in Boise to New Mexico and Texas, greatly reducing the stress on the falcons associated with extended travel time.

#### ▼ Telemetry Study

Due to the results of our 2010 spring survey in the Chihuahuan Desert of West Texas (revealing the loss of eight of our established 10 breeding Aplomado pairs and high predation observed among released Aplomado Falcons during previous seasons), a telemetry study was launched during the 2011 release season. Every falcon released in both New Mexico and West Texas

was fitted with either a PTT (satellite) transmitter or conventional VHF transmitter. Captive production was held to 68 falcons due to the expense involved in placing transmitters on each young falcon, with 66 of these being transported to six different release locations in New Mexico and Texas.

Having a transmitter on every young falcon enabled field crews to track, locate, and identify causes of mortality for nearly every falcon lost. The predation we observed this season may have been somewhat elevated due to extreme conditions occurring from a 100-year drought event in much of Texas and New Mexico, with predators concentrating on any food source they

could find. However, we now suspect predation has always been higher than imagined in these areas and the telemetry study was able to quantitatively prove this.

We lost 47 of the 66 (71%) Aplomado Falcons released this season. In New Mexico, we lost 31 of 47 released (66%). In West Texas, we lost 16 of the 19 released (84%). Our telemetry study has enabled us to locate most of the lost falcons. One broken leg (being rehabilitated) was reported, along with mortalities and probable causes:

- 25 avian predation
- 10 missing with failed transmitters
- 6 mammal predation
- 2 lightning
- 1 starvation
- 1 hung up by Teflon ribbon on a barbed wire fence
- 1 unknown

Of the 10 birds in the missing category, six disappeared 1–13 days after release, two disappeared 17 days after release, and two disappeared 19 days after release. It is possible that a few of these falcons could have successfully dispersed although they were never seen again at any of the release sites past the days indicated above. We are confident that 16 falcons have successfully dispersed, 13 in New Mexico and three in West Texas.

A number of the original VHF transmitters failed, which were on most of the missing birds in the

mortality section of this report. Failed transmitters were replaced with new transmitters where possible. To date, at least three falcons are still wearing functional VHF transmitters.

We purchased 10 PTT-100 five-gram solar transmitters from Microwave Telemetry Inc. and placed them on 10 falcons at our two release sites in West Texas. All of the original falcons wearing the PTT transmitters have been killed or are missing. Five of the transmitters were recovered and placed on other falcons, four in New Mexico (three are still functioning) and one in West Texas. Three other transmitters have been recovered, two returned for repair, and the other waiting to be redeployed on another falcon. Three of the transmitters were on missing falcons and have never been recovered. In summary, we now have one on a West Texas falcon residing in Mexico and three on New Mexico falcons still in New Mexico, with one additional transmitter to be placed on a New Mexico falcon.

#### ▼ Nesting and Survey Results

We continued to focus our survey efforts in South Texas on determining occupancy at all known territories. We observed a total of 79 falcons during the survey period from 14 April to 12 May 2011. This included 34 territorial pairs and 12 individuals. In all, we surveyed 44 territories in South Texas of which 34 (77%)

were occupied. Of the 18 territories in the Matagorda Island National Wildlife Refuge survey area (MINWR), 14 (78%) were occupied. In the Laguna Atascosa National Wildlife Refuge (LANWR) area, 20 out of 26 (77%) territories surveyed were occupied. Overall, these results were similar to those observed during the 2010 survey.

Observations showed a slight increase in the southern Texas population, suggesting stability despite the recent years of sub-optimal weather and habitat conditions. The occupancy rate for the LANWR area increased from last year's 75% to this season's 77%, this being the second year in a row showing an increase. We were encouraged by the lower presence of unpaired adult females on territories during 2011, particularly in the LANWR area. However, we still observed juvenile males paired with adult females. While this could indicate a deficit in the reserve of non-breeding adult males (floaters), the presence of juvenile males shows recruitment of young into the breeding population and nest success during the prior breeding season. On MINWR, all facets of the population continue to remain stable with regard to falcons occupying territories and prey populations appearing adequate.

Of the occupied territories in both survey areas, we observed 23 pairs that were incubating or possibly brooding small young (14 LANWR, 9 MINWR), two pairs that were brooding chicks (1

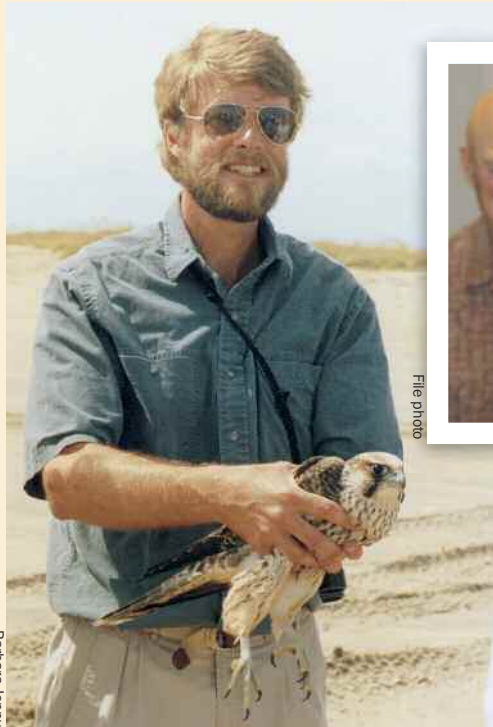
LANWR, 1 MINWR), eight pairs that were not yet incubating at the completion of the survey, and one pair that failed in the LANWR area for unknown reasons. Since fall 2010, South Texas has received very little rainfall; the area was very dry, dusty, and developing drought conditions were showing in the vegetation. The dry conditions were very unfortunate considering the area had recently received, during the 2010 spring, much needed relief from one of the most severe droughts in recorded history. Nonetheless, the falcons looked healthy and were often seen with full crops early in the morning, indicating their prey was easily captured. Despite the developing dry conditions along the coast, the prey available to the falcons seems more than adequate.

In the Chihuahuan Desert of New Mexico and West Texas during 2011, we observed two breeding pairs, which successfully fledged five young.

#### ▼ Nest Structures

We placed three new nest structures: one on San Jose Island and two in the LANWR area. We also serviced 36 nest structures to ensure they were suitable for use during the nesting season. Most structures required a minimal amount of maintenance. The new structure design has effectively ensured their use by Aplomado Falcons only. It provides the nesting pair and their young security from predation.

## Lifetime of work for birds of prey honored



*Bill Heinrich releasing a Peregrine Falcon in the 1980s (left), and with Tom Cade, holding a Peregrine in 2010 (inset).*

**B**ill Heinrich, whose work with The Peregrine Fund to restore endangered birds of prey spans 36 years, received the Raptor Research Foundation's 2011 Tom Cade Award. The award is presented each year to an individual who has made a significant contribution to the field of raptor recovery.

"Beginning in 1975 when reintroduction techniques were in their infancy, Bill has been at the forefront of testing and refining these techniques to the extent that they are now being successfully applied on reintroduction projects throughout the world," said Ruth Tingay, president of the foundation, an international scientific organization.

Heinrich has worked with The Peregrine Fund since its earliest years, starting as a field technician in the successful project to save the endangered Peregrine Falcon from extinction. Now, he oversees the organization's efforts to recover two other endangered species: California Condor and Aplomado Falcon.

A skilled falconer, Heinrich has trained many biologists and conservationists in the practice of releasing captive-bred chicks to the wild. "Bill has been personally responsible for hiring a generation of approximately 1,000 hack-site attendants, of whom a considerable number have since developed careers in the conservation field," Tingay said.

# American Kestrel Partnership



The American Kestrel is North America's smallest and most colorful and common falcon, but it is also becoming scarce in many regions. To find out why, The Peregrine Fund spent much of 2011 developing an exciting new project that took flight in April 2012.

The American Kestrel Partnership is an international research program designed to conserve kestrel populations in North America and the Western Hemisphere. It unites the ability of citizen scientists to generate data with the research expertise of professional scientists by partnering wildlife researchers and managers with families, teachers, students, birders, wildlife enthusiasts, photographers, falconers, and anyone who wants their children and grandchildren to marvel at this little falcon. And it fosters a deeper understanding of science and appreciation for birds of prey by engaging the public in hands-on research.

The American Kestrel is an ideal candidate for this type of project because, like bluebirds, the kestrel has a strong affinity for breeding in nest boxes. This means that individuals can make valuable contributions to kestrel biology simply by installing a nest box, counting the number of eggs and young produced during a nesting season, and entering the data on the American Kestrel Partnership's interactive website. The website also provides research and educational resources and a network for partners to correspond and share experiences.

The American Kestrel Partnership is rapidly developing into the largest kestrel research and conservation program in history. Thanks to support from our donors and supporters, the Partnership's contributions to kestrel biology and conservation will be long-term and unprecedented, ultimately ensuring conservation of American Kestrel populations well into the future.

For more information, visit [kestrel.peregrinefund.org](http://kestrel.peregrinefund.org)



Loren Smith



*Opposite: Gemma Munck assisted with banding a young kestrel last June near Bend, Oregon.*

*Left: a close-up look at a male kestrel, one of the Raptor Ambassadors at the World Center for Birds of Prey.*

Paul Spurling

▼ **Partners**

The project includes a diverse array of partners, from individual enthusiasts to large organizations. The primary means of contributing as a partner is by generating data from existing nest-box monitoring programs and/or establishing new nest-box monitoring programs. We also are seeking professional scientist partners to (1) generate data and models for fledgling and adult demographic and toxicological parameters, and (2) use existing and future nest-box monitoring data to model and understand the relationships between environmental factors and nesting parameters. We are encouraging education professionals to enlist as partners and contribute to the design, implementation, and sharing of education materials based on nest-box monitoring and kestrel conservation.

▼ **Interactive Website**

The primary means for promoting networking, data generation and sharing, collaborative research, and distribution of research and education resources is an interactive website modeled after social networking, such that partners have individualized and customizable profiles. The website also provides engaging activities, such as identifying prey items from streaming nest-box video; participating in discussion forums; recruiting, assisting, and collaborating with new partners; and competing in photo, art, and data competitions.

▼ **Public Participation**

The Partnership is promoting public participation in science by building a community of citizen and professional scientists focused on advancing kestrel research and conservation. Public participation fosters positive attitudes towards science and conservation by providing hands-on research experiences and feedback illustrating the impact of individual and collective contributions. We are developing education and outreach material, including youth-oriented curricula adhering to national educational standards for use in the field or classroom. Education resources are available on the Partnership's website or by mail.



Paul Spurling

*Our webcam features a kestrel nest box with the Boise foothills as a backdrop, plus a view inside the box. See it at [kestrel.peregrinefund.org](http://kestrel.peregrinefund.org)*

# Neotropical Raptor Conservation Program



Conservation is a global priority in the Neotropics, a region extending from southern Mexico to the southern tip of Argentina and including the Galapagos, Falklands, and West Indies islands. About one-third of the world's birds of prey occur in this important region.

In the 1980s, The Peregrine Fund began focusing on the Harpy Eagle, Orange-breasted Falcon, and other Neotropical birds of prey. These wide-ranging predators need large tracts of undisturbed land in which to forage and nest, but their habitat is under constant threat of destruction. We are researching the ecological requirements for birds of prey so that they and all the plants and animals that comprise their fragile food webs can be preserved. We are training and supporting Latin American graduate students to do research and develop local capacity for sustainable conservation, and we are working with local communities to effect conservation solutions.





*Four juvenile Ridgway's Hawks perch along a fence-line at the Punta Cana release site in Dominican Republic; biologists invited local children to observe the birds with scopes and binoculars (inset).*

Thomas Hayes



Thomas Hayes

### ▼ Results

The Peregrine Fund's time-tested, hands-on, science-based approach to conservation has both a unique and valuable role for conservation in the Neotropics. A significant investment now in the Neotropics will strongly influence conservation actions and raptor research for decades, if not longer. As forests are rapidly diminishing, return for investment, especially in Latin America and the Caribbean, will likely never be as great as during the next 10 years.

We achieve results through several projects under the umbrella of this program, including: Harpy

Eagle Conservation and Research Project, in Darien, Panama (page 20); Harpy Eagle Restoration Project, in Panama and Belize (page 21); Orange-breasted Falcon Project, in Belize and Guatemala (page 22); West Indies (Caribbean) Raptor Conservation Project, especially Ridgway's Hawk Recovery in Dominican Republic, and others (page 24); Neotropical Science (raptor research) and Student Education (capacity development) Project, throughout Latin America and the Caribbean (page 25); and Neotropical Raptor Network and Neotropical raptor conferences (page 27).



## Harpy Eagle Conservation and Research

In 2000, The Peregrine Fund began studying the largest known wild population of Harpy Eagles in Central America, located in the Darien Province in Panama, building on field work that began in 1992.

The wild Darien birds are important as a “source population” that could restore eagles to places where people have shot them out of their remaining habitat. Through this project, we have established a replicable model that involves training local residents, conducting research and environmental education, and building awareness and involvement in communities that must learn to co-exist with Harpy Eagles.

### ▼ Causes of Mortality

We aim to quantify natural and anthropogenic causes of mortality. To this end, we follow up the reports of birds that are removed from the natural ecosystems (wounded or dead) and try to determine the cause of mortality. In FY11, two adult Harpy Eagles were shot by humans.

### ▼ Monitoring

To find active Harpy Eagle pairs and measure productivity, we monitored the breeding status of 44 known Harpy Eagle nest locations from an estimated 33 breeding pairs. We located six active nests: four of them with young juveniles, and two with adults in courtship and rebuilding their nests. Eighty-two percent of the known territories had no reproductive activity this year, and at least 50% of the territories did not show any breeding activity in the last two years. Most of these inactive territories are located in or near human-disturbed areas.

Habitat loss is the long-term problem that could affect persistence of Harpy Eagles, as well as the productivity of known nests in the study area. Using GIS tools and satellite images, we quantified that the forest cover de-

creased by 2.13% in two years, with most of this forest loss occurring in lowland areas where we know that Harpy Eagles prefer to establish their breeding territories. Probably the effects of forest degradation have direct influence on the productivity of around 50% of the known territories. Actions to reduce forest degradation by humans are needed in order to protect Harpy Eagle habitat.

Preliminary analysis of the microhabitat (data from the vegetation in 26 study plots) used by juvenile Harpy Eagles suggests that they are able to tolerate heterogeneous environments, dominated by a matrix of secondary forest, with natural corridors that connect patches of forest. We observed and documented that some juveniles use disturbed forest to hunt during the day and the mature forest to roost and rest at night. This information reinforces our goal to continue collecting bio-ecological data (movements, diet, microhabitat use, and behavior) to better understand the species' requirements. This year, we collected data from one juvenile and one adult using VHF telemetry. We also collected data from one adult using satellite telemetry.



In FY11, we archived data on movements, dispersal, and landscape use of a captive-bred and released juvenile Harpy Eagle called KC. This eaglet was released in La Marea in March 2009, and now her center of activity is in the forest around the Punta Caracol area (close to Jaque community), approximately 70 kilometers from the release site. In May, we tried to find KC using VHF telemetry without success. Probably the battery of this transmitter is used up. The data from the GPS-PTT suggested that KC is still alive and is using good quality forest between Punta Caracol, Puerto Piña Research, and Jaque community.

### ▼ Education and Training

We contributed to increasing local capacity through training two biology students in field data collection, microhabitat characterization, data storage, and analysis. Also, we reinforced training of seven technicians and four volunteers in research and education techniques.

