THE PEREGRINE FUND WORLD CENTER FOR BIRDS OF PREY

ANNUAL REPORT · 2006

Working to Conserve Birds of Prey in Nature

THE PEREGRINE FUND . WORLD CENTER FOR BIRDS OF PREY

Letter from the President
Northern Aplomado Falcon Restoration
California Condor Program
Captive Breeding at the World Center for Birds of Prey
Research Library and Global Raptor Information Network
The Archives of Falconry
Student Education
Education Program
Arctic Program

Neotropical Raptor Conservation Program14	4
Harpy Eagle Conservation and Research	5
Neotropical Environmental Education	3
Orange-breasted Falcon Project	С
West Indies Project	2

Pan Africa Raptor Conservation Program	4
East Africa Project	5
Madagascar Project	8

Asia-Pacific Raptor Conservation Program)
Asian Vulture Crisis Project	

Donors	33
Financials	37

THE PEREGRINE FUND STAFF

The organization's business-related activities are supported by Pat Burnham (Administrator), Cindy Thiel, and Donna Daniels (Bookkeepers), and Sherri Haley (Secretary/Receptionist). Linda Behrman is our Membership Director and manages our web site. Joell Brown coordinates our fund raising activities. Amy Siedenstrang is our art director.

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LETTER FROM THE PRESIDENT



scal year 2006 was marked by transitions—in November, I was honored to accept the position as President of The Peregrine Fund. My association with the organization began in 1970 when I accompanied founding Director Bob Berry to the eastern Canadian arctic to collect some of the first Peregrine Falcons to be used for captive breeding. In 1977 I manned one of the early Peregrine release sites on the Susquehanna River in Pennsylvania and contributed captive-bred falcons to the recovery effort during the 1980s. Later, I pioneered The Peregrine Fund's involvement in the Neotropics with early research on the Orange-breasted Falcon and subsequently co-founded the Maya Project in Guatemala, Belize, and Mexico with Bill Burnham. A staunch advocate of private sector participation in species restoration efforts, I have been highly involved in the development and implementation of a Safe Harbor Program to facilitate the recovery of the Aplomado Falcon on private property in Texas. I had the pleasure of serving as a Vice President of The Peregrine Fund from 1988 through 2006 and as the Director of Development from 2004.

When my friend and associate Bill Burnham was diagnosed with cancer, it was a tribute to his leadership as President to see the staff carry on with confidence. Bill left behind a supportive Board of Directors and a highly capable staff with the initiative and talent to forge ahead to achieve the goals of our organization.

Last year was marked by important transitions in our projects as well:

- After our research determined that the drug diclofenac was inadvertently responsible for the massive die-off of Asian *Gyps* vultures, we worked hard to see the drug banned in three countries and now look forward to providing expertise to local efforts to rebuild these populations. Published in the journal Nature, our research represented the first documented case of a pharmaceutical contaminant causing the near extinction of several wildlife species.
- Another contaminant, lead, remains a major threat to our California Condor release efforts in Arizona and Utah. We are searching for realistic and effective ways to reduce lead exposure from spent ammunition, not only for the California Condor and other wildlife species, but for people as well.
- A self-sustaining population of Aplomado Falcons appears to have been successfully re-established in South Texas and releases in West Texas are progressing well. Last spring we celebrated the first release of Aplomado Falcons in New Mexico under an experimental and non-essential designation following more than a decade of consultation with diverse interests.
- In Panama, the captive-breeding phase of our Harpy Eagle program has reached a successful conclusion. Our focus is now on how best to establish breeding pairs of Harpy Eagles in habitats where they have been lost.

Like the raptors we so admire, our ability to thrive as an organization depends on how well we adapt to change. With your partnership, we are doing just that by meeting the inevitable challenges with resolve and optimism. Thank you for your support.

Best Regards . Peter Jenny

President and CEO

NORTHERN APLOMADO FALCON RESTORATION

GOAL Establish a self sustaining population of Aplomado Falcons in the southwestern United States and Northern Mexico through captive propagation, release, and management with the ultimate goal of removing the species from the Endangered Species List.



The northern Aplomado Falcon (*Falco femoralis septentrionalis*) is fast and nimble, and quite equal to the aerial excellence of its famous cousins, the Peregrine and Merlin. The Aplomado diet consists of smallto medium-sized grassland birds like sparrows and doves, the falcons attacking them from standing starts atop yuccas and other savanna perches and pursuing them high in the air and from great distances. The thrill of these chases and that of watching nesting pairs of Aplomados drive away larger intruding raptors has given the Aplomado a superstar reputation in recent years.

Aplomados were once widespread in the American Southwest, from southern Texas to eastern Arizona, but by mid-century, their known northern range was restricted to eastern coastal Mexico and a few other areas in that country, including a small portion of eastern Chihuahua. Biologists have offered a long list of possible reasons for the decline, but all agree that the vegetational transformations that followed the Spanish invasion and the grazing excesses of the late 1800s played important roles. The last known U.S. pairs were near Brownsville, Texas, in 1946 and Deming, New Mexico, in 1952. Full-scale restoration began in the 1990s when The Peregrine Fund began breeding Aplomados in captivity and releasing them in southern Texas. By the early 2000s, a wild-breeding population of about 40 territorial pairs had arisen from these efforts. The organization has more recently begun a program to reestablish the species in western Texas and southern New Mexico.

RESULTS

The Peregrine Fund decided two years ago that sufficient numbers of Aplomados existed in southern Texas and that further releases were unnecessary. Two distinct areas of population now exist, one centering on the Laguna Atascosa Wildlife Area near Brownsville and the other at Matagorda Island near Rockport. The former, containing the largest number of breeding pairs, supports a variety of nesting trees in the form of large yuccas, mesquites, and hackberry. Matagorda Island, with few trees, requires the falcons to nest in low bushes, vulnerable to ground predators such as raccoons. The Peregrine Fund solved this problem by supplying each of 13 falcon territories with a nest box, set upon a pole. The falcons readily took the offer, and their annual nest success quickly doubled. We offered similar boxes to some unlucky pairs at Laguna Atascosa whose tree nests had been earlier plundered by Great Horned Owls. Again, the



boxes improved nesting success. In 2006, the known population in South Texas produced 56 young. Because falcons produced by wild pairs have tended to survive at much higher rates than those released as captive-bred young, this healthy rate of wild production has come to match or even exceed our greatest efforts during the era of releases. There are likely more Aplomado Falcons in southern Texas than our surveys indicate due to inaccessible habitat.

The 48 pairs of Aplomado Falcons at The Peregrine Fund's captive breeding facility in Boise, Idaho, produced 132 young in 2006, all of which survived to release age. Six were retained for captive breeding, and 115 were set free in West Texas on a series of eight Safe Harbor ranches. Safe Harbor is an agreement between The Peregrine Fund and landowners whereby the latter are exempted from Endangered Species regulations. In 2006, we enrolled another 292,392 acres in the Safe Harbor Program. We released an additional 11 falcons in New Mexico under the 10(j) provision of the Endangered Species Act that likewise regards the reintroduced population as experimental. Owners and ranch managers in both states have been enthusiastic and helpful with the release program.

Predation by Great Horned Owls and coyotes was again the primary factor affecting the survival of the young falcons in West Texas, and just over half reached independence. Subsequent sightings of Aplomados over the remainder of the year revealed several immature pairs, and we look forward to the possibility of first reproduction in 2007. One male Aplomado treated us to a display of truly spectacular flying after he spotted high-flying northbound migrant songbirds on their spring return from Latin America, and he demonstrated extreme speed and agility in pursuit of these feathered morsels. Such wonders were celebrated in our May 2006 article in Natural History magazine.



The Armendaris Ranch was the site of an Aplomado release in New Mexico, a new region for reintroduction. Tom Waddell, the ranch manager, has been particularly attentive in observing the behavior of the young falcons throughout the year. Tom has reported an extraordinarily high survival rate and some interesting observations of Aplomados interacting with each other and other species such as Golden Eagles and Red-tailed Hawks. An apparent pair in association with a nest appears to have formed at least a year ahead of schedule.

We continue to monitor a small population of Aplomados in Chihuahua where we located 25 pairs in 2006, up from the 20 pairs observed in 2005. Long-term observations of that population by Angel Montova and associate Roberto Rodriguez showed a decrease in the number of pairs holding territories during the long drought of the 1990s and early 2000s. The well-being of nesting Aplomados is highly dependent on rainfall producing seeds and insects for prey birds, including local nesters and migrants from the northern Great Plains. These species rapidly responded to increased precipitation, and the falcons likewise enjoyed higher nesting success. Of new concern for the Aplomado population in Chihuahua is that grasslands in some areas are being converted to agricultural fields.

FUTURE PLANS

During 2007, we hope to produce 110-150 falcons for release in Texas and New Mexico and will expand the number of release sites in the latter region. We will work with private landowners to incorporate additional release areas into the Safe Harbor Program. We will continue monitoring Aplomado populations in southern Texas and Chihuahua and will conduct our first survey in western Texas. We plan to complete our analysis of grassland bird data from Chihuahua and will publish the results. We will continue our collaboration with Miguel Mora of the U.S. Geological Survey in monitoring contaminants throughout the Aplomado's northern range.

Left: Ranchers Bill Miller from Miller Ranches, Jon Means from Moon Ranch, and Robert L. Cook, Texas Parks and Wildlife Department Executive Director, carry young Aplomados to a release site.

Aplomado chicks await release.

STAFF

Director, Peter Jenny; Coordinator, Bill Heinrich; Captive Breeding, Cal Sandfort, Emma Christensen, and Travis Rosenberry; Field, Brian Mutch, Angel Montoya, Paul Juergens, Christina Kleberg, and Erin Gott; and Senior Scientist, Grainger Hunt.

HACK SITE ATTENDANTS

Aaron Allred, Alicia Arcidiacono, Kevin Cassel, Therese Catanach, John Coffman, Katherine DeGroot, Juliana Doherty, Sariah Doherty, Stephanie Dunham, Thomas Hayes, Steffani Jijon, Lauren McGough, Cyrus Mogtaderi, Margaret Noonan, Richard Owens, Hazel Reynolds, Adam Rose, Heidi Walkling, and Forest Wooten.

COOPERATORS

Providing essential financial and/or logistical support were the Lee and Ramona Bass Foundation, the U.S. Fish and Wildlife Service, the U.S. Fish and Wildlife Service Private Stewardship Program. The Meadows Foundation, Robert J. and Helen C. Kleberg Foundation, Ruth O'Donnell Mutch. The Turner Foundation. Inc., Exxon-Mobil Foundation, Edward W. Rose III Family Fund of The Dallas Foundation, Brad Kelley, Tim and Karen Hixon and the Tim and Karen Hixon Foundation, Texas Parks and Wildlife Department, Burlington Resources. The Tapeats Fund, Marilyn and John Bicking, Joan and Herb Kelleher Foundation, the Herrmann Family Charitable Foundation, and the Texas Hawking Association.

CALIFORNIA CONDOR PROGRAM

GOAL Establish selfsustaining wild populations of California Condors through captive propagation, release, and management with the ultimate goal of removing the species from the Endangered Species List.

o one in the 1980s could say for sure why California Condors were spiraling toward extinction. A long-term shift in the demographic balance was leaving fewer individuals in the wild each year. Birds went missing, but without radio-telemetry to locate them, few fatalities could be diagnosed. Later, with the application of tracking radios, lead poisoning was implicated in several cases, but not enough to confirm lead as the primary factor in the decline. Then, with only 22 birds remaining in existence, the entire population was brought into captivity. There it flourished in the hands of captive breeders in California and Idaho, and by 1996 The Peregrine Fund had enough young condors to begin releasing them to the wild. First choice for an experimental population was the vast, rugged, remote landscape of northern Arizona with its sea of air currents for soaring, stupendous cliffs for nesting, and copious food in the form of wild and domestic carrion. The released condors quickly took to that vast country, and by 2003 the population had produced its first wild offspring in the depths of the Grand Canyon.

In 2006, 57 individuals comprised the free-ranging population in Arizona, including four young from wild nests. Meanwhile, data from a variety of field and laboratory studies have identified lead poisoning from gun-killed animals as the primary impediment to the establishment of a self-sustaining condor population. The Arizona Game and Fish Department responded in the spirit of its long-recognized excellence in conservation by instituting a voluntary non-lead bullet program for hunters in the condors' range in Arizona.

RESULTS

Fourteen pairs of captive condors at The Peregrine Fund's breeding facility in Boise produced nine young in 2006. Rather than encouraging condors to lay more eggs, as in the past, emphasis this year was on producing parent-reared young in the hope they would be better suited for release. The captive flock unexpectedly suffered its first fatalities from West Nile Virus, an event leading to improvements to the vaccination and evaluation program. We released six of 11 captive-bred young available from earlier years and continued our ongoing program of providing contaminant-free food every three days at the release site. We aggressively hazed newly-released young condors away from unsafe roosts to avoid coyote predation and have lost no birds to this mortality agent since we began using the technique in 2002.

Thus far, four of the eight wild condor pairs in Arizona have produced five young. However, none of the three pairs that nested in 2006 were successful. Lead poisoning afflicted one pair member during incubation, requiring his capture and treatment. His mate, female Condor 119, subsequently abandoned the nest, and later died of lead poisoning. The two other pairs, both relatively new at breeding, failed to hatch their eggs, as first- and second-time breeders often do.

Our staff of 11 biologists and field workers tracked the daily movements and activities of condors throughout the year. As the number of free-flying birds has increased and ground tracking has become more difficult, we made good use of the excellent satellite-reporting GPS transmitters supplied by the Arizona Game and Fish Department. These transmitters are lighter in weight than conventional transmitters and substitute nicely for them without change to the normal attachment configuration. The transmitters send hourly messages to orbiting satellite arrays that report the locations of condors within 50 yards of their true positions. Every morning we acquire these locations from the internet and transfer them to computerized topographical maps. The information is immediately transmitted to the field



crew who use it to maximize the efficiency of the day's tracking strategy. The transmitters have been especially valuable in revealing locations of condor concentrations and prolonged activity in difficult-to-access canyon regions, especially in the remote areas of southwestern Utah. We use the transmitters to locate breeding pairs and areas of foraging, especially in relation to lead exposure.

The number of condors involved in courtship, pair formation, and breeding has increased with the number of mature, experienced birds. Condors are extending the length of time they spend in areas away from the release site, and are ever more proficient in finding carrion. A number of birds traveled in summer 2006 to Utah to reside in the hills just outside Zion National Park, but in winter, the birds returned to the area of the release site where food was always available.