We conducted two workshops to get ideas about how local people could help us better conserve and protect the Harpy Eagle and its habitat. When conservation actions come from the core community, the results could be stronger and more durable and, therefore, more beneficial for conservation. We use dynamic





Angel Muela

**A pair of Harpy Eagles near their nest in Panama. The difference in eye coloration is very rare.**

and interactive activities to exchange knowledge with adults and children during environmental activities in five indigenous communities. We conducted a drawing contest entitled “How we could help the Harpy Eagle in the Darien forest” involving children from the local communities, and participated in FestiHarpia, an environmental activity that was started by The Peregrine Fund and is now organized by the National Environmental Authority of Panama.

## ■ Neotropical Raptor Conservation Program



# Harpy Eagle Restoration

**H**arpy Eagles are endangered in Central America and could become threatened in South America. Challenges include loss of pristine lowland forests, lack of proper connectivity between suitable habitat, and people who shoot and kill them.

The Peregrine Fund’s hands-on work with Harpy Eagles began in 1990 with captive breeding and releases to the wild in Panama and Belize. The captive breeding phase ended in 2006 and the last birds were released in 2008. We now monitor released eagles in the wild, continuing to build knowledge and experience that will be useful in ensuring the survival of this and other large forest raptors.

### ▼ Results

Conservation projects for the Harpy Eagle are key to its long-term survival and the on-going preservation of the large tracts of forest on which the eagle depends. By making the techniques used and expertise gained by our field biologists available to others working with large forest eagles, we hope to provide support and guidance to other similar conservation efforts taking place across the globe. Highlights of our program include:

- Successfully and predictably breeding Harpy Eagles in captivity
- Releasing a total of 46 Harpy Eagles in Belize and Panama
- Determining that eagles released at an older age (18 months) had a 100% survival rate to independence
- Gathering important data on diet, dispersal, and home ranges for this species

Harpy Eagle monitoring occurred in Panama and Belize during 2011. We continued to monitor released eagles tagged with PTT and VHF telemetry. Eagles

released in Belize have covered long distances and have traveled into Mexico and the Peten region of Guatemala.

### ▼ Panama

We conducted helicopter and ground surveys on land owned by Minera, S.A. on the north side of central Panama, and located a pair of Harpy Eagles on a nest on 10 May 2011. We provided recommendations on how to conserve the habitat needed by this pair and provided education to local employees to help prevent the possibility of persecution.

All young Harpy Eagles that hatched at the Neotropical Raptor Center have been released and are independent of our care in the wild. Female KD began to exhibit some signs of aggression toward visitors to Soberania National Park in early 2011. She was trapped and is being held in captivity. Wild sub-adult female LV, who had been shot in Darien, Panama, and brought to our facilities for care, continues to do well after her release into Soberania National Park. Wild female HE, shot in Darien and rehabilitated before release into Soberania National Park, continues to do well. Females MA and LB, and males ET and BY, are all independent birds in Soberania National Park whose transmitters have failed. If

reported by others, we will attempt to trap these birds to replace radios and look for evidence of them breeding in the wild. The fate of our captive-bred and released eagle (KC) in Darien is currently unknown, with the last message received on 4 August 2011.

### ▼ Belize

Female Blue LG’s signal has been lost, but it is likely that the transmitter on her battery has malfunctioned. Last we knew, she was in Rio Bravo, where she continued to do well. Female Blue MY’s signal was recently lost, but we believe she is still alive and currently in Rio Bravo and doing well. Female Blue MX was seen in Tikal National Park, Guatemala, in November 2007 and again in 2010 just outside the park. Her radio has failed so we have no way to track her survival and dispersal further. Male BM was re-trapped in Panama and released in Rio Bravo, Belize, in 2009. In 2010 he flew to Guatemala, where he spent many months in the forests close to the Belize/Guatemala border. In May 2011 we received word that he had been shot and was being held at a rehabilitation facility in Guatemala. We flew to Guatemala to help treat the bird, but he did not survive.



## Orange-breasted Falcon Project

**T**wo decades of intensive research confirm that the Orange-breasted Falcon occupies only 4% of its historical range in Central America with a known breeding population numbering fewer than 40 territorial pairs. Occupied territories in our study area in Belize and Guatemala are in decline, and the numbers of young fledged declined 35% in a single decade. The small northern population appears isolated from the larger South American population with a high risk of extirpation.

We believe the cumulative effects of habitat alteration, fragmentation, and increasing predation and competition from Black Vultures, whose abundance has increased along with the human population, may explain the species' decline. As the population decreases, the inexorable effects of small population dynamics (diminished genetic variation, small range, low reproductive rate, etc.) increase local extinction risk. We aim to bolster the population of this charismatic rainforest icon by introducing unrelated captive-bred falcons to enhance genetic variation and fitness, stabilize recruitment deficits, and help mitigate further population declines.

### ▼ Results

In 2011, we released two male and three female captive-bred Orange-breasted Falcons that were cared for under the watchful eye of a sub-adult male from the prior year's release that we fondly refer to as B1 (the white numerals on his blue color band). We were thrilled to discover B1 at the hack site the day we began the season's renovations in early June. B1 remained and fed at the site all summer and earned his keep by protecting the juveniles, sounding the alarm when threatening raptors appeared, particularly the Black-and-white Hawk-eagle, and by leading aggressive aerial counter attacks against vultures, various kite species, a White Hawk, and the dreaded hawk-eagle. During the juveniles' long summer dependency, we provided their food as they engaged in endless aerobic games of chase, catch me if you can, or take away my stick or pine cone, followed by lethal attacks on hapless flying insects dismembered deftly in flight. We interpret these games as play, although the juveniles were honing their critical flying and hunting skills for the deadly serious game of survival. Beginning in late August, diurnal



Robert B. Berry

migrants from the north (Barn and Cliff Swallows, Purple Martins, etc.) make their perilous journey south across the Maya Mountains, providing a narrow window of opportunity that enables the young falcons to tune their hunting skills, become independent from our handouts, and disperse before the smorgasbord ends in November. We do not know if

they follow the diminishing migrants into the mountain foothills and lowlands or continue to hunt within the mountain massif like adult falcons.

A wild female Orange-breasted Falcon, thought to be an unmated sub-adult, visited the hack site on 10 separate occasions between 27 June and 23 July, often bringing various dismembered food

items, only one of which we could identify as a Blue-crowned Motmot, that she shared with the juveniles. Significantly, on 29 October, after the juveniles had dispersed, a wild adult female was observed and photographed at the hack site perched with B1 and again the first week of November. These small successes were groundbreaking news for our crew! We constructed a new hack tower at the site in the fall. The current tree-mounted hack box remains, in case B1 considers it his natal eyrie and wishes to nest there. We can only speculate what might occur in the next breeding season if the wild female reappears as a mate. Will the pair attempt to nest? Will they gravitate to a local cliff? Will they or B1 accept a new crop of young falcons?

B1 was observed at the hack site all fall and winter and most recently on 28 February 2012, although his mild demeanor had changed. His aggressive territorial behavior towards our biologist leaves little doubt that the falcon has assumed ownership of the site and we are trespassers.

#### ▼ Release

There are no blueprints or field guides to follow for release of a tropical falcon species other than our own experience with hacking and reestablishing temperate species. Nearly every day is a learning experience and we are proud that our attendants have all been totally dedicated

to the welfare of the birds throughout the long and arduous four- to five-month season, from pre-dawn to dusk, replete with biting insects, inclement weather, flash floods, and hazardous roads, beginning in mid-June and only ending when they must reluctantly leave in the fall for other pursuits. Our year-round survey personnel check the site thereafter and place food on the platform as needed. Even after the birds are feeding themselves in September and October and are absent for many days in succession, they often return to the platform looking for a handout and to let us know that they are fine and not to worry. We do worry—constantly—like any mother throughout the perils and challenges of growing up.

#### ▼ Natural History

The Orange-breasted Falcon is a brilliantly colored, medium-sized tropical forest counterpart of the Peregrine Falcon. The species has probably always been rare and sparsely distributed because of its specialized habitat requirements: typically remote areas of towering cliffs where it nests in river valleys or near water, associated with vast expanses of moist mature tropical or sub-tropical forest. Similar to the Peregrine, the species hunts a wide variety of local and migrant bird species and bats. Females are crow-sized, nearly twice the mass of males, and are proportionately the most heavily armed of any

falcon species, which enables them to quickly dispatch biting quarry such as parrots and aids in nest defense from ground and avian predators. Their reproductive life span is unknown, but probably similar to other larger falcons at between 12 and 15 years, commencing at age three. Its long reproductive life is offset by a relatively small clutch size, high nest failure greater than 50%, and juvenile mortality that may reach 40–70%. The species is non-migratory, occupying its nesting territory year-round and caring for its young until they disperse in the fall.

#### ▼ Distribution

The species' historic range once extended from Veracruz, Mexico, south through Central America and South America to northern Argentina. In Middle America, its known range has contracted to the Maya Mountains of Belize and the Mirador Basin Cordillera (the southern Petén) of Guatemala, despite large areas of apparently suitable habitat in parts of Mexico, Honduras, Nicaragua, Costa Rica, and Panama. Four pairs are known near the Colombian border in Darien Province of Panama, 1500 km from the northern population. Distribution in South America is largely confined to the eastern slope of the Andes south to Bolivia and Paraguay and along the north coast of Venezuela, Guyana, Surinam, and French Guiana, with a few isolated records throughout



Robert B. Berry

Brazil with less than a dozen confirmed breeding records. We are encouraged by approximately 60 confirmed citizen scientist records submitted to Cornell Laboratory of Ornithology's eBird in the past two years, including a tree nesting pair near Manaus and a cliff nest in the Atlantic Forest Region of Brazil. While these records increase our knowledge of the species' current distribution, it will take decades for population trends to develop, barring commencement of aerial and ground natural history studies that are daunting for a species so remote and widely dispersed. With the increasing numbers of eco-lodges, tour guides, and skilled field observers, the modest numbers of recently confirmed records by themselves support the species' rarity.

**Orange-breasted Falcon hack site on a high "knob" in the rugged and remote Maya Mountains of Belize.**

**Left: Captive-bred sub-adult male B1 surveys "his territory." His singular presence helped protect the juveniles from eagle attacks and provided a glimmer of hope for the species' future.**

### ▼ Science

We are making significant progress in understanding the species' global population biology and factors limiting its distribution and abundance by studying the northern population. Thirty years ago, our knowledge was limited to a few sight records in the literature and some sketchy notes attached to 19th and early 20th century museum specimens with a single breeding record on a Mayan Temple in Tikal National Park, Guatemala. In the late 1970s, The Peregrine Fund began to assemble this sparse information and started field studies in Ecuador, Peru, and Guatemala. A few pairs were located in Ecuador, but their habitat was logged and one pair shot. Tikal National Park became our base of operations, later expanded to a decade-long ecological study focused on raptors known as the Maya Project. In 1991, The Peregrine Fund began a six-year natural history study on the Orange-breasted Falcon in Guatemala and Belize that culminated in the unprecedented discovery of 19 nesting territories, 13 in Belize and six in Guatemala, establishing a critical baseline for future investigations. Beginning in 2003, the study area was expanded and 11 additional nesting territories were located in the remote and rugged southern Maya Mountains for a total of 24, and a single new territory was added in Guatemala. Aerial surveys in Guatemala, Honduras, and Mexico have been unsuccessful,

consistent with previously unproductive surveys throughout Central America in 1999–2000. Cornell's eBird has not confirmed a single sighting in Central America outside our study area, despite a wide network of observers, providing further contemporary evidence of the species' isolation.

We are partnering with the University of Wyoming's Population Biology and Ecology faculty in modeling the Belize and Guatemala falcon population using population viability analysis. Modeling will calculate statistical survival patterns that may help future management decisions. We are also partnering with Jeff Johnson at the University of North Texas to confirm by microsatellite DNA analysis gene flow within the northern population and the degree of genetic variability within the wild population and our captive population. We maintain an ongoing partnership with the Cornell Laboratory of Ornithology's eBird program to identify Orange-breasted Falcon records throughout the species' range.

### ▼ Captive Propagation and Release

Initial efforts by The Peregrine Fund to establish a breeding colony of Orange-breasted Falcons in 1980s and 1990s failed and only two young were raised in 1985. In 2001, we began collecting the current captive colony of 24 falcons, 11 wild founders from Panama and two from Belize and nine cap-

tive-bred F1 progeny. Of the more than 20 raptor species commonly bred in captivity, the Orange-breasted Falcon is by far the most difficult to maintain and propagate in captivity. Nonetheless, we have produced 40 falcons since 2006, including two visually impaired females in 2011 that are not included in the breeding colony above. We have released 26 captive-bred falcons since 2007. Seventeen reached independence, five were presumed killed by Black-and-white Hawk-eagles, and four disappeared and are presumed dead. After moving the hack site to a high knob on the end of a long narrow peninsular ridge with steep near-vertical ~800 m canyons on three sides, now known colloquially as Bob's Point, 11 of 13 juveniles hatched in 2009–2011 reached independence and dispersed. The Point offers the superiority of air space in which to maneuver in the event of an aerial attack from other raptors. Only two of our released falcons have returned to their hack site the following year, and none are known to have taken up residence at any of the abundant local cliffs. As the numbers of surviving released birds reach breeding age (more than three years in captivity), we will be surveying the local cliffs in earnest, hoping to see a color-banded resident falcon (red for a female and blue for a male, with bold white numerals). Any report verified by a photo will be rewarded with a hero's welcome.

## ■ Neotropical Raptor Conservation Program



# West Indies Raptor Conservation Project

**T**he Peregrine Fund has the only conservation project for birds of prey in the West Indies, a chain of Caribbean islands stretching from Florida to Venezuela. We currently are focused on the Ridgway's Hawk, which lives exclusively on Hispaniola, an island shared by Haiti and Dominican Republic.

The Peregrine Fund began studying this species in 2000 and formed a partnership with the Hispaniola Ornithological Society in 2007. Our joint experiment to assist the dispersal of young wild birds from threatened areas to safer ones is proving successful. Problems with shooting and deforestation are being addressed with local education and awareness campaigns.

### ▼ Results

After a decade of thoroughly searching, surveying, and monitoring this population, we have determined that only about 300 individual birds comprise the entire global population of this species. This small and isolated population of Ridgway's Hawks leaves the species extremely vulnerable to extinction through catastrophic events such as fire, hurricane, or disease. To reduce this risk, in 2008 we began an experimental "assisted dispersal" project to learn if breeding pairs could be reestablished in the species' former range outside of Los Haitises National Park. Young birds were collected from nests about one week prior to fledging age. They were fed in a hack-box (a protective aviary) at the release site until fledging age, then released by removing the bars on the front side of the box. The fledged birds were fed daily at the box for several weeks until they reached independence.

The first release in 2008 successfully fledged four young hawks at Loma la Herradura, 40 miles south of the national park on private land owned by Central Romana, Inc., the largest company in Dominican Republic. This site was used again in 2009

and a second release site was established at Punta Cana, a private resort and land holding company 100 miles from the park.