The Peregrine Fund continues to focus on lead exposure detection and treatment as an essential element in maintaining the population. As in the past, we tested all free-ranging condors one or more times during 2006. Indications of lead exposure prior to the fall deer-hunting season were unremarkable, but after hunting began in late October, some 95% of the population showed evidence of exposure, 70% required treatment, and four birds died of lead poisoning. Four showed metal fragments in x-rays of their digestive systems. Close tracking of condor movements revealed that snow in the higher elevations had concentrated deer and condors on the western edge of the Kaibab Plateau, a circumstance that at least partly explained the high rates of lead exposure we observed in



2006. These exposures occurred despite the voluntary non-lead bullet program that reduced overall lead availability by 50% in the area, an estimate supported by data we obtained in the field.

Overall, the acceptance by hunters of non-lead ammunition during the two years of the program has been very encouraging. Most of the hunters we spoke with were enthusiastic both about the condor restoration program and about using copper bullets, and most said they would use them again. A questionnaire sent to hunters by the Arizona Game and Fish Department revealed that 90% who used the non-lead bullets regarded them "...as good as or superior" to lead ammunition. We think that the only thing slowing hunter acceptance of copper bullets is their access to information; also, there is a different set of hunters to inform each year about the danger of lead ammunition to condors and humans alike. The Arizona Game and Fish Department is in the process of

> increasing its outreach to hunters through educational materials.

FUTURE PLANS

The Peregrine Fund's first task is to produce young condors at our captive breeding facility in Boise for release to the wild. We will continue this program until we have established a selfsustaining wild population. We will closely monitor the free-ranging flock in Arizona and Utah, with special



concern for identifying mortality factors and minimizing their impact. Chief among these is residual lead in the remains of gun-killed animals, so we will continue working with the Arizona Game and Fish Department to increase public awareness about the condor program and the excellent alternatives to lead hunting ammunition now available. There is certain immediacy to these efforts because, as the population ages and more breeding pairs disperse throughout the Southwest, it will become increasingly difficult to capture, test, and treat the population for lead exposure. In May 2008, The Peregrine Fund will host an international scientific conference in Boise on the implications for wildlife and humans of ingesting spent lead ammunition. We will gather additional field data for analysis and publication in the conference proceedings. Left: A young California Condor.

Below: Field crew member Frank Nebenburgh examines the remains of a Condor meal.

Species Restoration Coordinator, Bill Heinrich; Field Director, Chris Parish; Captive Breeding, Randy Townsend assisted by Meagan Kaiser and Joe Burke; Release Manager, Thom Lord; Research, Grainger Hunt; Research Associates, Kurt Burnham and Brian Mutch; Field crew, Roger Benefield, Edward Feltes, Rob Gay, Tim Hauck, Marti Jenkins, Justin Jones, Frank Nebenburgh, Eric Weis, and Jim Willmarth.

COOPERATORS

STAFF

The Arizona reintroduction program is a joint project among The Peregrine Fund, Arizona Game and Fish Department, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, Utah Division of Wildlife Resources, Southern Utah's Coalition of Resources and Economics, and numerous other partners.

Funding and other support for the project was provided by the U.S. Fish and Wildlife Service, Liz Claiborne and Art Ortenberg Foundation, Nina Mason Pulliam Charitable Trust, The Kearny Alliance, Grand Canyon Conservation Fund, Conni Williams, Arizona Game and Fish Department, Patagonia, Earth Friends Wildlife Foundation, The Philadelphia Foundation, Norm Freeman, Salt River Project, the Arizona Strip Bureau of Land Management, the Phoenix Zoo, and the Lowry Park Zoo of Tampa Bay.

Tourists view a soaring California Condor at Lookout Studio on the Grand Canyon's South Rim.

CAPTIVE BREEDING AT THE WORLD CENTER FOR BIRDS OF PREY

APLOMADO FALCON RESULTS

Total Females

Laying/Laying

In 2006, the Aplomado Falcon restoration program had 37 Aplomado Falcons lay 280 eggs, of which 157 (56%) were fertile. One hundred thirty-two eggs (84%) hatched and all the chicks survived to release age. Three of the ovulating falcons were first-time layers. No nutritional or disease-related problems occurred. The table below compares 2006 production with previous years.

Young

number of the best possible physically, behaviorally, and genetically constit

raptors for release

GOAL Propagate the required

	Year	Laying/Laying Fertile Eggs	Total Eggs Laid	Fertile Eggs	Young Hatched	Young Survived
,	2001	32/27	284	170 (60%)	131 (77%)	129 (98%)
uted	2002	35/32	281	162 (58%)	124 (77%)	120 (97%)
to	2003*	34/24	297	111 (37%)	93 (84%)	90 (97%)
10	2004	35/29	286	151 (53%)	120 (79%)	117 (97%)
	2005	36/33	309	172 (56%)	141 (82%)	140 (99%)
	2006	37/33	280	157 (56%)	132 (84%)	132(100%)
	Total	NA	1,737	923 (54%)	741 (80%)	728 (98%)



STAFF

the wild.

Captive propagation at the World Center is accomplished by Cal Sandfort (Aplomado Falcons) and Randy Townsend (California Condors) with assistance from Joe Burke, Emma Christensen, Meagan Kaiser, and Travis Rosenberry. Food production is accomplished by Amel Mustic, David Cline, and John Neilson. Facility maintenance is under the direction of Sam Davila

CALIFORNIA CONDOR RESULTS

* Production decreased because of financial donation shortfall

Fourteen condors at the World Center for Birds of Prey laid 14 eggs of which 14 (100%) were fertile and 14 (100%) hatched with nine chicks surviving (see table). Two eggs were transferred to the San Diego Wild Animal Park where they hatched and are being raised for release in Baja, Mexico.

West Nile Virus (WNV) arrived in the Boise area for the first time, resulting in the deaths of two adult females that had been vaccinated in 2003 and five chicks that had not yet been vaccinated. We will maintain an aggressive mosquito abatement program and refine our WNV vaccination and evaluation program in future years. As of mid-December 2006, the world California Condor population totaled 284 birds. Of those, 148 were in

captivity; the wild population included 61 in Arizona, 63 in California, and 12 in Baja, Mexico.

COOPERATORS

Maior financial assistance for California Condor propagation is provided by the U.S. Fish and Wildlife Service. Financial support for Aplomado Falcon propagation is listed within that project report. Pathology and veterinarian support are provided by Meridian Veterinary Clinic (Scott Higer), the Zoological Society of San Diego (Bruce Rideout), Washington State University (Lindsay Oaks), the Idaho Department of Fish and Game. Wildlife Health Labora tory, Caine Veterinary Teaching Laboratory, and The Raptor Center (Pat Redig).

Year	Total Females Laying/Laying Fertile Eggs	Total Eggs Laid	Fertile Eggs	Young Hatched	Young Survived
1995	2/0	4	0 (0%)	—	—
1996	5/1	8	1 (13%)	1(100%)	1 (100%)
1997	8/2	9	2 (22%)	1 (50%)	1 (100%)
1998	9/4	14	6 (43%)	6(100%)	6 (100%)
1999	11/4	17	5 (29%)	4 (80%)	4 (100%)
2000	19/7	26	8 (31%)	7 (88%)	7 (100%)
2001	17/10	21	15 (71%)	13 (87%)	13 (100%)
2002	17/8	19	11 (58%)	8 (73%)	8 (100%)
2003	19/15	23	17 (74%)	13 (76%)	13 (100%)
2004	18/14	29	22 (76%)	17 (77%)	15 (94%)
2005	18/16	28	23 (82%)	20 (87%)	20 (100%)
2006	14/14	14	14(100%)	14(100%)	9 (64%)
Total	NA	212	124 (58%)	104 (84%)	97 (93%)



RESEARCH LIBRARY AND GLOBAL RAPTOR INFORMATION NETWORK

GOAL Establish and maintain a comprehensive ornithological and conservation biology research library related to the mission of the organization and of major importance to the entire conservation community.