#### ▼ Monitoring

In February and March 2011, 36 nesting territories were monitored at Los Limones. These 36 pairs produced 50 eggs, of which 41 hatched, 20 fledged successfully, and 21 died. Of the 21 young hawks that died, seven deaths were caused by *Philornis* fly infestations, three died from predation, one died in a wildfire, and 10 died from unknown causes. Thirteen nestlings were treated for parasites and seven nests on palm fronds were reinforced to keep them from falling; one nest was rebuilt after it had fallen down. During March, two hawks at Punta Cana (one from 2009 and one from 2010 releases) and one at Herradura (2010 release) were trapped and fitted with new transmitters for continued monitoring. In April 2011 a new release box was built at Loma la Herradura to replace the box that had deteriorated from four seasons of use, and the release box at Punta Cana was modified to prevent Turkey Vultures from taking food off the box.

#### ▼ Releases

In May, of the 14 young fledging from the 34 young available at Los Limones that were used for the assisted dispersal releases, three died due to the *Philornis* fly prior to being released. The 11



Thomas Hayes

*Ridgway's Hawks are relocated just before they reach fledging age.*

remaining young hawks were transferred to both release sites. All fledged successfully from the release sites, but during the end of July and early August at Punta Cana two died, one from electrocution and one from human persecution. Habitat degradation, human persecution, and parasites appear to be the primary causes for decline of the Ridgway's Hawk.

#### ▼ Public Education

We began addressing these problems in 2004 in partnership with the Hispaniola Ornithological Society (SOH) through a program of public education and awareness. The campaign occurs every year in communities near Los Haitises National Park. In 2011, SOH and The Peregrine Fund visited three communities, reaching 94 young adults at Los Limones, 102 adults and 16 children at Gonzalo, and seven children and one adult at Lambadera. At the two release sites, SOH and The Peregrine Fund provided pre-

sentations to 620 students, 454 employees at Punta Cana and Cap Cana, and 534 locals and employees of Central Romana, Inc. at Pedro Sanchez, the community nearest to the Herradura release.

#### ▼ Building Local Capacity

In Dominican Republic, we are developing local capacity for raptor conservation by supporting and training biological field assistants from Los Limones. Biodiversity and conservation training has been provided to several park guards and local persons from communities bordering the park, especially in the Los Limones area. They are assisting in monitoring the nesting pairs of Ridgway's Hawks within the park. Several assistants have conducted the assisted dispersal releases of young Ridgway's Hawks to private and protected land holdings owned by Central Romana, Inc., the largest national company in Dominican Republic, and Grupo Punta Cana.

### ■ Neotropical Raptor Conservation Program



## Neotropical Science and Student Education

**T**he region from southern Mexico to Argentina and including the Galapagos, Falklands, and Caribbean islands—the Neotropics—contains dozens of species of birds of prey, including many that are at risk and about which little is known. In 2005, The Peregrine Fund began addressing the urgent need to develop local capacity for raptor research and conservation by providing support to students conducting thesis research projects related to Neotropical birds of prey.

Our goal is to conserve biodiversity and enable people to co-exist with birds of prey. We believe that solid science and credible information will enable communities and policy-makers to find effective ways of conserving birds of prey and their habitat.

#### ▼ Results

Financial support and supervision were provided to six students conducting thesis research projects for three doctorates and three master of science degrees. One student graduated and earned his master's degree, and three completed their field work. We also supported two non-thesis research projects: monitoring and protection of a wild Harpy Eagle pair in Belize, and research and conservation of Andean Condors in Ecuador. We provided ongoing supervision to the Harpy Eagle Conservation and Restoration Projects in Panama and Belize.

#### ▼ Peru

**Diurnal raptor community in northwestern Peru:** Field data collection was completed and data analysis was initiated along with writing of four thesis chapters. The introduction chapter of the Ph.D. thesis was written addressing topics related to taxonomy, distribution, diversity, endemism, morphology, migration, habitats, diet, hunting, threats, conservation of world raptors, and the status and extent of knowledge of raptors in Peru. Statistical analysis was performed using software DISTANCE of data collected

in 70 plots to calculate absolute densities of 15 raptor species that inhabit four different habitats in extreme northwest Peru.

#### ▼ Argentina

**Crowned Eagle in Central Argentina:** Ten nests of Crowned Eagles were monitored by direct observation and video cameras. In addition to diet, the division of roles and parental care during incubation and chick-rearing periods were studied. During the incubation period, three pairs were filmed for 275 hours. During the chick-rearing period, eight pairs were filmed for 941 hours and were directly observed for 232 hours. Six Crowned Eagles were found dead due to shooting, electrocution, and drowning. Informal presentations and conferences were delivered to local farmers and schools, respectively, within the study area. Video recording of Crowned Eagles eating poisonous snakes (the main prey in study area) were shown.

**Potential Crowned Eagle Reintroduction:** Our partners in Argentina, Uruguay, and Brazil were consulted on their interest in this potential reintroduction project and on the availability of suitable habitat for Crowned Eagles at locations where populations became extinct and where reintroduction is needed. In May 2011, visits were made to the Reserve El Potrero in Argentina and nearby areas in Uruguay. The preliminary assess-

ment is that there is interest for this project in the three countries.

#### ▼ Ecuador

**Galapagos Hawk before and after goat removal:** Field data collection of prey deliveries was completed and data analysis initiated. The last field season was concluded, in which a total of seven nests were observed with 137 prey items delivered. This makes a total of 18 nests monitored after goat removal to compare to the 19 nests observed before goat removal. As vegetation recovered, the hawks did not switch to more arboreal prey as predicted, although there were significant effects of vegetation on prey. Preliminary analysis of prey biomass suggests that Black Rats (*Rattus rattus*) constitute the main prey of hawks after goat eradication. Live-rat trapping was conducted at 14 hawk territories in order to estimate changes in abundance and density after goat eradication.

**Ecology and demography of Galapagos Hawks:** Census, assessments of reproductive activity, and evaluation of group membership of territorial hawks were completed on James Bay and Sullivan Bay study sites. Surveys for unpaired adults were conducted for 10 days for a total of 80 surveys. Twenty-six hawks were banded and blood samples collected for genetic and health evaluation. We assisted Charles Darwin Foundation and Galapagos National Park



Herman Vargas

**Edwin Campbell monitoring Harpy Eagles and other raptors in Darien, Panama. Edwin earned his MSc degree in 2011 at the Federal University of Mato-grosso do Sul, Brazil.**

Service with Galapagos Hawk mitigation during rat eradication on Rabida and Bainbridge islands.

**Movements and habitat use of Andean Condors:** A research permit was obtained, key partnerships were developed, and funding was raised. We also prepared for the initiation of an Andean Condor study in northern Ecuador. Partnerships were developed with Fundacion Condor, Fundacion Jocotoco, Fundacion Galo Plaza Lasso and Comuna Zuleta to conduct research aimed

at condor conservation. Protocols were developed for capturing and marking Andean Condors in Ecuador. Scientific advice was provided to the Ministry of Environment through the Andean Condor Working Group for the implementation of the Andean Condor Conservation Strategy.

**Aviary enhancement for environmental education:** A partnership was developed with Foundation Condor that manages Parque Condor, the first raptor rehabilitation and environmental

education center in Ecuador that uses birds of prey to talk about environmental problems. The park is visited annually by 30,000 people. The main attractions are Andean Condors and our famous Harpy Eagle, Olafa. We provided support to build an exhibit that will house two Harpy Eagles.

#### ▼ Brazil

**Raptor community assessment in central Brazil:** This project is in the initial phase and the first two visits to the Cerrado and Pantanal biomes of Mato Grosso

do Sul State took place in July 2010 and February 2011 during the dry and wet seasons, respectively, to become familiar with the study area and design adequate methodologies for the Ph.D. thesis project. Nine survey routes were selected totaling approximately 2,340 km. Six of these routes are located within the Cerardo and three within the Pantanal. Preliminary analysis suggests seasonal variation in the community structure and strong variation in the population of certain species, for each biome and climatic season. Twenty-three species were recorded, including four vultures, one Osprey, six kites, seven hawks, three falcons, and two caracaras.

#### ▼ Costa Rica

Owls (Strigiformes) of secondary tropical forest: Field data collection was completed, analysis initiated, and thesis writing begun. Nocturnal surveys were completed in March 2011. The study provides data on the distribution, species richness, and composition of owls along an altitudinal gradient ranging from 0 to 1200 m. Eight species of owls were recorded.

#### ▼ Belize

Monitoring a wild Harpy Eagle nest: We supported a project conducted by Belize Foundation for Research and Environmental Education to monitor, study, and protect the most northerly known

nest, nestling, and breeding pair of Harpy Eagles in the Americas. A GPS-PPT and VHF transmitter were attached to a juvenile Harpy Eagle to track its movement patterns and survival after fledging.

#### ▼ Panama

Harpy Eagle Conservation: Analysis indicated that Harpy Eagles in Darien nest at 4–6 nests/100 km<sup>2</sup>, with each breeding pair occupying 24 to 16 km<sup>2</sup> of forest, respectively. This nesting density is the highest reported for the species throughout its breeding range. By extrapolating the nesting density in Darien to the entire area of Panama with suitable habitat at elevations below 350 m, we estimated that Panama's Harpy Eagle population size could range between 806–1,208 pairs.

#### ▼ Panama and Belize

Harpy Eagle Restoration: In FY11, we made significant progress in analysis of Harpy Eagle release data. We found that eagles released at 18 months of age or older showed increased survival and shorter dependence periods than eagles released at 5–7 months of age. Hacking proved to be a suitable method for releasing captive-bred Harpy Eagles into the wild, but was more efficient for these large, long-lived, tropical forest eagles when delayed from fledging age, when falconers' traditionally hack falcons, to near the Harpy Eagle's age of independence at 23 months.

## ■ Neotropical Raptor Conservation Program



Communication is vital to those working in the Neotropics—a large region spanning southern Mexico to Argentina and including the Caribbean islands. Little is known about many of the raptors here, despite being excellent indicators of the region's ecological health.

The Peregrine Fund began developing the Neotropical Raptor Network in 2003 on encouragement from attendees of the 2002 Neotropical Raptor Conference and Harpy Eagle Symposium in Panama. We produce a semiannual newsletter and maintain a website and list server for the network. These steps have proven effective for tracking down lines of investigation and putting researchers in touch with those on the leading edge of Neotropical raptor conservation.

#### ▼ Results

The Neotropics represent some of the greatest biodiversity on Earth, and despite the presence of numerous scientists, conservationists, and naturalists in the region, much remains to be discovered about the flora and fauna found there. Raptors can serve as indicators of the overall health of an ecosystem and are an important component in maintaining this health. There are more than 90 species of raptors throughout Latin America and the Caribbean and many of them are rare and little known.

The Neotropical Raptor Network is a forum to bring researchers, students, and conservationists together to compare notes, work cooperatively, and improve their efforts to understand and protect this unique group of birds. The features of the network are a web-based list server, website, and electronic newsletter, and conference that will be held periodically.

#### ▼ Communications

The list server is intended to provide an informal discussion forum on issues pertaining to birds of prey in the Neotropics. All discussion and information posted on the list server is stored and archived so that people may re-

view past dialogues. Membership to the list-server continued to grow in 2011, with the number of members increasing from 316 to 347.

A webpage written in Spanish and English ([www.neotropical-raptors.org](http://www.neotropical-raptors.org)) serves as a home to the network. Semiannual newsletters containing popular articles from members, updates on network activities, and general information pertaining to Neotropical birds of prey are published and archived on the website. The 10<sup>th</sup> and 11<sup>th</sup> e-newsletters, *Spizaetus*, were published in English, Spanish, and Portuguese. We obtained a separate ISSN for each language version of the publication. Some changes were made to the website design.

#### ▼ Raptor Symposium

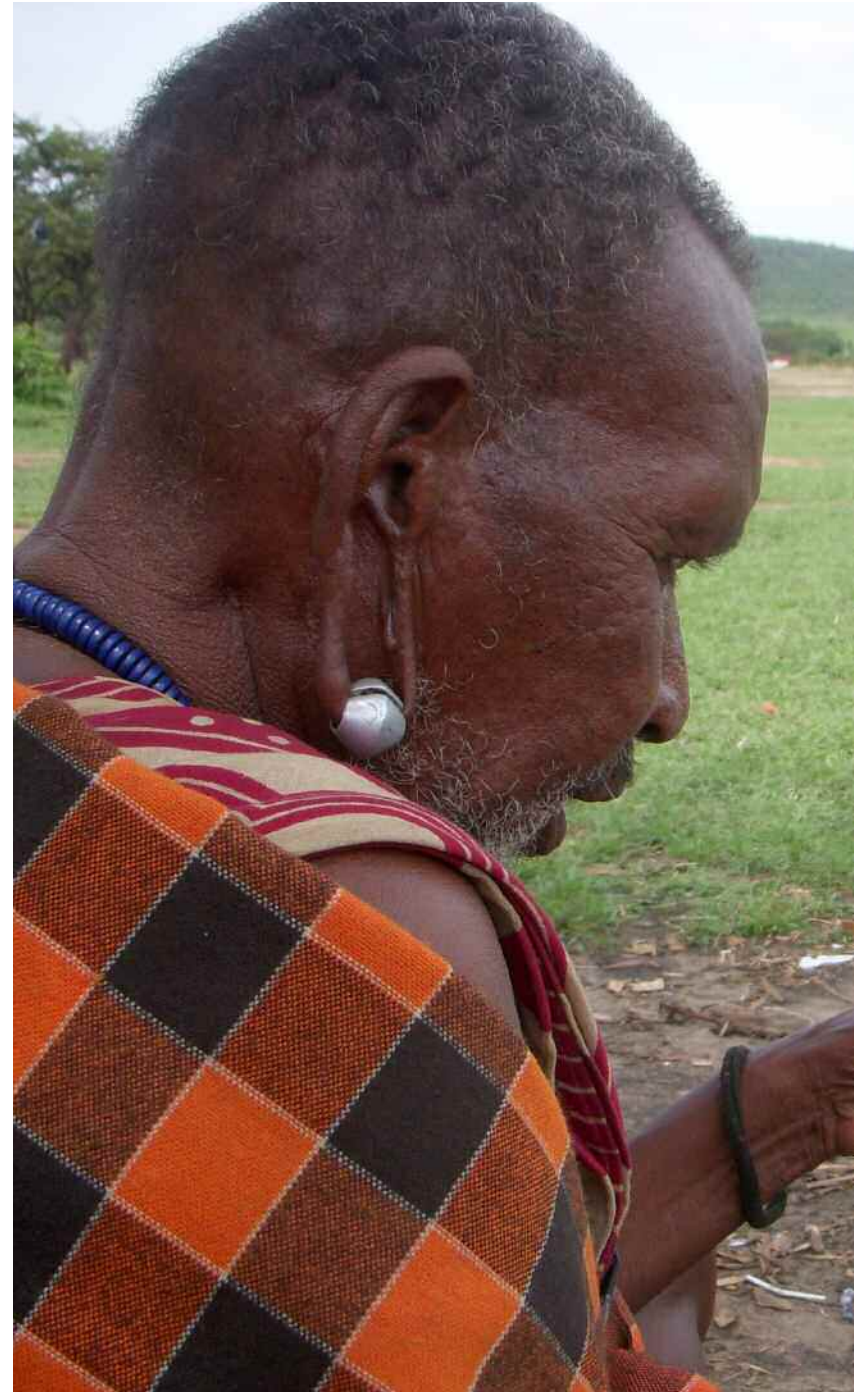
The Neotropical Ornithological Conference (NOC) Scientific Committee accepted our proposal for a raptor symposium on *Micrastur* and *Leucopternis*, which was held in conjunction with the NOC in November 2011 in Peru. We will convene a joint raptor conference in Bariloche, Argentina, in October 2013. Other participating groups will include Raptor Research Foundation and the World Working Group on Birds of Prey and Owls.

## Pan Africa Raptor Conservation Program



In Africa and associated islands, birds of prey are threatened by people unintentionally poisoning them, shooting them for food or sport, and killing them for superstitious reasons. Explosive human population growth and rising demand for more land to cultivate are making it increasingly difficult for birds of prey to survive. To succeed, conservation must move from the historical approach of preservation in parks and reserves to a 21st-century approach of co-existence.

Since 1990, The Peregrine Fund has worked to identify priorities for raptor conservation, train and support African students, and provide direction and communication for those working in this field. The African Raptor Network was established in 2008 with a website and list server so that biologists and enthusiasts can discuss and exchange ideas pertaining to African raptors.





A resident of Siana Group ranch examines a photograph of a Black-chested Snake Eagle; graduate student Eric Ole Reson (inset) documents attitudes of the Maasai community towards vultures and other birds of prey.



Eric Ole Reson

Eric Ole Reson

### ▼ Results

On the African continent and its associated islands, the human population has grown from 100 million a century ago to nearly 900 million today, resulting in loss of wildlife habitat as people move into and cultivate new areas. With 111 diurnal raptor species and 48 nocturnal owl species, our Pan Africa Project is an “umbrella” approach towards identifying priorities for raptor conservation across the continent and a means of providing direction and communication to help ensure species survival.

Results for the East Africa project (page 30) and Madagascar project (page 32) are described separately.

### ▼ Building Local Capacity

We provided a grant for surveys on little-known birds of prey in the Central African Republic’s Dzanga-Sangha Special Reserve, including Dzanga-Ndoki National Park, over a five-week period between 5 February and 15 March 2011. Using set abundance categories, 22 raptor species comprising 226 individuals were recorded. Results suggest that two raptor species are common, with one to 10 individuals seen in suitable habitat every day: African Harrier Hawk and Palm Nut Vulture. The majority of species were either uncommon, with only a few individuals recorded during the sur-

vey period, or rare, with only one or two records during the survey period. It was not possible to obtain an accurate figure of the density of every species of raptor in a tropical forest within a short time due to the difficulties in effectively censusing birds with low population densities, large territory sizes, and inconspicuous behavior in tall, dense, unbroken tracts of lowland forest.

Hands-on experience of fieldwork and raptor monitoring was provided to a Central African Republic student who received a significant amount of training and experience, such as practical skills, experimental design, basic ornithology, and data management. In addition, some basic raptor survey training was also provided to the local BaAka trackers who acted as guides during the surveys.

### ▼ List Server and Website

The African Raptor Network list server and website ([www.africanraptors.org](http://www.africanraptors.org)) has grown in popularity as a means of exchanging information and ideas among African raptor biologists and enthusiasts. We have begun a series of interviews with eminent raptor biologists who have conducted long-term studies on African raptors to provide mentorship and inspiration to young African students. There are currently 165 members on the list server.

*The Masai Mara has the largest population of hooved animals in Kenya. They are a vital food source for hundreds of far-ranging vultures, whose populations have declined alarmingly as a result of poisoning.*



Munir Virani

## ■ Pan Africa Raptor Conservation Program



## East Africa Project

**W**hen this project began in 1990, the numbers and diversity of birds of prey were declining dramatically in East Africa as people converted wildlife habitat to agriculture and indiscriminately used poisons to kill livestock predators, such as lions and hyenas. When birds of prey ate the poisoned carcasses, they died too. Development in the form of power lines and wind turbines will further compound the already existing threats. Vultures, in particular, are the most threatened group of raptors and most in need of protection by governments and communities.

The East Africa project provides training and assistance to students focused on raptor conservation. The Peregrine Fund also partners with the Raptor Working Group to increase public understanding about the need to conserve birds of prey.

### ▼ Results

The need to monitor and evaluate raptor abundance and diversity, including those of common species, in habitats that were historically their strongholds has never been greater. Six of the eight species of vultures that occur in the East African region are globally threatened, mainly from consuming livestock that has been deliberately poisoned in retaliation for carnivore attacks.

### ▼ Masai Mara National Reserve

We supported a graduate student who continues to study the effects of human activities on the avian scavenger species found in the Masai Mara National Reserve. This year, the study of habitat use was expanded to include nest site selection and surveys of nests and trees inside and outside the park to assess the availability of appropriate nesting sites in the Masai Mara. In addition, the impact of disturbance on foraging success of the vultures is being assessed, an important issue given the large number of cattle herders that enter the park and use the surrounding area. This project will analyze all findings from the last three years from transects, behavioral work, and a movement study in-

volving over 30 GSM-GPS (cellular) transmitters on three different vulture species.

An important finding has demonstrated that *Gyps* vultures have large foraging areas. For example, one Rüppell's Vulture tagged in the Masai Mara has traveled from Kenya to the southwestern parts of Ethiopia, into the northern region of southern Sudan and back—an area of over 600,000 km<sup>2</sup>. Given the threats to avian scavengers from poisoning, this underscores the need to mitigate the risk of poisoning throughout the entire East African region. In addition, wing tagging of vultures continued, important in generating awareness about the importance of vultures through public participation in this research project.

#### ▼ Northern Kenya

In northern Kenya, we are studying the impacts of vulture population declines on mammalian scavengers and the potential rates of disease transmission via contact at carcasses. In experimental research with simulated vulture population declines, carcasses persisted in the environment more than three times longer than those where vultures were present. The number of scavenging mammals at carcasses increased 16-fold and the time they spent at carcasses also increased 16-fold compared to carcasses where vultures were present.

In addition, there was a 34-fold increase in the number of

contacts between mammalian scavengers at carcasses without vultures. These results highlight the important role vultures play in carcass decomposition and moderating contact between mammalian scavengers. This study has important implications for the spread and persistence of diseases at carcasses and highlights the crucial role of vultures in providing important ecosystem services that are not easily replicated by other scavengers. More broadly, the research emphasizes the critical need to protect the world's remaining vulture populations in order to maintain healthy ecosystems that naturally curb the spread of disease.

Darcy Ogada was a co-recipient of the Leslie Brown Memorial Award from the Raptor Research Foundation. The monetary award will help initiate research on vultures in northern Kenya, specifically to put GPS-GSM transmitters on 10–15 vultures to monitor their movements in relation to land-use patterns and poisoning incidents in the region. The project also will work with local Samburu communities to spread awareness about the importance of vultures. The work will be in partnership with the Northern Rangelands Trust and others.

#### ▼ Long-term Studies

We continued to build on our existing long-term studies on raptors, specifically on African Fish Eagles, Augur Buzzards, and Sokoke Scops Owls, to under-

stand how these species are affected by environmental and human-caused habitat changes. Environmental conditions at Lake Naivasha improved for fish eagles this year. Sustained high water levels meant that the regeneration of the papyrus fringe continued to the point where new habitat was created in the form of floating papyrus islands. These islands provided an opportunity for transient fish eagles to seek refuge while attempting to displace territory-holding individuals around the lakeshore. We recorded 129 eagles and an increase in the breeding success rate from 23 (68%) active nests out of 34.

In February, we completed our second annual Kenya raptor road survey. These road surveys are done in partnership with the Raptor Working Group of Nature Kenya and Kenya Wildlife Service and are important for monitoring the health of Kenya's raptor populations. Overall, our results for 2011 did not change considerably from our 2010 surveys with the exception of an influx of Black-shouldered Kites on the northern route, likely due to the recent above-average rainfall.

#### ▼ Student Training

We conducted a second successful raptor conservation media course for students of St. Lawrence University that provided a practical and media-based approach on aspects of raptor conservation ecology, photography, and creative writing.

#### ▼ Increasing Public Understanding

In October 2010, we helped organize our second International Vulture Awareness Day at Sekenani Primary School near the Masai Mara National Reserve. The reserve combined with the greater Serengeti ecosystem supports the largest vulture population in East Africa and is a hotspot for wildlife poisoning. More than 300 schoolchildren attended the event and performed plays, dances, and even rap songs about vultures and their importance in the environment. A number of guests spoke to the audience about the harmful effects of poisoning wildlife and the need for greater environmental conservation efforts in the region. Awards were given to the winning entries in our vulture-themed art competition. Key schools were identified for environmental education programs we plan to initiate in the near future. A short video was made about this event and circulated over social networking sites to reach a global audience.

We have developed an education proposal to begin teacher training in the Masai Mara region. The goal is to train teachers and other community workers about raptor conservation and to equip them with the materials they need to disseminate the information in the classroom and other venues where they work.

Six of the eight species of vultures that occur in the East African region are globally threatened, mainly from consuming livestock that has been deliberately poisoned in retaliation for carnivore attacks.



## Madagascar Project



Marta Curti

*A fisherman casts his net on one of the Manambolomaty lakes where Madagascar Fish Eagles breed.*

**M**adagascar's amazing diversity of species found nowhere else on Earth, coupled with a rapid loss of habitat, makes this island nation one of the world's highest conservation priorities. Since 1990, The Peregrine Fund has been conducting field research on birds of prey and helping create conservation areas that are managed by local residents to protect endangered species.

To further our mission to build local capacity, we also have provided financial support, training, and education to more than 20 Malagasy students seeking advanced science degrees.

### ▼ Results

This project is working towards protection of three important sites under the Madagascar Protected Areas System. These include two wetland and dry forest sites in western Madagascar (Tsimembo-Manambolomaty and Tambohorano), which help conserve the endangered Madagascar Fish Eagle and other wetland and forest biodiversity. The third site is in the northern region of the country (Bealanana) and protects a unique mosaic of wetlands, marshlands, grasslands, and rain-forest fragments. This is where we re-discovered the Madagascar Pochard, a diving duck thought to be extinct and now classified as critically endangered, and the endangered Madagascar Serpentineagle and other threatened and endemic biodiversity.

We continue to assist the community resource management associations in writing and preparing management plans and guidelines for two of the three sites at the regional level, and they are waiting for them to be passed to the national level. We also have submitted all management documents to the national government to create the Tsimembo-Manambolomaty community protected area.

### ▼ Manambolomaty

Tsimembo Forest and Ma-soarivo Mangrove were added to the Manambolomaty Lakes protected area to increase the amount of dry forest and mangrove habitat included in this 62,745 ha conservation area known as the Tsimembo-Manambolomaty Protected Area. We have submitted all pertinent documents to the Malagasy government for approval of this site as a permanent protected area. It currently has temporary protected status.

We supported the communities in planting native tree seedlings for reforestation in Tsimembo Forest. The two local associations, along with help from local students and authorities, planted 8,100 seedling trees. We conducted our annual monitoring of Madagascar Fish Eagles breeding in the Antsalova region and Manambolomaty Lakes Complex, where 26 pairs have been documented producing 19 fledglings.

The local associations are receiving assistance from The Peregrine Fund to manage the Manambolomaty Lakes Complex. They received 22 fiberglass canoes, 84 fish nets, and four efficient fish-drying ovens to reduce the amount of wood fuel collected from adjacent forests. These associations monitor and control human use and impact on fish stocks, forest, and other resources in and around lakes that are critically important for breeding Madagascar Fish Eagles.

### ▼ Tambohorano

In the Tambohorano area, we recorded nine pairs of fish eagles. We completed an Environmental Impact Study, and an Orientation and Evaluation Committee was established for management of the Mandrozo Lake Protected Area site (15,145 ha).

The Teabony celebration (traditional event for opening fishing season) occurred on 14 April 2011. From 15 April to 10 June 2011, 78 tons of fishery products were recorded by the 150 fishermen at Mandrozo Lake. A local committee for fire prevention, called K3M, began operating with 25 members from the three associations. They received training from the Forest Service Officer of Maintirano in July and were provided uniforms in November by The Peregrine Fund. Seven display panels were installed at the main access points into the Mandrozo Lakes Protected Area during October 2010. These panels provided information on the limit of the new protected area, including information on the status of the area being managed in collaboration with the local communities.

During two annual waterbird surveys (January and July), we recorded 1,933 birds of 28 species. Six of these species are considered threatened. At Mandrozo in January 2011, the three local associations planted 19,492 seedling trees of four native forest species and 4,000 orange trees. Twelve fiberglass canoes and one



Lily-Anison Renne de Roland

**Nestling Madagascar Fish Eagle. With Peregrine Fund assistance, local associations monitor human use of the lakes to help conserve eagles and other wildlife.**

fish-drying oven were provided to the local associations.

#### ▼ Bealanana

To decrease the wildfires and uncontrollable fires inside the Bemanevika Protected Area (37,041 ha), 30 people were selected as a fire prevention committee and equipped with uniforms (clothes, shorts, sandals, and a whistle). During the 2010–2011 reforestation campaign, 4,500 seeds from three for-

est tree species were collected from the forest and transplanted by the local associations with around 93% survival rate. In addition, two plant nursery stations were installed where the local associations produce young eucalyptus trees for four villages around the protected area. Of 3,300 eucalyptus seedlings planted, 90% survived.

The Bemanevika Protected Area Orientation and Evaluation Committee was created at the re-

gional level in May 2011. This committee is composed of 14 members led by the Regional Department of Environment and Forestry and includes 11 regional sectorial authorities plus representatives of Bealanana's military police and the two mayors. Three stages of training were provided during November and December 2010 and April 2011 to the local communities to transform the traditional way of cutting down trees to collect honey

to a sustainable apiculture system. We provided 15 beehives and accessories to the local trained beekeepers.

The monitoring of Madagascar Pochards continued with the wild population recorded at 29 ducks, including 11 nesting pairs. The site identified for the construction of a permanent captive propagation facility for the Madagascar Pochard by our partners (Wildfowl and Wetlands Trust and Durrell Wildlife Conservation Trust) is slowly moving forward. Four females in the captive flock laid 14 eggs, of which four hatched, and 10 were infertile.

Four radio-tagged Madagascar Red Owls were monitored near the research camp at Matsaborimena Lake, 24 roost sites have been identified, and 200 pellets collected to be analyzed for seasonal food habits. One nesting attempt by Madagascar Serpentine eagles was observed; it later failed during the nestling period when the young were observed. A protocol for monitoring lemurs was developed and consisted of counting all lemurs seen or heard along selected trails in the forest. Three trails were selected in November 2010 and they will be surveyed for three consecutive days each month starting in December 2010. In December, 125 lemurs of one diurnal lemur species (Brown Lemur *Eulemur fulvus*), one crepuscular species (Western Bamboo Lemur *Haplemur occidentalis*), and three nocturnal species (Greater Dwarf

Lemur *Cheirogaleus major*, unidentified Mouse Lemur *Microcebus* spp., and Sambirano Woolly Lemur *Avahi unicolor*) were recorded.

#### ▼ Developing Local Capacity

Since 1990, The Peregrine Fund has provided financial support, training, and education to Malagasy students for one Doctorate, 20 Master of Science equivalent degrees, and four Bachelor of Science degrees. These national students have carried out research on a wide variety of topics ranging from plant, fish, and lemur ecology and behavior to bird surveys and species specific raptor studies. We have helped and supported the formation of seven local associations working with natural resource management and creating the Tsimembo-Manambolomaty, Tambohorano, and Bealanana protected areas.

The Peregrine Fund has a professional staff of Malagasy biologists with degrees at Doctorate (1) and Master of Science (8) levels. Our staff has received important hands-on training in raptor research and benefited from our annual peer review and program planning process. They have received valuable experiential learning opportunities in NGO management, financial control, and program planning, implementation, evaluation, and proposal writing.