STAFF

The library is supervised by Llovd Kiff, who is ably assisted by Travis Rosenberry, Leah Dunn, and Sylvia Copeland. Leslie Jonart made important contributions in 2006. Six volunteers generously contributed their time and companionship to the library effort during 2006.

COOPERATORS

Pat Benson, Steve Bouffard, lack Clinton-Eitniear. Charles Collins, Colorado Division of Wildlife, James Dinsmore, Hungarian Institute of Ornithology, Roy Johnson and Lois Haight, Kirtland Bird Club MI Murdock Charitable Trust, New Hampshire Audubon, Leonard Peyton, Pew Charitable Trusts, Maggie Sacher. Santa Cruz Predatory Bird Research Group, John Schmitt, Richard Thorsell, Ruth Tingay, USFWS Patuxent Wildlife Research Center, USGS PWRC-Beltsville Lab. and Brian Walton, Please visit our web site at www.peregrinefund.org for a listing of additional donors.

Our Research Library is a significant international conservation resource, housing one of the largest collections in North America of publications on birds and related natural history topics. Initiated in 1994 to fill staff needs, it has grown to become an invaluable resource to raptor researchers and others around the world. Library resources are made available through our Global Raptor Information Network (GRIN). GRIN is a web-based tool that includes a comprehensive database on the distribution and population status of diurnal raptors, handbook-style species accounts, a large searchable bibliography, homepages for raptor researchers, a "Recent Raptor News" section, and links to numerous other related web sites. In addition to GRIN, we maintain a searchable library catalog, reprints catalog, and journal inventory on The Peregrine Fund web site and e-mail free pdf copies of articles to researchers anywhere in the world.

RESULTS

Library assistant Travis Rosenberry e-mailed free pdf copies of 903 articles to 276 off-site researchers. Since the inception of this service in late 2002, Travis has responded to requests from researchers representing 51 foreign countries and 31 states.

By the end of 2006, our library had received donations of 39 libraries valued at \$1,000 or more. The library contained about 19,000 titles, mostly on birds, and partial or complete runs of nearly 1,400 journal and magazine titles. The cataloged reprint collection included over 18,000 records, with at least another 12,000 awaiting cataloging. We receive 196 technical research journals, 37 conservation magazines, and 106 newsletters by subscription or exchange.

In 2006, over \$101,000 in library items were received from 18 individual donors. Two particularly large and important libraries were received from Ronald Ryder, Emeritus Professor at Colorado State University, and from Alice Tym, who donated the library of her late father, Ferdinand Luthy. Dr. Ryder's holdings included important government reports, unpublished manuscripts, and theses and dissertations of his former students, which were new to our library. The Luthy library added many important travel and exploration books, as well as older books on North American birds.

FUTURE PLANS

We expect the Research Library and GRIN to continue to grow in size, usage, and global significance. Because our unique service of supplying pdfs by e-mail is easy and free, we are expediting raptor research and conservation around the world.

A surprising outcome has been the number of donations of books and reprints to the library from grateful recipients of our service. Although many libraries today replace books and journal runs with digital versions, we preserve paper copies of as much of the relevant conservation literature as possible (for archival purposes) even though we share the contents electronically. We welcome donations to the library, all of which are tax deductible.

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THE ARCHIVES OF FALCONRY

GOAL Collect and conserve evidence of the history of falconry worldwide and document the role of falconers in raptor conservation.







2006 was the "year of construction" for TAF.

Falconers have played a significant role in our understanding of raptor biology and raptor conservation. As American falconers realized that the physical evidence of their history was being lost as early practitioners passed away, The Peregrine Fund founded the Archives of American Falconry in 1986. Donated materials reflected the international origins of American falconry, and with the new millennium we changed the name to The Archives of Falconry (TAF).

RESULTS

The international aspects of TAF dominated our activities this year, particularly construction of our new Sheikh Zayed Arab Falconry Heritage Wing. Almost doubling our square footage, this stunning

display juxtaposes the heritage of one of the oldest of the world's falconry cultures with our own American heritage—one of the youngest.

The wing is the culmination of three years of collaborative work to accurately display the modern as well as historic heritage of Arab falconry. The project was made possible by significant funding from H.H. Sheikh Mohamad bin Zayed Al Nahyan, son of the late founder of the United Arab Emirates and Crown Prince of Abu Dhabi.

Thanks to the Emirates Falconers Club, TAF was able to host a special visit by 153 falconers and guests from 34 countries for a preview of the wing during the annual meeting of the International Association for Falconry and

Preservation of Birds of Prey (IAF). The visit was coordinated by falconer and Peregrine Fund General Counsel Frank Bond after stepping down as IAF Vice President, and by Bill Johnston who replaced him in that position.

This year also saw completion of TAF's Wall of Remembrance, display-

ing the names of deceased falconers remembered by their families and friends. The site is particularly inspiring, reserved for those who shared a passion for the sport of falconry. Construction was made possible by a gift from Jim and Karin Nelson. The walk to the wall is flanked by a pair of bronze falcons by falconer-sculptor Ross Matteson, and its focal point is a bronze Peregrine lifting skyward, also by Ross. The base serves as a special site of remembrance for Bill Burnham, whose support and vision helped found The Archives of Falconry as well as The Peregrine Fund.

Acquisition of historical materials remains a primary mission. Robert Bagley continued his program of transferring two more of the magnificent Gyrfalcon paintings by Andrew Ellis. Dr. Bill Cornatzer generously responded to our plea for contemporary American falconry memorabilia with a painting by Jon Wilde depicting their long-standing North Dakota hawking camp. Look close and you'll recognize more than one of the figures represented there. Robert Berry provided the original of Bob Katona's painting of a Peregrine on behalf of the North American Raptor Breeders Association. This painting was the first reproduced in a print series to raise funds for that organization.



Kent Carnie (left) will assume emeritus status in 2007. Above: The Sheikh Zayed Arab Falconry Heritage Wing features a Majlis tent, a desert mural, and numerous displays, life-sized models, and interactive kiosks.

We also received 59 transcribed, audio-taped interviews conducted by Steve Stuebner in the preparation of his biography of Morley Nelson, *Cool North Wind.* Jobe Shor donated her late husband Will's extensive library which formed the backbone of this year's extremely successful annual book auction. When visitors arrive at the Archives' entrance they now will be greeted by a stunning life-sized depiction in bronze of a Gyrfalcon on the fist, sited on the same large stone base as the dedication plaque at our entrance. This Hubert Quade sculpture was a donation from Dr. Bill Cornatzer, a gift that will greet our guests for years to come. It is unfortunate that the restrictions of space preclude our listing more of the notable accessions we have received this year.

David Wells has completed his first year as the Archives Administrator and has fulfilled all our hopes in his employment. Part of our expansion of The Archives has included adding and rearranging storage cabinets allowing for additional storage, exemplifying David's organizational skills. John Swift continues to add rare and unusual books to The Archives, acquiring volumes not likely to be donated in the future. John and Robin Parks completely reorganized the falcon hood collection (now over 600), making the collection more "user-friendly." Kathleen Orlenko continues to provide technical conservation advice and assistance for the stored materials. Phil Bucher, Vicki Swift, Natalie Nicholson, and Kellie Cosho assisted in preparations for the opening of the new wing.