# Asia-Pacific Raptor Conservation Program



**T**his program covers all of Asia and many Pacific islands, a huge area containing more than one-third of all birds of prey species. Habitats range from the world's highest mountains to lowland deserts and tropical rainforests.

Raptor research in this region is spotty. Some populated areas have significant interest in raptor research, but in other areas birds of prey are unstudied, lacking even essential basics like natural history and population status. In 2007, The Peregrine Fund established the Asia-Pacific Program to encompass large and small projects that enhance understanding of raptor diversity and abundance and inform conservation efforts, especially in areas impacted by deforestation.

## ▼ Results

Conservation problems in the Asia-Pacific region range from the effects of the drug diclofenac on vultures in South Asia to deforestation and human population impact in the Philippines. Conservation efforts could have significant results, especially in areas that have been little-studied yet suffer significant deforestation, such as New Guinea, Sulawesi, and Borneo.

Results of the Asian Vulture Project and the Philippine Eagle Project are described separately. (See pages 36 and 37.)

## ▼ Chinese Sparrowhawks

A field study to locate wintering Chinese Sparrowhawks in Indonesian Papua was carried out in the Indonesian provinces of Papua and West Papua from December 2010 to March 2011. A combination of 39 road, boat, and foot transects were completed, for a total of 2,303 km. The 39 transects covered eight different areas in the two provinces in the most representative habitats of the region. Most habitats were forest ecosystems. Road and boat transects were supplemented by foot transects, point counts, and stops to broadcast recordings of Chinese Sparrowhawk vocalizations.

Chinese Sparrowhawks were recorded at four localities up to 1,200 km further east of the currently known wintering range limit, thus proving that the species does winter in Papua, although probably at very low density. Seventeen other raptor species were recorded out of the 28 species known to occur in Papua, a total of 225 individuals. The unrecorded species were mainly austral winter visitors from Australia or closed canopy species, thus confirming the unsuitability of using road transect methods in tropical forest habitats.

Additionally, from 6–17 March, 12 days were spent at a suitable coastal watch site at the westernmost point of West Papua, but no visible migration of Chinese Sparrowhawks was observed. Rangers from Wasur National Park and staff from WWF Indonesia accompanied our team on some transects for capacity building.

## ▼ Crested Serpent Eagle

Projects in 2012 will focus on understanding the Crested Serpent Eagle species complex, which traditionally includes 23 sub-species but may include up to seven new species, some of which are critically endangered.





Rick Watson



Dave Anderson



Rick Watson

*Next to a research station at Tonle Sap Lake in Cambodia, a government building is placed above the treetops where Gray-headed Fish Eagles (nestlings, above right) build their nests. The Mekong River fills the lake, causing flooding each year. Surrounding villagers live in floating houses that rise and fall with the water level, and children (right) paddle to their floating school. Read more in Ruth Tingay's entry at [blogs.peregrinefund.org](http://blogs.peregrinefund.org)*

Conservation efforts could have significant results, especially in areas that have been little-studied yet suffer significant deforestation.



## Philippine Eagle Conservation

**T**he Philippine Eagle is one of the largest eagles in the world, among the most spectacular of all birds of prey, and a global symbol for rainforest conservation. Considerable research has been done on the eagle but more is needed, especially on the bird's status in the wild and its environmental needs.

The Peregrine Fund began assisting and advising those involved with Philippine Eagle conservation in the 1970s. We support the Philippine Eagle Foundation's work with captive breeding and release, field research and monitoring, public education, and community-based initiatives to protect eagles and their habitat.



rick watson

### ▼ Results

The Philippine Eagle Foundation (PEF) accomplishes results by using a holistic approach that includes hands-on management (captive breeding and release), field research and monitoring, public conservation education, and community-based initiatives to conserve and restore eagle habitats.

The PEF is working to understand the ecological requirements of the Philippine Eagle, habitat restoration, and the factors that threaten the bird's existence, and to test conservation tools, such as eagle restoration and public education. In FY11 the

program had five objectives:

**Breed Philippine Eagles in captivity:** PEF hatched a captive-bred chick in January 2011 but the chick was weak, partially blind, and underweight. The bird died barely a month later. Six more eggs were laid during this season but all were infertile.

**Release captive-bred eaglets and rehabilitated eagles back to the wild:** Captive-bred eagle Chick 23 was "soft released" in Mt. Kitanglad in March 2011 after almost two months of acclimatization. Chick 23 is 18 months old but is still dependent on food pro-

visioning. A successful hunt has yet to be witnessed. Philippine Eagle "Raquel," an adult eagle turned over to the Philippine government by a town mayor, was "hard released" on Northern Sierra Madre in Luzon in May 2011. She hunted a marbled monitor lizard a week after the release. She has dispersed about 12 km from the release site, at the heart of the protected area.

**Monitor breeding success of wild eagle pairs:** The Adopt-a-Nest scheme allows us to monitor breeding success among wild pairs in Mindanao by providing modest cash incentives to locals who report and watch over active nests. The community closest to the nest also receives in-kind rewards whenever an eaglet successfully fledges from the nest.

Five nest reports were received during the 2010-11 breeding season. All resulted in a successful breeding attempt, further supporting previous observations that eagles are not suffering from nesting failures. The fact that the known eagle pairs have been breeding consistently and successfully so far points to the value of the local reward scheme in building community support for conservation efforts. All of the eagle nest sites were known by and accessible to communities, and the eagles remained unharmed.

**Collect home range and territory size data from eagles equipped with radio telemetry**

devices: "Raquel" is the first adult eagle to be fitted with a GPS-PTT satellite transmitter and the first to be instrumented on the island of Luzon. Eagle "Hagpa," a rehabilitated dependent young eagle "hard-released" in May 2010, is now fully independent and has dispersed about 25 km northeast of her release site. Two years of tracking rehabilitated eagle "Kalabugao" provided PEF with valuable insights about the value of lowland forest corridors not only as dispersal pathways but also as hunting areas for dispersing juveniles. "Kalabugao" gradually moved along a remnant riparian forest from her hack site at Mt. Kitanglad to her suspected natal site on Mt. Tago. She also returned to this riparian forest frequently to forage. Three-year old "Cabuyaya" has been missing since July 2011. The PEF team did aerial tracking in August and ground tracking is on-going but she has yet to be found. We have not received satellite readings since 5 July, 28 months after she was tagged.

**Facilitate education campaigns with communities close to eagle habitats:** Education campaigns with children and adults and provision of reforestation and livelihood support as conservation incentives to communities in the uplands are being sustained. We are researching community-based natural resource management with indigenous Manuvus, a Mindanao community that is conserving the territories of two eagle pairs.





## Asian Vulture Crisis

**M**illions of vultures on the Indian subcontinent, where the birds have played a critical ecological and cultural role, suddenly began dying in the 1990s. Populations of some species declined by up to 99% in just a decade. In 2003, The Peregrine Fund discovered the reason—a then-new drug that proved toxic to vultures, diclofenac, was being widely used to treat ailing domestic animals before they died and were left to the vultures. The birds consequently died from kidney failure after consuming the diclofenac-contaminated livestock.

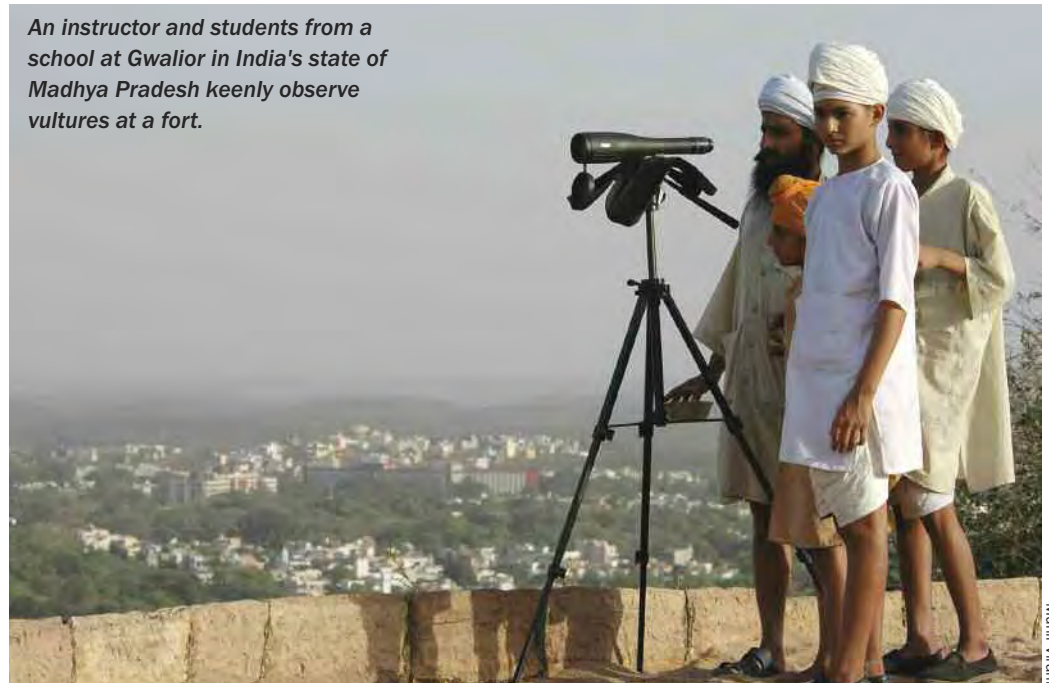
The Peregrine Fund established the Asian Vulture Crisis project in 2000 to discover the cause of vulture decline and advise on vulture recovery, as well as monitor populations. We maintain the web-based Asian Vulture Population Project, which recruits vulture enthusiasts and researchers to locate and monitor remaining colonies of *Gyps* vultures throughout South Asia.

### ▼ Results

The focus of our vulture work in India is in the central Indian states of Madhya Pradesh and Rajasthan, where we have been recording vulture breeding activity consistently since 2002. Our aim is to evaluate whether or not the Indian government's ban in 2006 on the manufacture and sale of veterinary diclofenac is effective. Numbers of occupied nests are measured every December and then subsequently revisited in March and April of the following year to record numbers of nests that have successfully fledged chicks.

Our study areas in both states range from India's premier protected areas within Tiger Reserves to non-protected areas comprising agricultural areas and historical monuments. Our survey sites in Madhya Pradesh are Bandhavgarh National Park and its environs, Gidh Pahari (Mountain of Vultures), the villages of Jukehi and Kymore, the 16<sup>th</sup>-century town of Orchha, and Gwalior Fort. In Rajasthan, our survey sites include Ranthambhore National Park, the Chambal Bird Sanctuary in Kota, and the villages of Kaushaldhara, Nimli, and Bodal.

*An instructor and students from a school at Gwalior in India's state of Madhya Pradesh keenly observe vultures at a fort.*



Monti Virani

### ▼ Nest Monitoring

Over the last four breeding seasons, the mean number of occupied Long-billed Vulture (LBV) nests within protected and non-protected areas in India has remained fairly stable at 216 (range 201–241) and 169 (range 154–188), respectively. For comparable sites, annual rates of decline of LBV nests in protected areas have dropped significantly from 31% before the diclofenac ban to only 4% post-ban. In non-protected areas, the annual rate of decline in LBV nests has dropped from 35% (pre-diclofenac ban) to 14% (post-ban). Although there have been only four breeding seasons since veterinary diclofenac was banned, our results are somewhat en-

couraging and support recent research by our Indian partners who have shown a reduction in available diclofenac to vultures from their study of diclofenac residues in carcasses.

The stability of LBV breeding pairs is also mirrored in south-east Pakistan, where numbers of their occupied nests within protected and non-protected areas decreased by 58% and 71%, respectively, before the ban on diclofenac and declined only by 12% after the ban. Breeding success decreased by 31% prior to the ban, but increased by 28% after the ban. The number of vultures observed in all age categories declined prior to the ban, but increased after the ban. We remain cautious about interpret-

ing these results, which emphasize the need for continued systematic long-term data collection for a slow-reproducing and long-lived species to accurately measure population trends and determine the effectiveness of the diclofenac ban.

We continued to update and maintain the web-based Asian Vulture Population Project, which has developed into an important information resource. We recruit vulture enthusiasts and researchers to locate and monitor remaining colonies of *Gyps* vultures throughout South Asia. By August 2011, 31 individuals and organizations had contributed data from 106 sites.

## Education Program



**A**s The Peregrine Fund continues to pursue both domestic and international programs to conserve birds of prey, it is clear that public education remains a priority to ensure the success of our conservation efforts. Our Education Program provides people, young and old, with the knowledge they need to make informed decisions affecting the natural world. We believe public education sparks the passion necessary to power effective solutions for conserving birds of prey.

The Velma Morrison Interpretive Center opened in 1994 at the World Center for Birds of Prey, which The Peregrine Fund established in Boise, Idaho, in 1984. More than 30,000 people visit each year, enjoying interactive displays, multi-media shows, and live demonstrations with hawks, falcons, and eagles.

### ▼ Results

Each year we compile reports and analyze the impact of our Education Program to gain a better understanding of our current audience and how we can reach out to those who we are missing. In 2011, we impacted 40,706 people directly by on-site and off-site programs, including 33,689 visitors to the interpretive center. We continued to reach out to community organizations, events, and schools through off-site events with live raptors. The program is also committed to supporting those who support us. In 2011, we contributed \$107,500 worth of goods and services to students and education-oriented commu-

nity events in Southwest Idaho.

Despite the lack of funding for field trips, on-site and off-site environmental education programs reached 5,978 students this past year. All of our on-site student education programs continue to be offered at no charge to the students or teachers. We continued our partnership with the Bureau of Land Management with a program to provide bus money for schools unable to afford transportation to the facility. While we were not able to fulfill all requests for transportation funding, this partnership did enable 1,761 students to participate in our education programs. In total, staff and volunteers conducted 173

environmental education programs with live raptors on-site.

We hosted two Family Field Trip Saturday events that were free for visitors, thanks to the support of our sponsors. The event was designed to provide economical family learning opportunities during the cold weather months and encourage visitation for those students who may not be able to visit on a school program. Over the two days, 2,350 people attended. Families participated in more than 900 educational scavenger hunts and 1,100 hands-on craft activities. A few of the

common comments were: "Thanks for doing this!" and "We ended up staying three hours. We were amazed our kids could stay so long and stay interested."

### ▼ Snake River Exhibit and Interpretive Trail

For the past two years we have been working closely with the BLM Boise District office on a project to update our exhibit on the Snake River National Conservation Area and also provide an outdoor learning opportunity for our visitors. Both projects were completed in 2011. The new ex-



*Exploring the new Interpretive Trail, a family stops to learn about the unique sagebrush steppe ecosystem surrounding the World Center for Birds of Prey.*

Paul Spurling

hibit is interactive and features a dramatic 8x20-foot image of the Snake River Canyon. Our interpretive trail is roughly ¼ mile in length and provides a gravel substrate for visitors to walk on all year long. A wooden gazebo boasts stunning views and great birding opportunities at the end of the trail. Interpretive panels provide an education on the unique sagebrush-steppe ecosystem found throughout Southwest Idaho and an Eagle Scout project was completed as part of this project.

### ▼ October Flight Demonstrations

We first began flying birds outside in 2009 on a limited basis. Due to the tremendous feedback and demand to continue the flight demonstrations, we expanded the program to a much more formal offering in 2011. A total of 18 flight demonstrations were provided Thursdays-Sundays throughout the month. The flight crew featured a Peregrine Falcon, Swainson's Hawk, Gyrfalcon, Aplomado Falcon, and Harpy Eagle. We had more than 200 people attend our VIP preview event, which officially kicked off the flight programs. Throughout the month, more than 3,300 people attended the flight programs, and 59 individuals became members of The Peregrine Fund during the event. Compared to the previous October, the number of visitors increased by more than 1,000 and the number of new members grew by 37.

### ▼ Raptor Ambassadors

We currently have 18 education birds; 11 are used in flight demonstrations or shown on the glove or perched on the lawn for visitors. Seven of the birds are capable of traveling to local and national outreach programs. We have added a female Aplomado Falcon and a female Teita Falcon to the program. Both birds came from captive breeding programs and have proven to be great ambassadors for The Peregrine Fund.

We continually strive to present our live raptors to the public in the most visually pleasing setting possible. This past year, our Gyrfalcon and Eurasian Eagle-Owl chambers were renovated to better showcase these incredible birds. Larger windows, natural log perches, a replica arctic cliff, and dramatic murals have brought these static displays to life. Trish Nixon, our Raptor Specialist, gets the credit for much of the amazing artwork.

### ▼ Volunteers

We would never have managed any of this without the Education Program's dedicated volunteer base. This year in particular, volunteers played a significant role in the success of our flight programs. A total of 74 volunteers contributed 6,834 hours throughout the year. According to the Points of Light Foundation, the current value of a volunteer hour is \$20.85. This translates to more than \$142,000 in contributions by our volunteers last year.

## The Archives of Falconry



**T**he ancient sport of falconry inspires and informs the conservation of rare and endangered birds of prey. When The Peregrine Fund began in 1970, falconers lent birds, equipment, and expertise to the effort that helped prevent the extinction of the Peregrine Falcon. Today, falconers remain concerned about raptor conservation and habitat protection around the world.

The Archives of American Falconry opened at the World Center for Birds of Prey in 1986 to preserve the historical record. The name was shortened in 2003 to reflect the international nature of the growing collection. The facility doubled in size in 2007 with the addition of the Arab Falconry Heritage Wing. The Archives, which is open to visitors, hosts an annual falconers rendezvous in the spring.

*A renowned sportsman, Colonel Thomas Thornton is credited with restoring the sport of falconry in England in the mid-to-late 18th Century. This famous painting of him by Phillip Reinagle is on indefinite loan to The Archives of Falconry by Alexander Guest, and is on public display for the first time in 200 years. It depicts Thornton with his Gyrfalcon, Sans Quartier ("No Mercy"), and dog, Major, a famous racing Greyhound and sire.*



David Wells

### ▼ Results

The Archives of Falconry celebrated its 25th anniversary during the fourth annual Spring Rendezvous, 5 March 2011. More than 130 falconers, friends, and relatives attended the Saturday event, which featured a special exhibition of paintings by artist and falconer Jonathan Wilde. The day also included a ceremony to honor the lives of nine falconers with stories and remembrances. A total of 66 falconers now have commemorative plaques on the Wall of Remembrance.

Curator John Swift attended the 2nd International Festival of Falconry in the United Arab Emirates and took several historical artifacts for display in the falconry heritage tent. Curator Emeritus Kent Carnie gave a pres-

entation on establishing an archive in each country at the annual general meeting of the International Association for Falconry. Archives Associate Peter Devers attended to help design our displays and interpretive banners and to host our exhibit. The exhibit was visited by many prominent officials and dignitaries, including His Excellency Mohamed A. Al Bowardi, a primary facilitator for the Sheikh Zayed exhibit at the Archives.

The Archives produced four quarterly issues of the Heritage e-newsletter and emailed it to 1,100 Archives supporters. Each issue spotlights recent acquisitions, general news, and announcements of upcoming events. We continued to enhance and promote a Facebook organization page with an enrollment of 2,100.

We produced a series of graphic panels to depict Archives' history and special collections for use as displays at falconry conventions. The curator and curator emeritus attended several international, national, and state club events and represented The Archives at each event.

Curator John Swift's book, *Bibliotheca Accipitraria II*, was published as Volume 4 in The Archives' Heritage Publications Series. It was purchased by more than 300 subscribers worldwide and, as a reference work, represents a significant contribution to falconry literature and scholarship.

# Conservation Science



**T**he Peregrine Fund is committed to sharing information quickly and affordably and being an authoritative source of information to researchers, students, policy-makers, and the public.

In FY11, our staff and associates produced 65 publications, including 16 technical papers, 22 reports, three abstracts, three newsletters, and three popular articles. This work was published in *Ibis*, *Living Bird*, *Journal of Raptor Research*, *Wilson Journal of Ornithology*, and numerous books and international scholarly journals (bibliography, page 44). Final editing was completed on a book, *Neotropical Birds of Prey: Biology and Ecology of a Forest Raptor Community*, to be released in April 2012 (see page 44).

In February 2011, The Peregrine Fund convened a three-day conference, “Gyrfalcons and Ptarmigan in a Changing World,” that drew more than 150 scientists, students, policy makers, and other conservationists from around the globe. The conference proceedings were published free of charge on The Peregrine Fund website in December, followed by the print version in February 2012 (see page 44).

Our extensive research library grew by 1,303 books and reports in FY11. We also acquired 2,991 technical journal issues from 19 university libraries. In response to requests for information, The Peregrine Fund supplied PDFs of 1,012 articles from the library free of charge to 350 researchers and students around the world.

## Conservation Science



## Student Education Program



*Malagasy Masters student Stephanie Razakaratriko observes a Bat Hawk nest near Mandrozo Lake, Tambohorano, with technician Eloi Ranameha (Lala).*

Lily-Anison Rene de Roland

**O**ur goal is to make a lasting contribution to global biodiversity conservation and science by developing a raptor biologist in every country in the world. By the end of FY11, students receiving support from The Peregrine Fund since 1970 have earned 83 advanced degrees, including 21 Ph.D. and 62 M.Sc. degrees or equivalents. In FY11, The Peregrine Fund provided financial and logistical support to 23 students.

### Asian Vulture Project

*Jamshed Chaudhry* continued with his fieldwork for his Ph.D. through Quaid-e-Azam University, Islamabad, Pakistan, on population trends of breeding Long-billed Vultures *Gyps indicus* in Nagar Parkar, Pakistan.

### East Africa Project

*Thecla Munanie Mutia* successfully graduated with an M.Sc. degree through Egerton University, Kenya, on her study of heavy metal contamination of Lake Naivasha.

*Masumi Gudka* has submitted her M.Sc. thesis on a study of organochlorine contamination

on African Fish Eagles at Lakes Naivasha and Baringo from the University of Cape Town, South Africa.

*Eric Ole Reson* continued with his fieldwork on documenting perceptions and attitudes of the Maasi community towards vultures and other birds of prey in Siana and Koiyaki Group ranches of the Masai Mara as part of his M.Sc. study from Clemson University, USA.

*Nicholas Gardener* successfully graduated with an M.Sc. thesis on habitat use of Long-crested Eagles in southern Uganda from Exeter University in the United Kingdom.

*Corinne Kendall* completed field work on her Ph.D. through Princeton University on vulture ecology and effects of human impacts on them in Kenya.

*Zablon Otieno* began his fieldwork for his M.Sc. thesis from Maseno University College in Kenya on conducting a risk analysis study of Poly-chlorinated biphenyl (PCB) contamination in the Lake Victoria basin using the African Fish Eagle as a bio-indicator.

*Seren Waters* completed his fieldwork for his Bachelor degree dissertation from Durham University in the United Kingdom assessing human-caused impacts on the Lake Baringo ecosystem using the African Fish Eagle as a biosentinel species.

#### ▼ Madagascar Project

*Donatien Randrianjafiniasa* graduated with his DEA (M.Sc. equivalent) study on the Madagascar Cuckoo-Hawk.

*Juliot Carl Ramamonjisoa* completed his fourth field season for his Ph.D. study on the owls of northern Madagascar.

*The Seing Sam* graduated with his DEA (M.Sc. equivalent) on the ecology of the Madagascar Pochard in northern Madagascar.

*Yannick Antsa Ramiandrasoa* is writing his DEA thesis in Madagascar on ecotourism as a development tool in support of creating the new Bemanevika protected area on behalf of Madagascar Serpent Eagles, Madagascar Red

Owls, Henst's Goshawks, and other endangered, endemic raptors, as well as the endangered Madagascar Pochard.

*Andriantahina Jean Hubert Rakoto* began a DEA degree study of the ethno-botany, ecology and natural regeneration of plants in Tsimembo Forest, in support of creating the Manambolomaty protected area on behalf of Madagascar Fish Eagles.

*Felana Jeanne Henriette Andrianirina* began a DEA degree study on the vegetation structure and spatio-evolution of Tsimembo Forest, in support of creating the Manambolomaty protected area on behalf of Madagascar Fish Eagles.

*Gilbert Razanfimanjato* defended his PhD thesis on Madagascar Fish Eagles in December 2011.

*Stéphanie Razakaratrio* began a DEA on nesting ecology of Bat Hawks at Tambohorano-Mandrozo Lake protected area.

*Evà Andriafanomezantsoa* completed an Engineers degree on development and implementation of the management plan at Manambolomaty Lakes Complex protected area in November 2011.

*Harinosy Ranaivoson* began a B.Sc. on traditional customs and their effects on biodiversity conservation at Tambohorano-Mandrozo Lake protected area.

*Marius Rakotondratsima* began a Ph.D. on forest fragment bird communities at Bealanana-Bemanevika protected area.

#### ▼ Neotropical Raptor Project

*Edwin Campbell* (Panama), Universidade Federal de Mato Grosso do Sul-Brazil, graduated with his M.Sc. study on Harpy Eagle movements and habitat use based on several years of data that he collected while employed on the Harpy Eagle restoration project.

*Renzo Piana* (Peru) completed field work and is writing his thesis for his Ph.D. degree at Manchester Metropolitan University, United Kingdom, with studies on diurnal raptors and Grey-backed Hawks in Northern Peru.

*Maximiliano Galmes* (Argentina) completed the third year of his Ph.D. program at Universidad Nacional del Comahue (UNCOMA), Argentina, studying Crowned Eagle ecology and conservation.

*Francisco Denes* (Brazil) began his Ph.D. program at the University of Sao Paulo-Brazil on abundance and composition of raptor communities in the Cerrado and Pantanal biomes.

*Laura Riba-Hernandez* (Costa Rica) completed field work and is writing her thesis for an M.Sc. degree, through the University of Sao Paulo, on the distribution and composition of owls along an altitudinal gradient in Costa Rica.

*Mari Cruz Jaramillo* (Ecuador) completed field work and is writing her thesis for her M.Sc. degree, through the University of Missouri Saint Louis, on the feeding ecology of the Galapagos Hawk on Santiago Island, Ecuador.

## William A. Burnham Memorial Fund

When Bill Burnham was an undergraduate student, he had the opportunity to travel to Greenland to study Peregrine Falcons and Gyrfalcons. He applied for grants and received the Frank M. Chapman Memorial Fund grant from the American Museum of Natural History



File photo

in New York City, making it possible for him to begin the work he continued in Greenland until his death, and steering him on to his Ph.D. It seems only fitting that such a fund has been established in Bill's name to help others achieve their dreams.

Throughout his life, Bill tried to make opportunities available to others who were beginning their work with birds of prey. Bill's friends established the William A. Burnham Memorial Fund in his honor and the Fund has been growing with additional donations until it is now large enough to begin providing grants for support of ornithological research. Priority for funding will be given to grants for work on birds of prey, on bird species in the Arctic, or on falconry-related topics. The work does not need to lead to an academic degree. Awards will be given up to \$5,000.

For more information about applying for a grant, or to make a contribution to the Fund, contact the William A. Burnham Memorial Fund at 5668 W. Flying Hawk Lane, Boise, Idaho 83709, or email [burnham@peregrinefund.org](mailto:burnham@peregrinefund.org). All contributions are tax deductible.



## Global Raptor Information Network

There are now photographs accompanying 266 of the species accounts and additional photo galleries for more than 100 species.

Since its public launch in 2004, the Global Raptor Information Network (GRIN) has become the most authoritative and detail-rich information portal on diurnal raptors in the world. The GRIN website provides up-to-date information on birds of prey and gives researchers access to primary literature with extended species accounts and a large searchable bibliography.

The network receives enthusiastic support from raptor researchers around the world. It is a well-established part of the infrastructure for global raptor conservation and research.

### ▼ Results

FY11 was a very successful year for the GRIN project, owing to the acquisition of the Raptor Information System (RIS) and the addition of a Library/GRIN assistant. The international stature of GRIN continued to grow, and the number of visits, page views, and hits on the website increased greatly. Efforts were focused mainly on the merger of the RIS electronic records into the GRIN bibliography and keeping pace with new literature on raptors.

### ▼ Raptor Information System

The most important event in FY11 was the acquisition of the massive U.S. Geological Survey Raptor Information System (RIS), a database with about 33,000 electronic records on raptors that has been supported since the mid-1970s by a succession of federal wildlife agencies. The RIS represented the only other comprehensive bibliographic database on raptors in existence, and subsuming it into GRIN has created a single very large and unique source that is essential for all raptor researchers.

### ▼ Website

About half of the GRIN species accounts, especially those for poorly-studied tropical species, are the most thorough treatments available online or, in many cases, in any medium. Individual GRIN species accounts and the GRIN bibliography are being increasingly cited in journal papers, and the latter source is the starting point for many researchers embarking on a new study. There are now photographs accompanying 266 of the species accounts and additional photo galleries for more than 100 species.

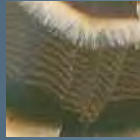
The GRIN bibliography was extended to 51,107 records by 16 September 2011, representing an addition of 8,058 records during FY11. Many existing errors and inadequate keyword strings were improved through editing in FY11, and the database is relatively free of errors by now. The RIS records proved to have very deficient or misleading keywords, and much time was spent on correcting these errors. Several weeks were spent on refining the GRIN keyword list, and dropdown lists of author and periodical names in the bibliography were added to the online search page. By mid-August, the keyword list contained nearly 15,000 terms, the periodicals list over 3,300 titles, and there were 36,600 author names, including synonyms, in the database.

GRIN received 108,000 visits and 1,036,000 hits between 1 August 2010 and 31 July 2011, representing 35% and 25% increases, respectively, from the FY10 totals. The website ranked 6th on Google for searches on the term “GRIN” by year’s end; prior to FY09, it had not come up in the top 100.

### ▼ Researcher Homepages

By the end of FY11, 365 participants, representing 79 countries, had created homepages in the GRIN researcher database. Links to more than 1,000 raptor organizations, raptor databases, hawkwatch sites, technical journals, and species-specific websites were expanded and maintained. Reciprocal links to GRIN and favorable reviews were created by numerous other organizations, including the American Ornithologists’ Union, Cornell Laboratory of Ornithology, Encyclopedia of Life, Oxford University Library, Tree of Life Web Project, and several U.S. Geological Survey websites.

Hundreds of PDFs were added to the researcher homepages and several thousand PDFs to the GRIN bibliography. These could make it possible to make the publications of all living raptor researchers available on the GRIN website, if all of them could be persuaded to create homepages.



## Raptor Conservation Genetics Research

In the past decade, we have witnessed a revolution in the ability to generate large amounts of DNA data with little effort and in the development of ways to interpret the data. In combination with field research, this work provides powerful new information and sound scientific justification for raptor conservation. It helps ensure genetic diversity of endangered, threatened, or status-unknown populations and identify instances where low genetic diversity could affect survival prospects.