The Wall of Remembrance glows at sunrise over Boise. A bronze plaque (inset) introduces those remembered.

FUTURE PLANS

With all the time demanded for completion of the new wing, we found ourselves unable to properly celebrate our twentieth anniversary. To make up for this lack, such a "twentieth" celebration will take place early in 2007 instead. Not only will this gathering allow us to celebrate that missed occasion, but it also provides an opportunity for our supporters to tour the new wing at their leisure. This also will be the first public occasion to view our Wall of Remembrance now that the first commemorative plaques (almost three dozen) are in place. At that celebration, Kent will officially step down as Director/Curator and assume an emeritus status within TAF. Kent will retain an office at The Archives but, relieved of his administrative responsibilities, he looks forward to resuming work on his book on the history of American falconry as well as getting back to some hands-on archiving of materials in the collections. John Swift will take over Kent's former duties and work from his home in Arizona, coordinating archival administration on site with David Wells.

Editorial Associate Bill Mattox of Greenland Peregrine Survey fame will move into one of our offices in 2007 as he undertakes the detailed editing of John Swift's *Bibliotheca Accipitraria II*, a bibliography of English-language falconry books through the year 2000. TAF is especially fortunate to have someone with Bill's capabilities to do justice to this major project. We look forward to publishing this work, probably in more than one volume, as a part of our Archives Heritage Publications Series.

The Archives will continue to expand its internet and digital capabilities and improve its communications network; volunteers to help with cataloguing and conservation are always welcome. Funding is an ever-present requirement; a program for developing TAF's Endowment Fund is in the offing.

STAFF

Founding Curator/Archivist, S. Kent Carnie; Curator of Books and Manuscripts, John R. Swift; Administrator, David Wells; Research/ Editorial Associate, William G. Mattox; Research Associates: Paul Beecroft (UK), Peter Devers, Harrie Knol (Neth), Patrick Morel (Belg), Natalie Nicholson; Graphics Associates: Seth Anthony (UK), Don Garlock, Jim Hansen, and Jim Stabler.

COOPERATORS

Special assistance was received from H.H. Mohamed bin Zayed Al Nahyan, Robert Bagley, Robert B. Berry, William A. Burnham (Est.), S. Kent Carnie, Conoco Phillips, William Cornatzer, Charles de Ganay, Emirates Falconers Club, Walter C. Hill and Family Foundation, Walter A. Huston, Ross and Genny Matteson, Michael and Sally Melvill, Patrick Morel, Jim and Karin Nelson, Morlan W. Nelson (Est.), North American Falconers Assn., North American Raptor Breeders Assn., Oregon Falconers Assn., Pennsylvania Falconry and Hawk Trust, Joan B. Shor, Scott Struthers, Steve Stuebner, John and Vicki Swift, Brian Walton, Pete and Lucy Widener.

STUDENT EDUCATION

GOAL Provide research and educational opportunities for students nationally and internationally to further science and conservation. One of the most important ways in which The Peregrine Fund makes a lasting contribution to global conservation is by training undergraduate and graduate students. The world's leading conservation biologists agree that a well educated biological community is one of the main hopes for the future of conservation, especially in developing nations in the

tropics where the need for expert capacity for conservation and research is most urgent. Our student education project aims to help meet that need over time by developing a raptor biologist in every country.

RESULTS

In 2006 we enhanced the student education program in the Neotropics (Latin America and the Caribbean) by hiring senior biologist Hernán Vargas to focus on recruiting, funding, and supervising students from the region who show particular promise as raptor biologists. This year we provided hands-on training and financial support to13 students associated with our projects in the Neotropics, East Africa, Madagascar, Papua New Guinea, West Indies, and the Arctic. We also provided financial support to 23 Latin American students to participate in the Second Neotropical Raptor Conference, Argentina, 11–14 June 2006.

	Post Doctorate	Doctorates	M.Sc.	B.Sc.
Students who have worked directly with u	JS	18	51	13
Currently working with on degree programs	^{i us} 1	3	7	2

FUTURE PLANS

We will continue to support and expand student education nationally and internationally in association with the Neotropical Science and Student Education Project, East Africa Project, Aplomado Falcon Project, Madagascar Project, and New Guinea Harpy Eagle Project.

COLLABORATORS

We thank the Liz Claiborne and Art Ortenberg Foundation and the M.J. Murdock Charitable Trust for their generous support of our student education programs.

EDUCATION PROGRAM

GOAL Educate the public and students about birds of prey and the importance of their conservation, focusing on The Peregrine Fund's projects around world.





Idaho Garden Clubs planted an oak tree in honor of Morley Nelson as part of a national "Patriotic Trees Program."



Above: Dedicated school program leader, Diann Stone, helps a student learn how large a Harpy Eagle is by comparing feather size to the length of her arm.

Below: After learning about the resident Bateleur Eagle, participants in the summer program displayed their own "Bateleur walk."

An interactive and effective education program is a key component of all successful conservation initiatives. Since the inception of The Peregrine Fund's formal Education Program and establishment of the Velma Morrison Interpretive Center, more than 750,000 people have been reached through on- and off-site programs.

RESULTS

This year brought a new direction in our off-site programs with a strong emphasis toward presenting programs to greater numbers of people at fewer events. This new direction allowed us to ultimately reach more people and gave us significant savings in travel costs. Improvements at the Interpretive Center for the past year include the addition of a replica hack box and an Aplomado Falcon nesting structure. Both included mounted Aplomado Falcons, courtesy of John Schmitt. A male Gyrfalcon was also added to the education bird roster in 2006 and is on exhibit in the courtyard area.

One of the primary methods of measuring the impact of our Education Program relies on visitation trends at the Interpretive Center and participant counts at off-site programs. During 2006, a total of 36,735 people were reached through educational programs, including 29,762 on-site visitors and 6,973 individuals at off-site programs. Included in these totals were 133 classes from 102 schools and 104 scheduled programs provided to other groups.

Once again our Education Program hosted the Idaho Project Wild workshop for teachers, Wild about Raptors. The goal of this biannual workshop is to give teachers a broad knowledge of Idaho's birds of prey and encourage them to utilize outside resources in the classroom. A brochure was created for teachers this year highlighting special topics available for school programs at the facility, and teaching resources related to birds of prey were made available through the web site.

A total of 95 volunteers contributed 7,510 hours to facilitate the education program. In 2006 the industry standard for the hourly volunteer rate went up to \$18.05 an hour. Using this new value our volunteers contributed \$135,555 worth of service to the organization this past year! In 2006 Phillip and Betsy Eldredge decided to hang up their volunteer vests for good, well-deserved after contributing more than 3,000 hours over the past 10 years. We were honored to present the President's Volunteer Service Award to 30 individuals at our annual Volunteer Appreciation Party, and we're indebted to all our volunteers and their commitment to the program. We are fortunate to enjoy one of the largest volunteer-driven programs in the state of Idaho.

In 2006 admission fees were increased by \$1.00 to assist with the increased costs of operating the Interpretive Center. This was the first raise since the facility was opened in 1994. We also collaborated with the Boise Museum Association to obtain a sales tax exemption for admission fees and all program-related expenses. The combination of these factors

increased the total admissions by 33% over the previous year and set a new record for the highest recorded year of admission fees collected.

FUTURE PLANS

As the Velma Morrison Interpretive Center ages, our primary concern is keeping the facility and the displays up-to-date and current. New exhibits are being planned, and educational programs will continue to be adapted and digitized where possible, to better meet the needs of educators utilizing our materials for their students. Summer programs and adult education programs will be expanded in the future to provide additional education opportunities.



"Morley," a male gyrfalcon flown by the late Morley Nelson, was added to the roster of education birds.

Below: More than 500 students participated in "Owyhee Field Days," which featured our Raptor Specialist Trish Nixon and a Redtailed Hawk.



BERT CLEAVELAND: A Lifetime of Giving



Fund was looking for release sites for Peregrine Falcons in Idaho, Bert was assigned to help look on Boise Cascade property. Bert told about his early years with The Peregrine Fund and what got him hooked: "I'll never forget that Gyrfalcon Bill [Burnham] brought with him when he first came [to Boise Cascade]. I had been an avid birder since age 12 and that was a real treat for me... I never actually thought I'd ever get to see a white Gyrfalcon in my lifetime."

Upon retirement, Bert began volunteering at the World Center for Birds of Prey. From guiding tours for the general public and schools to organizing slides and manning booths at events, he did it all. By 1987 Bert had made such an impression that he was asked to participate in the Maya Project in Guatemala and utilize his forestry background to survey vegetation. He spent two field seasons conducting habitat surveys in the areas where raptor surveys were being done.

There's no doubt that Bert's dedication to the Education Program and the Interpretive Center are unmatched by any volunteer. Bert donated more than 6,500 hours to the organization over the years. Whether it was young school children or adults with no interest in birds of prey, Bert always connected with his audience. His information and descriptions were precise and he had a way of making people laugh. He was always good for a nice Hawaiian shirt at a volunteer party, a big smile on his face, and stories to entertain all ages.

If the walls of the Interpretive Center could talk, there's no telling how many of Bert's stories would be played back. One thing is for certain—Bert's enthusiasm will be shared by all of us that he touched over the years.

This year The Peregrine Fund lost a long-time volunteer, friend, and life-long supporter—Bert Cleaveland. While many knew Bert as an avid birder and devoted volunteer at the Interpretive Center, his dedication spans more than two decades to include national and international work.

Until his retirement in 1985, Bert worked as a forester for Boise Cascade for more than 35 years. In the early 1980s when The Peregrine Fund was looking for release

Program and facility director, Jack Cafferty; Volunteers and Gift Shop, Nick Piccono; Raptor Specialist, Trish Nixon; Education Programs Coordinator, Mark Purdy; Interpretive Center Coordinator, Sue Bello; and Facility Maintenance, Brian Gloshen.

COOPERATORS

STAFF

Financial partners this year include the Laura Moore Cunningham Foundation, U.S. Bancorp Foundation, Islands Fund, Decade Charitable Lead Annuity Trust, Harry W. Morrison Foundation, John Schmitt, Tesoro Petroleum Companies, Bank of America, Higgins and Rutledge Insurance, Ada County Association of Realtors Foundation, The Idaho Statesman, and numerous individual donors.

VOLUNTEERS CONTRIBUTING 50+ HOURS IN 2006:

Deb Anderson, Denise Bittner, Maud Bolstad. Helen Crewse, Louis Dewitt, Corki Duncan, Julie Ekhoff, Leo Faddis, Kit Fawcett, Claudia Fernsworth, Joni Frey, Mike Garets, Dina Golley, Martin Greitzer, Kathrvn Hampton, Kathrvn Hobson, Marianne Horen. Dale Howard. Ruth Kassens. Connie Leavitt, Eileen Loerch, Pam Lowe, Joe Macci, Kip Malone, Paul Malone, Mike McSweeney, Milt Melzian, Jack Osgood, Sadie Parker, Brit Peterson, Ron Price, Fred Pugh, Betty Purdy, Cathy Quam, Randy Rasmussen, Marcia Ross, Nikki Sartin, Ellen Shaw, Michael Shaw, Chan Springer, Charlie Stone, Diann Stone, Ianie Stubson. Dick Thatcher, and Vivian Upton.

11

ARCTIC PROGRAM

GOAL Conserve and understand Gyrfalcon and Peregrine Falcon populations and their environments in Greenland and other arctic areas.

Recent scientific research has shown that continuing human-caused worldwide climate change is having a significant effect on many species of birds, from changes in the timing of migration and breeding to changes in their overall distribution. Starting in 1993, The Peregrine Fund began collecting data on populations of Gyrfalcons and Peregrine Falcons in the Low and High Arctic of Greenland. Compared with early explorers' lack of sightings or collections from the mid-to-late 1800s through early 1900s, and a further lack of sightings by ornithologists working in the same areas as recently as in the 1980s, we have documented what is likely an expanding population of Peregrine Falcons in northwest Greenland. Our work in Greenland continues a tradition of falcon research first begun in 1972 in Kangerlussuag (West Greenland) as part of the Greenland Peregrine Falcon Survey. Since 1993 both the biological and geographical scope of our research has increased. This past summer marked the 35th consecutive year data has been collected in Kangerlussuaq, the 14th consecutive year we have collected data in Thule (Northwest Greenland), and our third year working in Scoresbysund (East Greenland).



A young Peregrine Falcon is ready to be banded by Jeff Johnson on Dundas Mountain.

RESULTS

Central-west Greenland

The 2006 field season marked our most complete survey to date of known Gyrfalcon nest sites in central-west Greenland. During early June, 72 known Gyrfalcon nest sites were surveyed by helicopter to determine occupancy. Of the 72 surveyed, 11 were occupied by pairs of Gyrfalcons and all produced young. Molted feathers or blood samples from adults and/or young were collected from all the occupied eyries for genetic analysis. From 1998 through 2006 the percentage of known Gyrfalcon sites occupied each year has ranged from highs of 27% and 26% in 2002 and 1999, respectively, to lows of 10% and 13% in 2005 and 2003, respectively. The occupancy rate of 15% for 2006 continues what appears to be a declining trend in occupancy in central-west Greenland, specifically in the southern portion of our study area.

In collaboration with Bob Rosenfield, and with the assistance of students, 17 Peregrine Falcon nests were checked for occupancy. Nine were found occupied, with eight producing young. Blood samples were collected from 19 young.

Two White-tailed Sea Eagle nests were occupied, with one producing two young and the other nest failing. Blood samples were collected from both young. This is the first documented successful breeding attempt by White-tailed Sea Eagles in our study area in recent memory.

Northwest Greenland

Results for the 2006 field season were significantly reduced compared to past seasons, primarily due to mechanical problems with our boat, which limited the area it was possible to survey. Six occupied Gyrfalcon eyries were located, all producing young, with genetic material collected from each site.

Six previously known Peregrine Falcon nest sites were checked for occupancy and all six were occupied. Of the six, four produced young, one failed, and we were unable to determine if reproduction was successful at one site. Genetic material and prey remains were collected from

four of the sites. To date, every nest site in this study area has been occupied following the initial year of discovery, giving an annual occupancy rate of 100% from 1994 to 2006.

FUTURE PLANS

The 2006 field season completed this phase of The Peregrine Fund's field research in the Arctic. For 2007 the primary emphasis will be the write-up of results from previous field seasons for publication.



Right: Millions of Dovekies, prey for Gyrfalcons and Peregrine Falcons, nest in talus slopes throughout the Thule District.





Juvenile Gyrfalcons at an eyrie near Cape Parry in northwest Greenland.