### ▼ Results

In collaboration with Dr. Jeff Johnson at the University of North Texas, we completed and published in the journal PLoS ONE a study investigating Peregrine Falcon (*Falco peregrinus*) temporal genetic stability and estimates of effective population size. Using samples collected by collaborators at Padre Island, Texas, from 1985 to 2007, we genotyped between 30–40 individuals per temporal period (seven periods) to investigate levels of genetic diversity over time and estimate the effective size of the migratory population. Results will be useful for future monitoring purposes to determine the viability of the North American migratory population.

**Peregrine Falcon (*F. peregrinus*) global phylogeography project**—We obtained additional genetic data to investigate the phylogeographic structure of Peregrine Falcons throughout their global distribution. Ultimately, this dataset will provide information for subspecies and population level questions and will continue to grow as we obtain and analyze samples from additional geographic locations.

Completion will depend on successful cooperation with others and the resolving ability of our initial dataset.

**New World Vulture (Cathartidae) phylogenetic project**—We obtained samples from all representative species within this family and identified evolutionary relationships among species. Final analyses have been completed and a manuscript will be submitted.

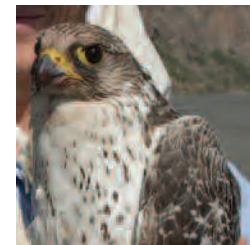
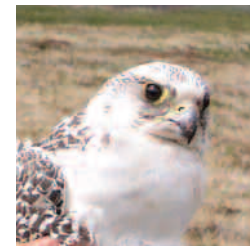
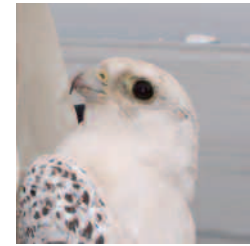
**Falcon (Falconidae) phylogenetic project**—Progress has been made in procuring additional samples to investigate the phylogenetic relationships among all falcon species. Once completed, this will be the most thorough phylogenetic study on Falconidae to date, and results will help discern relationships among species that will be useful for evolutionary-based questions and management decisions. Two additional taxonomic specific manuscripts have developed from this project; one has been published (Micrastur) and another is currently in review (Polyborinae).

**Gyr Falcon (*F. rusticolus*) genetic color plumage polymorphism project**—In collaboration with the High Arctic Institute, two

studies investigating the genetics of plumage color and the timing of breeding relative to color in Gyrfalcons were completed, and two manuscripts are currently in review for publication. These results are important to understand adaptive variation in plumages and their geographic distributions.

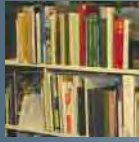
**Gyr Falcon (*F. rusticolus*) and Peregrine Falcon (*F. peregrinus*) nest site turnover project**—We are generating genotypes from samples collected between 2006–11 in Thule and Kangerlussuaq, Greenland, to identify individuals at each surveyed nest site. These data will be used in conjunction with data generated from 2002–04 field seasons to investigate turnover rates and site fidelity based questions in the two study areas.

**Gyps vulture captive breeding project**—With local collaborators, we initiated a project to obtain genetic data that will allow us to help reduce potential inbreeding effects within the captive breeding population of *Gyps* vultures in India. Genetic data has been generated and analyses conducted. We are writing the manuscript for publication.



all photos by Kurt K. Burnham

**A recent study investigates the genetics behind color variations in Gyrfalcons (top to bottom): white, silver, grey, and dark morphs.**



## Scientific Publications and Presentations



### ▼ Gyrfalcons and Ptarmigan in a Changing World: Conference Proceedings

Editors: Richard T. Watson, Tom J. Cade, Mark Fuller, Grainger Hunt, and Eugene Potapov

More than 150 scientists, students, policy-makers, and other conservationists attended our February 2011 conference to share their findings and determine what knowledge gaps remain on the complex topic of how Gyrfalcons and other arctic wildlife may be affected by climate change. The proceedings have been published in a two-volume, full-color, soft-cover set with a summary by Professor Ian Newton (a Peregrine Fund board member) and containing 73 research papers and related charts and graphs.

- Volume I is 372 pages and includes an overview of Gyrfalcons, ptarmigan, and the Arctic, as well as papers specific to North America.
- Volume II is 400 pages and includes papers specific to Greenland, Iceland, Scandinavia, and Russia; papers on related species; and monitoring and conservation strategies.

Ordering information: [www.createspace.com/3603489](http://www.createspace.com/3603489)

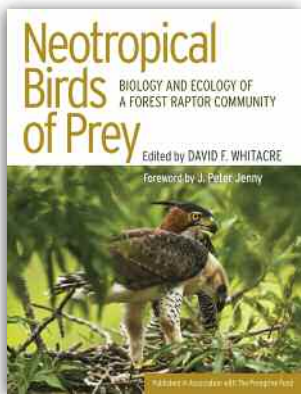
### ▼ Neotropical Birds of Prey: Biology and Ecology of a Forest Raptor Community

Edited by David F. Whitacre, Foreword by J. Peter Jenny  
Cornell University Press

Twenty previously little-studied Neotropical species—including the Ornate Hawk-Eagle, Barred Forest-Falcon, Bat Falcon, and Mexican Wood Owl—are covered in depth, with synopses of breeding biology and behavior, diet, habitat, and spatial needs. The book also shows how the bird populations fit together as a community with overlapping habitat and prey needs. The original data that resulted from our eight-year study in Tikal National Park in Guatemala offers interesting comparisons between tropical and temperate zone species and provides a basis for establishing conservation measures based on firsthand research. Beautifully illustrated with photographs, the book is an important information source on tropical forest raptors that will appeal to birdwatchers and raptor enthusiasts around the world.

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### ▼ Papers and articles authored by staff and partners

Alva, J. J., M. Saavedra, X. Arosemena, M. Calle, C. Vinueza, P.J. Jiménez, R. Carvajal, and F. H. Vargas. 2011. Distributional records and potential threats to the Common (Mangrove) Black Hawk (*Buteogallus anthracinus subtilis*) in southwestern Ecuador. *Boletín SAO* Vol. 20. Altamirano, T. A., J. T. Ibarra, F. Hernández, I. Rojas, J. Laker, and C. Bonacic. 2011. Nesting habits of birds of the Andean temperate forests of Chile. Environmental Protection Fund, Ministry of the Environment, Fauna Australis Series, Pontificia Universidad Católica de Chile.

Angulo, F., and R. Piana. 2011. Records of Semi-collared Hawk *Accipiter collaris* in northern Peru. *Cotinga* 33: 87-89.

Berry, R. 2011. Conserving the Orange-breasted Falcon: Research suggests that species rescue may be necessary to save a rare icon of the Central American rainforest. Spring/Summer issue, University of Minnesota Raptor Release.

Buechley, E. 2011. Augur Buzzard Declines at Lake Naivasha. *Swara* July: 54-56.

Burnham, K. K., and I. Newton. 2011. Seasonal movements of Gyrfalcons *Falco rusticolus* include extensive periods at sea. *Ibis* 153: 468–484.

Burnham, K. K., and W. A. Burnham. 2011. Ecology and Biology of Gyrfalcons in Greenland. In R. T. Watson, T. J. Cade, M. Fuller, and W. G. Hunt (Eds.). *Gyrfalcons and Ptarmigan in a Changing World*. The Peregrine Fund.

Burnham, K. K., W. A. Burnham, and I. Newton. 2011. Gyrfalcon (*Falco rusticolus*) Post-glacial colonization and extreme long-term use of nest sites in Greenland. In R. T. Watson, T. J. Cade, M. Fuller, and W. G. Hunt (Eds.). *Gyrfalcons and Ptarmigan in a Changing World*. The Peregrine Fund.

Cade, T. J. 2011. Biological traits of the Gyrfalcon (*Falco rusticolus*) in relation to climate change. In R. T. Watson, T. J. Cade, M. Fuller, and W. G. Hunt (Eds.). *Gyrfalcons and Ptarmigan in a Changing World*. The Peregrine Fund.

Cade, T. J., 2011. The Gyrfalcon as a companion (tail chasing can be fun too). Pages 159-175 in V. Hadaswick and K. L. Christopher, High-Flying Gyrfalcons, the guided development program. Western Sporting, Sheridan, WY.

Cade, T. J. 2011. Foreword. Pages xvii-xxiii in V. Hadaswick and K. L. Christopher, High flying Gyrfalcons, the guided development program. Western Sporting, Sheridan, WY.

Cade, T. J. 2011. Appendix I. Commentary on old and new methods to study geographic variation in the Loggerhead Shrike: Implications for subspecies taxonomy. Pages 798–816 in E. N. Panov, The true



- shrikes (*Laniidae*) of the world. Edited by T.J. Cade and C. P. Woods. Pensoft. Sophia-Moscow.
- Cade, T.M., and D. Bird, 2011. Seasonal changes in diet of Gyrfalcons nesting in Ellesmere Island and other high arctic locations. *In* R. T. Watson, T.J. Cade, M. Fuller, and W.G. Hunt (Eds.). Gyrfalcons and Ptarmigan in a Changing World. The Peregrine Fund.
- Cade, T.J., and Ó.K. Nielsen. 2011. Surveys for Gyrfalcons in the Scoresbysund region of northeast Greenland in 1999. *In* R. T. Watson, T.J. Cade, M. Fuller, and W.G. Hunt (Eds.). Gyrfalcons and Ptarmigan in a Changing World. The Peregrine Fund.
- Fessl, B., M. Dvorak, F.H. Vargas, and H. G. Young. 2011. Recent conservation efforts and identification of the critically endangered Mangrove Finch *Camarhynchus heliobates* in Galápagos. *Cotinga* 33: 27-33.
- Fuchs, J., S. Chen, J.A. Johnson, and D.P. Mindell. 2011. Pliocene diversification within the South American forest falcons (Falconidae: *Micrastur*). *Molecular Phylogenetics and Evolution* 60: 398-407.
- Hunt, W.G. 2011. Silent Alert—An appreciation of the Cooper's Hawk. *Living Bird* 30(2): 16-19.
- Hunt, W.G. 2011. Christy and the Cliff Swallow. *Birdwatching* 25(3): 32-34.
- Hunt, W.G. On being a bird in the Arctic. *In* R. T. Watson, T.J. Cade, M. Fuller, and W.G. Hunt (Eds.). Gyrfalcons and Ptarmigan in a Changing World. The Peregrine Fund.
- Johnson, J.A., and K.K. Burnham. 2011. Population differentiation and adaptive selection on plumage color distributions in Gyrfalcons. *In* R. T. Watson, T.J. Cade, M. Fuller, and W.G. Hunt (Eds.). Gyrfalcons and Ptarmigan in a Changing World. The Peregrine Fund.
- Lancaster, S., N.L. Richards, A. Gachangja, D. Ogada, M. Gudka, J.O. Lalah, M. Virani, P.O. Oteino, and D. Martins. 2011. Environmental monitoring in Kenya: preserving the biodiversity of East Africa. *Environmental Chemistry Group Bulletin* 2011(Sept): 3-9.
- Kiff, L. 2011. The Eagle Watchers: Observing and conserving raptors around the world, edited by R. E. Tingay, T.E. Katzner, K.L. Bildstein, and J. Parry-Jones. *Quarterly Review of Biology* 86:365.
- Louette, M., M. Herremans, Z. T. Nagy, L.-A. Rene de Roland, K. Jordaens, J. Van Houdt, G. Sonet, and F.C. Breman. 2011. The Frances' Sparrowhawk *Accipiter francesiae* (Aves: Accipitridae) radiation on the Comoro islands. *Bonner Zoologische Monographien* 57:133-143.
- Muela, A., M. Curti, Y. Seminario, and A. Hernandez. 2011. An incubating Orange-breasted Falcon (*Falco deiroleucus*) as a host for a vampire bat. *Journal of Raptor Research* 45(3): 277-279.
- Oaks, J.L., and R. T. Watson. 2011. South Asian Vultures in Crisis: Environmental Contamination with a Pharmaceutical. Pages 413-441 in J. Elliot et al. (Eds.). *Wildlife Ecotoxicology: Forensic Approaches*. Springer, New York, Dordrecht, Heidelberg, London.
- Ogada, D., and R. Buij. 2011. Large declines of the Hooded Vulture *Necrosyrtes monachus* across its African range. *Ostrich* 82(2): 101-113.
- Ogada, D., F. Keesing, and M. Virani. 2011. Dropping dead: Causes and consequences of vulture population declines worldwide. *Annals of the New York Academy of Sciences*: 1-15.
- Otieno, P.O., J.O. Lalah, M. Virani, I.O. Jondiko, and K.-W. Schramm. 2011. Carbofuran use and abuse in Kenya: Residues in soils, plants, water courses and the African white-backed vultures (*Gyps africanus*) found dead. *The Environmentalist* (2011) 31: 382-393.
- Palacios, D., S. Salazar, and H. Vargas. 2011. Galapagos Marine Vertebrates: Responses to environmental variability and potential impacts of climate change. Pages 69-80 in I. Larrea and G. Di Carlo (Eds.) *Galápagos Marine Vertebrates: Responses to Environmental Variability and Potential Impacts of Climate Change*. WWF, Gland, Switzerland and Conservation International, Arlington, Virginia, USA.
- Piana, R. 2011. Las rapaces diurnas del Parque Nacional Cerros de Amotape y la Reserva Nacional de Tumbes. *Boletín Informativo de la Unión de Ornitólogos del Perú*, Vol 6(1).
- Rivera, J.L., H. Vargas, and P.G. Parker. 2011. Natal Dispersal and Sociality of Young Galapagos Hawks on Santiago Island. *The Open Ornithology Journal* 2011 (4): 12-16.
- Seipke, S., F. Voeroes Dénes, F. Pallinger, R. Thorstrom, J.-M. Thiollay, L. Fábio Silveira, and W.S. Clark. 2011. Field identification of White-collared Kite *Leptodon forbesi* and similar-looking species in north-east Brazil. *Neotropical Birding* 8: 29-39.
- Seminario, Y., R. Phillips, and M. Curti. 2011. Observations of the post-fledging behavior and prey of the Solitary Eagle (*Harpyhaliaetus solitarius*). *Journal of Raptor Research* 45(3): 261-264.
- Vargas-González, J. de J., and F.H. Vargas. 2011. Nesting density of Harpy Eagles in Darien with population size estimates for Panama. *Journal of Raptor Research* 45(3): 199-210.
- Virani, M. Z., C. Kendall, P. Njoroge, and S. Thomsett. 2011. Major declines in the abundance of vultures and other scavenging raptors in and around the Masai Mara ecosystem, Kenya. *Biological Conservation* 144: 746-752.
- Voeroes Dénes, F., L. Fábio Silveira, S. Seipke, R. Thorstrom, W.S. Clark, and J.-M. Thiollay. 2011. The White-collared Kite (*Leptodon forbesi* Swann, 1922) and a review of the taxonomy of the Grey-headed kite (*Leptodon cayanensis* Latham, 1790). *Wilson Journal of Ornithology* 123(2): 323-331.
- Watson, R. T. 2010. Lead fragments from spent ammunition in hunter-killed game animals: the source of lead exposure and its effects in California Condors. Pages 86-97 in O. Krone, Lead intoxication in birds of prey: causes, experiences, potential solutions. The White-tailed Sea Eagle as indicator. Leibniz-Institut für Zoo- und Wildtierforschung (IZW), Berlin, Germany.
- Watson, R. T. 2010. Primary prevention of lead exposure from ingested spent Ammunition: solutions on behalf of California Condors and human health. Pages 114-121 in O. Krone, Lead intoxication in birds of prey: causes, experiences, potential solutions. The White-tailed Sea Eagle as indicator. Leibniz-Institut für Zoo- und Wildtierforschung (IZW), Berlin, Germany.
- Watson, R. T., T.J. Cade, M. Fuller, and W.G. Hunt (Eds.). 2011. Gyrfalcons and Ptarmigan in a Changing World. Volumes I and II. The Peregrine Fund.