STAFF

Program direction is accomplished by Kurt K. Burnham and scientific advice is provided by Ian Newton. Jack Stephens manages our field station, the High Arctic Institute, at Thule Air Base. Jack Cafferty assists with travel authorizations and field work. Participating in field work in 2006 were Bill Burnham, Kurt Burnham, Patrick Byrnes, Jack Cafferty, Bill Heinrich, Ginamaria Javurek, Jeff Johnson, Bridger Konkel, Brian Mutch, Thomas Norwood, Adam Remus. Brent Rivard. Bob and Laura Rosenfield, Jack Stephens, and Joel Tebbenkamp. Genetic analysis is accomplished in cooperation with Jeff Johnson and David Mindell at the University of Michigan.

COOPERATORS

Work in Greenland is achieved in cooperation with and authorized by the Commission for Scientific Research in Greenland, Greenland Home Rule Government. the Danish Polar Center, and the U.S. Air Force. The U.S. government sponsor is the Department of the Interior/Bureau of Land Management. Special thanks to the residents of Thule Air Base, the 109th Air National Guard, the United States Air Force, National Science Foundation, VE-CO Polar Associates and Robin Abbott, Ed Stockard, Earl Vaughn, and Susan Zager, and Basse Vaengtoft and Kate Bahr Friis of KISS. We value the longstanding cooperation with Kaj Kampp and the Copenhagen Zoological Museum. Field work on Peregrine Falcons in West Greenland was in collaboration with the Department of Biology/International Programs, University of Wisconsin-Stevens Point, under the leadership of Bob Rosenfield.

Financial support was provided by Ruth and Brian Mutch, The Vetlesen Foundation, P.A.B. Widener, Jr. and the Eyas Foundation, Wasendorf and Associates, Horace W. Goldsmith Foundation, and NSF/VECO Polar Resources.





GOAL Conserve Neotropical raptors, their habitats, and biodiversity through research, conservation interventions, public education, and development of local capacity for science and conservation.



Brazilian student Marcus Canuto at a Black-and-white Hawk-eagle nest, at the Parque Estadual do Rio Doce—360 km² Brazilian Atlantic forest reserve.

The Neotropical Raptor Conservation Program (NRCP) has grown to become the largest component of The Peregrine Fund's international programs, dedicated to research and conservation of the one-third of the world's birds of prey that occur within the Caribbean and Central and South America. The program's main office is Fondo Peregrino-Panamá (FPP), where biologists, educators, and administrators work together toward this common goal.

RESULTS

In 2006 we recruited Hernán Vargas to direct our research on Neotropical raptors by training and supervising students who are working on their thesis research to earn Bachelor of Science (Licenciatura), Master of Science, and PhD degrees. We also hired Sean Davis as our Environmental Education Coordinator to enhance the scope of this program. Our work on environmental education, Harpy Eagles, Orangebreasted Falcons, and species in the West Indies is detailed in the following pages.

In the fall of 2006 we participated in the third annual "Ocean to Ocean Project," counting raptors migrating through the Isthmus of Panama from North to South America, with partners Audubon Society, Smithsonian Tropical Research Institute, Hawk Mountain Sanctuary, and the Center for Social Research and Action. Students from the School of Biology of the University of Panama participated with FPP for the first time, strengthening their interest in and knowledge of endangered raptors.

Neotropical Science and Student Education

In 2006, the Neotropical Science and Student Education Program continued to expand, particularly in South America where the need for raptor research and student training is most significant. We continued to support student research projects in Brazil, Argentina, Panama, Colombia, and Peru.

Veronica Salvador is conducting road and aerial surveys of eagles, monitoring eagle movements, and participating in an environmental education campaign aimed at the long-term conservation of the endangered Crowned Solitary Eagle in Central Argentina.

Marcus Canuto was supported by The Peregrine Fund (TPF) to study the breeding biology and feeding habits of the White-necked Hawk in the Parque Estadual do Rio Doce in eastern Brazil, where less than 8% of original forest remains.

Peruvian student Renzo Piana is being supported by TPF to study the impact of human-caused forest fragmentation on the distribution, abundance, and breeding success of the Gray-backed Hawk and other raptor species in northwestern Peru. Renzo is conducting this research in the next three to four years as part of his PhD program at the Manchester Metropolitan University, United Kingdom.

We are supporting Licenciatura (Bachelor of Science) students Sandra Quiroga and César Gómez to conduct surveys of the distribution and abundance of raptors along an altitudinal gradient in the Andean forests of Colombia. Both students work under the supervision of raptor biologist Cézar Márquez from the Humboldt Institute.

We provided support to José de Jesús Vargas-González to complete his Master's degree in Wildlife Management at the Universidad Nacional Experimental de los Llanos Occidentales de Venezuela, Ezequiel Zamora, Venezuela. José is using data collected in our field study on Harpy Eagles in Darien Province of Panama as the basis for his thesis.

A database for the Harpy Eagle captive propagation program was completed in 2006. Panamanian students learned how to enter data on the growth and behavioral development of young eagles, and observations on reproductive behavior of captive adult birds gathered during 2001–2006 at the Neotropical Raptor Center (NRC). Effective data management facilitates timely data analysis and publishing of results, and this effort will assist us in those pursuits.

We are supporting Panamanian staff member and student Edwin Campbell in a study of the Black-collared Hawk, leading to a Master of Science thesis. Students from Zimbabwe and Papua New Guinea also received training in our Harpy Eagle project and assisted our Environmental Education project in 2006.

Neotropical Raptor Network (NRN)

The Second Neotropical Raptor Conference was successfully convened in Iguazu, Argentina, 11–14 June 2006. The conference was attended by 120 people from across the Neotropics and North America, and some from Europe. A strong interest in forest raptors of central and northern South America was evident. Important topics such as raptor management, handling, vocalization, raptor census techniques, and regulation of falconry were the subject of workshops. Authors gave 63 oral papers and 39 poster presentations. The second NRN Advisory Board meeting was held during this event. The NRN online forum continues to grow and now has 170 members, and periodic NRN newsletters are produced. For more information, visit the NRN web site at: http://www.neotropicalraptors.org.

FUTURE PLANS

The NRCP anticipates continued growth with expanding research on threatened or little-known raptor species throughout Central and South America. New projects will begin in Colombia, Peru, and Ecuador. A primary emphasis for 2007 will be data analysis and preparation of manuscripts for publication. Preparations for the Third Neotropical Raptor Conference in 2009 will be initiated. The Harpy Eagle festival, "Festiarpia," will be replicated in target areas where threats to Harpy Eagles are evident, such as Darien Province. Efforts to expand the Benefactors Board and work with other potential supporters of this program in Panama and regionally will continue.



Veronica Salvador, supported by the Neotropical Science and Student Education Program, at a Crowned Solitary Eagle nest in Argentina.

STAFF

The Neotropical Raptor Conservation Program is directed by Rick Watson and Magaly Linares, assisted by Yanina Guevara. Hernán Vargas directs the Neotropical Science and Student Education Program. Other project staff members are listed separately under each project. Priscilla Maloney and Cameron Ellis made important contributions during 2006.

COOPERATORS

The partnership of many organizations and individuals makes this program possible, including Autoridad Nacional del Ambiente (ANAM), Autoridad del Canal de Panama (ACP), Fundación Ciudad del Saber, the Ministry of Education (MED-UCA), and Fundación Albatros Media. Jacobo Lacs provides invaluable support and assistance in Panama. We assist and collaborate with other NGOs and organizations, such as The Nature Conservancy (TNC), U.S. Peace Corps, Parque Natural Metropolitano, Asociación Panameña para la Conservación (APPC), Audubon de Panama, Ecological Police, Smithsonian Tropical Research Institute (STRI), Jardín Botánico Summit, and Alcaldía de Panama. We especially thank Frank Tedman (Café Palo Alto), Rossana Uribe, Benjamín Boyd (Arenera Balboa), José Herran-Lima and Walker Young (Canadian Embassy), Terrence McCoy (Scotiabank), Osvaldo Carlucci (private investor), Ligia Castro de Doens (ANAM), and Juna Carlos Navarro (Alcaldía de Panamá) for their interest and support of FPP programs as Benefactors Board Members.