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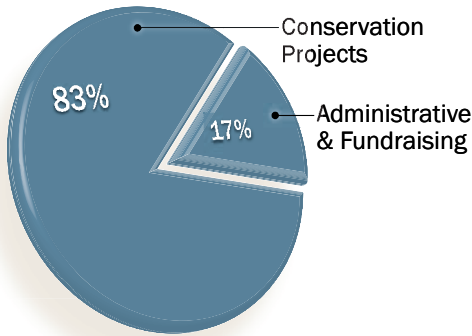
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Bruce Parks

Following in her father's footsteps, Kathy Belknap now volunteers at the World Center for Birds of Prey. Bill Belknap holds Gus, a Peregrine Falcon.

## What is a legacy?

Bill Belknap is a lifelong naturalist: biologist, aviculturist, retired college professor, rancher, grandfather, and docent at the World Center for Birds of Prey.

**"The greatest legacy I could leave would be to educate people about how these animals have a place with us, that these birds do a lot of good."**

We congratulate Bill on joining our new Legacy Circle, an exclusive group of donors who commit to supporting The Peregrine Fund's mission beyond their lifetimes. His investment, and yours, is deeply appreciated now and far into the future.

Legacy Circle members commit to make a contribution to The Peregrine Fund by bequest or other planned gift from their estate. They may direct whether their gift is unrestricted, or for the education program or Archives of Falconry.

In appreciation for this commitment, members of the Legacy Circle are:

- Provided a beautiful engraved paperweight.
- Invited to participate in an annual telephone call with leaders of The Peregrine Fund.
- Publicly recognized, if they choose, with a plaque or other permanent recognition at The Peregrine Fund headquarters in Boise.
- Named (except those who wish to be anonymous) in our annual report, on our website, and in other publications.
- Invited to our special events.

To join the Legacy Circle or learn more, contact us at [legacycircle@peregrinefund.org](mailto:legacycircle@peregrinefund.org) or 208-362-3716.

## Legacy Circle



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Joell Brown  
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(Lova)  
Lily-Arison Rene de  
Roland  
Seing T. Sam  
Gilbert Tohaky  
Soalihy Tongamoelinakily

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Emily Anderson  
Michelle Axtell  
Dylan Baker  
Kim Barden  
Bill Belknap  
Anne Blair  
Maud Bolstad  
Jill Bragdon  
Christa Braun  
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Kathryn Hampton  
Lisa Hatch  
Bonnie Helzer  
Kathryn Hobson

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Kathleen Orlenko  
John Swift  
Vicki Swift  
H. W. "Dick" ten Bosch  
James Thomas  
Nick Vanhole

### California Condor

Dorothy Tinkler, Ph.D.

### Asian Vulture Crisis Project

Patrick Benson

### East Africa Project

Shiv Kapila  
Hetal Patel

## In memory



### Patricia A. Disney

Former Peregrine Fund board member Patricia Disney, 77, died of Alzheimer's disease on 3 February 2012 in her Los Angeles home. She served on the board with her former husband, Roy E. Disney, from 1988 to 2008.

She was vice chairman of Shamrock Holdings, the investment company for the Roy Disney family. In addition to her interest in birds of prey, Patty was an advocate for higher education. She was a regent of St. Mary's College in Moraga, California, and a trustee of Occidental College in Los Angeles.

She is survived by four children and 17 grandchildren.

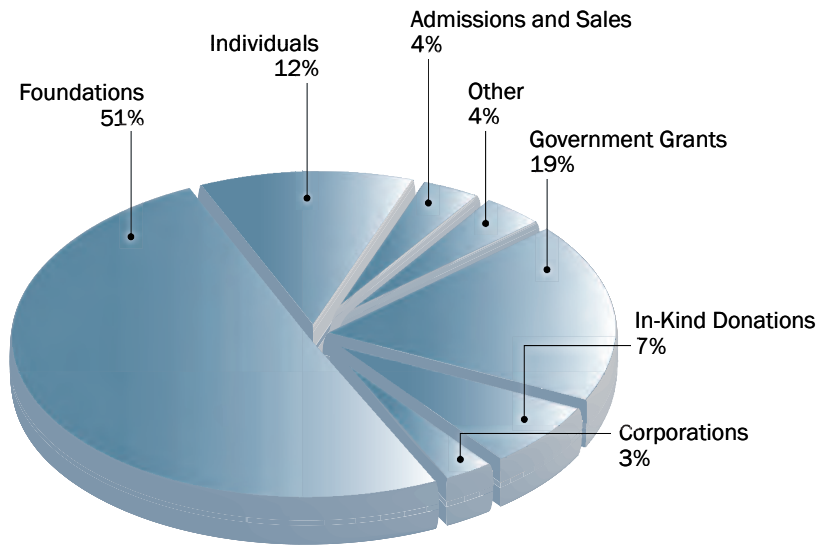


### James L. Willmarth

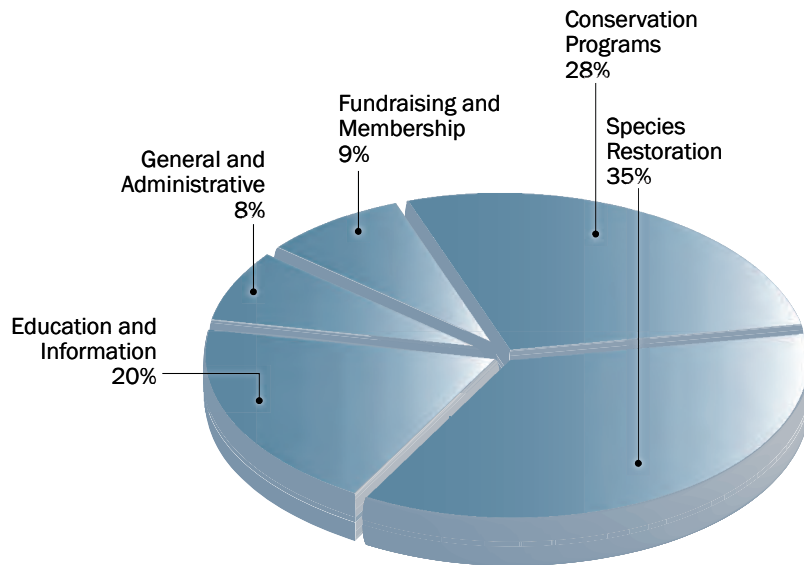
Veteran employee Jim Willmarth died 13 April 2011 of pancreatic cancer in his home at the World Center for Birds of Prey. At the time of his death, he was Curator of Birds at the Velma Morrison Interpretive Center, one of many jobs Jim performed with exceptional skill during his 30-year career with The Peregrine Fund.

Jim began his career watching over Peregrine Falcon chicks released to the wild at one of the earliest hack sites in Grand Teton National Park. In 1984, he helped construct breeding facilities at the newly established World Center for Birds of Prey. Through the years, Jim traveled around the world to work with a variety of raptors, including vultures, Gyrfalcons, Cape Verde Red Kites, and California Condors.

Jim was an amazing falconer, adept at capturing and handling birds of prey, and generous with his knowledge and passion for birds. He is survived by his mother, five siblings, and a nephew.



**Operating Revenues** (excluding endowment)



**Operating Expenses**

**STATEMENT OF FINANCIAL POSITION**

AT SEPTEMBER 30

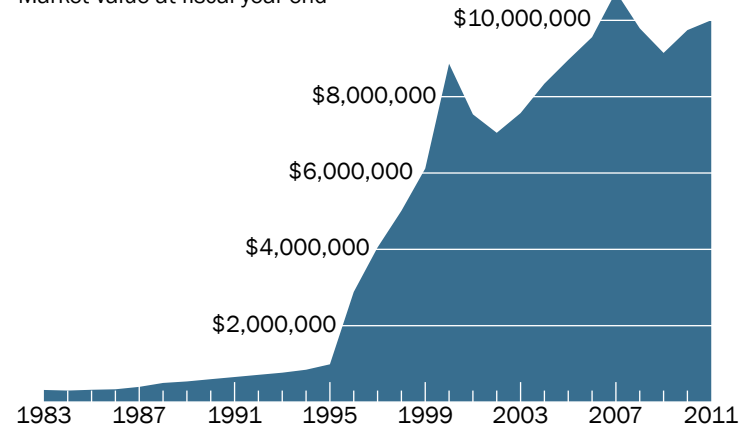
Assets	2011	2010
Cash and cash equivalents	\$ 1,322,262	\$ 1,229,452
Grants receivable	258,730	102,654
Pledges and other receivables	456,188	1,026,264
Inventory, prepaids, and other assets	125,399	107,114
Property and equipment (net of depreciation)	4,825,453	5,137,284
Archives collection	2,307,103	2,276,960
Endowment assets	9,964,306	9,702,738
<b>TOTAL ASSETS</b>	<b>\$19,259,441</b>	<b>\$19,582,466</b>

Liabilities and Net Assets	2011	2010
<b>LIABILITIES</b>		
Accounts payable	\$ 64,117	\$ 65,829
Accrued taxes and expenses	50,610	28,832
Deferred revenue	9,567	30,683
<b>TOTAL LIABILITIES</b>	<b>124,294</b>	<b>125,344</b>
<b>NET ASSETS</b>		
Unrestricted	\$17,732,890	\$17,705,367
Temporarily restricted	1,402,257	1,751,755
<b>TOTAL NET ASSETS</b>	<b>19,135,147</b>	<b>19,457,122</b>
<b>TOTAL LIABILITIES AND NET ASSETS</b>	<b>\$19,259,441</b>	<b>\$19,582,466</b>

**Endowment assets**

Market value at fiscal year-end



The Board of Directors established an endowment fund during fiscal year 1983 to help ensure the financial future of the Fund. A policy, established by the Board of Directors, allows The Peregrine Fund to use a portion of the endowment fund's market value towards operating expenses. The amount withdrawn for fiscal year 2011 was \$465,400.

## STATEMENT OF ACTIVITIES

FOR THE YEAR ENDED SEPTEMBER 30, 2011, WITH COMPARATIVE TOTALS FOR 2010

### UNRESTRICTED OPERATIONS

Revenues	2011 Total	2010 Total
Contributions utilized (note 1)	\$3,778,693	\$3,465,502
Government grants	972,492	631,195
In-kind revenues	385,639	270,368
Admissions and sales	210,837	185,714
Endowment funds utilized	465,400	413,300
Special Event	175,064	—
Other	23,151	46,488
<b>Total unrestricted revenues, gains, and other support</b>	<b>\$6,011,276</b>	<b>\$5,012,567</b>
Expenses		
<b>PROGRAM EXPENSES</b>		
Species restoration	\$2,144,685	\$1,986,506
Conservation programs	1,670,386	1,294,653
Education/information	1,177,342	891,784
<b>Total program expenses</b>	<b>4,992,413</b>	<b>4,172,943</b>
<b>SUPPORT SERVICES EXPENSES</b>		
Administration	\$ 466,190	\$ 381,863
Fundraising	390,164	378,773
Membership	122,286	75,426
<b>Total support services expenses</b>	<b>978,640</b>	<b>836,062</b>
Total expenses—operations	5,971,053	5,009,005
<b>OPERATING REVENUES OVER OPERATING EXPENSES</b>	<b>\$ 40,223</b>	<b>\$ 3,562</b>

### NON-OPERATING ACTIVITIES

Capital	2011 Total	2010 Total
Contributions utilized to purchase fixed assets	38,652	74,620
Restricted contributions utilized—Condor Exhibit	—	220,988
Depreciation on Fixed Assets	(320,307)	(338,005)
Loss on asset disposition	(33)	(7,757)
<b>Endowment</b>		
Bequests and endowments	215,191	98,092
Investment income (loss)	509,052	893,174
Endowment funds utilized	(465,400)	(413,300)
<b>Pledges and contributions designated for future years</b>		
Pledges and contributions	344,153	99,058
Prior year's revenue used in current year	(683,506)	(1,000,926)
<b>TOTAL NON-OPERATING ACTIVITIES</b>	<b>(362,198)</b>	<b>(374,056)</b>
Increase (decrease) in net assets	(321,975)	(370,494)
Net assets at beginning of year	19,457,122	19,827,616
Net assets at end of year	\$19,135,147	\$19,457,122

Note 1—Contributions utilized in 2011 includes current year contributions of \$3,095,187, and prior years' contributions released from restrictions of \$683,506.

The financial results depicted are derived from The Peregrine Fund's audited September 30, 2011 financial statements, which contain an unqualified opinion. The complete audited financial statements can be obtained by contacting The Peregrine Fund, Administrator, 5668 W Flying Hawk Lane, Boise, Idaho 83709.



The Peregrine Fund participates in EarthShare and the Combined Federal Campaign. Workplace giving simplifies your record-keeping, and many employers will match your donation!

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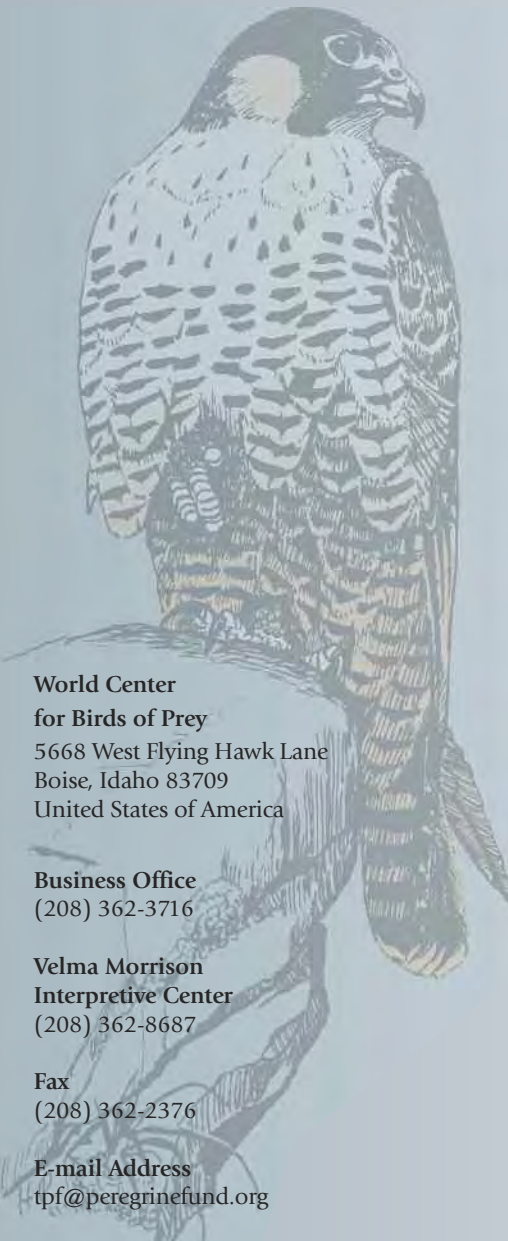
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