Financial support in 2006 was provided by Wolf Creek Charitable Foundation, the United States Agency for International Development (USAID), M.J. Murdock Charitable Trust, and Mr. and Mrs. Jacobo Lacs. The U.S. Agency for International Development has provided economic and humanitarian assistance worldwide for more than 40 years.

HARPY EAGLE CONSERVATION & RESEARCH

GOAL Conserve and restore Harpy Eagle populations through hands-on management, research, and collaboration with local people.

> DT, an adult male Harpy Eagle, breaks large sticks from a tree and carries them in his talons perhaps the first evidence of breeding behavior in the wild among captive-bred Harpy Eagles.

arge, long-lived, slow-reproducing tropical forest raptors present special challenges for conservation. For almost 20 years we have been working to conserve the Harpy Eagle, the largest eagle in the Americas, and its forest habitat. Through hard work and innovation, we are now able to predictably breed this species in captivity and have refined release techniques to improve their survival in the wild. The long-term study in the wild of both captive-bred and wild-hatched birds provides us with valuable knowledge and insight to better manage and protect these and other threatened and endangered eagles.

RESULTS

Captive Propagation and Release

Since 1998, more than 40 Harpy Eagles have been hatched in captivity and released in Panama and Belize. In 2006, we broke new ground by experimentally releasing two adult pairs that had previously been a part of our captive breeding program. Special enclosures were built to house each pair in Soberania National Park (SNP) to enable them to become adjusted to their new surroundings for three to five months prior to release. This is the first time that Harpy Eagles have been released as adult pairs. By releasing adult birds, we are testing whether breeding pairs can be established more rapidly in the wild. Time will tell if these birds

have a strong enough bond to keep them together now that they are freeflying, or whether they will seek out new mates. These pairs produced 24 chicks while in captivity. Apart from the adult pairs, there are ten captive raised and released Harpy Eagles remaining in SNP.

This year, we released two independent Harpy Eagles into the Rio Bravo area of northern Belize. One, a sub-adult male named Benito, was translocated from SNP. The other bird, a female named Stella, is one of the four Harpy Eagles that were first released in the Chiquibul Forest in western Belize. When incursions into the area by poachers caused a concern for the Harpy Eagles' safety, we decided to relocate them to Rio Bravo, a much safer tract of forest. However, by this time, Stella had moved roughly 18 kilometers from the release site and was spending most of her time in a rugged and inaccessible area of the forest. Months later she moved to a more accessible area close to the Belize/Guatemala border from where we were able to translocate her to Rio Bravo, where she is now doing very well. Currently, there are eight captive-reared Harpy Eagles free-flying within the Maya Forest, the large expanse of forest that covers the border areas of Belize, Guatemala, and Mexico. One of these birds, a female named Ophelia, is currently within the Reserva Natural Calakmul in Mexico. Three other eagles, one male named DT, and two females, HS and Pannaba, are in Guatemala. DT and HS are currently within Tikal National Park. The male, DT, was the first Harpy Eagle to be seen in the park for over 30 years. He has been seen by park employees and tourists alike and has become a local celebrity, attracting visitors and appearing in

> several newspaper articles. The remaining eagles are in Belize. All of these eagles have adapted well to their new surroundings and we continue to monitor the dispersal of these far-ranging birds thanks to the satellite transmitters (PTTs) that they carry and the hard work of our biologists on the ground. These biologists track and observe the released Harpy Eagles to gain in-depth knowledge of their foraging behavior, diet, and dispersal.

Research and Conservation

The study of Harpy Eagle population biology will require a decade or more to achieve because the species reproduces slowly and is long-lived (30–50 years). This long-term research and conservation program implemented in

Darien Province of Panama continues to be a success. Working within indigenous and farming communities, we are tapping local skills, knowledge, and experience while increasing local capacity by training 20 residents in research, conservation, and environmental education methods. These staff and volunteers learn techniques for collecting and analyzing field data, and gain experience in presenting this information to local community leaders and citizens, critical elements of a long-term field study in this remote and difficult landscape.

Through this program we have located 30 Harpy Eagle nests associated with 25 breeding pairs in Darien, an area with the highest known breeding density of the species in Mesoamerica. Ten of these nests are located within protected areas and 20 are in unprotected forests. Nests are monitored for breeding activity, as Harpy Eagles breed only once every two or three years, and productivity is carefully tracked when a breeding pair is found.



Marta Curti, Chris Hatten, and Ryan Phillips check radio transmitter signals for three Harpy Eagles in Tikal National Park.



We are using nest locations with satellite imaging and geographical information system (GIS) software to identify landscape variables that serve as important cues for habitat selection by the Harpy Eagle. Our studies suggest that the habitat requirements of these birds are not limited to pristine forest, but rather, their presence in disturbed habitats is probably a response to the existence of suitable prey, nest sites, and the absence of human persecution (shooting). This information will allow us to identify regions that can serve as suitable habitat for this species, including human-occupied landscapes where environmental education can improve human behavior toward raptors.

Between 2004 and 2006 we radio-marked and monitored eight wild Harpy Eagles (six immature and two adult females) with the goal of increasing our knowledge about the behavior of this species in the wild, and for comparison with our studies of captive-reared and released Harpy Eagles. Our study of immature birds suggests that the Harpy Eagle begins to disperse away from its nest site at 24 months of age. All the prey species taken by tracked birds were tree-dwelling, mostly sloths and monkeys.

FUTURE PLANS

As more of the captive-reared Harpy Eagles continue to reach independence in the wild, they will be relocated to the Maya Forest in Belize to restore the population in this area. Most of the independent birds will be fitted with satellite transmitters to track their movements over time. The results obtained will yield important information on the dispersal patterns, mortality rates, and nesting attempts of released Harpy Eagles.

We plan to continue the long-term studies of Harpy Eagle ecology and population dynamics with the collaboration of the local indigenous and farming communities. Training and capacity building of local residents in research and conservation is an ongoing need for the successful outcome of this project.



DT, a male Harpy Eagle released in Belize in September, 2005, traveled over 250 km (155 mi) and is now within the boundaries of Tikal National Park, Guatemala.

STAFF

Angel Muela coordinates the Release Program and is assisted by Marta Curti and Edwin Campbell. Important assistance for the Harpy Eagle Release Program was provided by the following volunteers in 2006: Luisa Cardenete. James Cederstrom, Laura Dominguez, Micky Ellenbecker, Todd Gillen, Anyuri Gonzalez, Phil Hannon, Chris Hatten, Matthew Holmes, Tim Kluckow, Leo Legra, Miguel Angel Mayoral, Megan McSherry, Frances Pares, Ryan Phillips, Paul Puzergues, Tamara Risquez, and Jason Sardel. Jose de los Santos López is in charge of FPP facilities maintenance and of its field station, with the support of Noel Guerra and Próspero Gaitán. Bolívar Rodríguez is in charge of food production and maintenance activities.

Field research and conservation is directed by José de Jesús Vargas-González and Hernán Vargas, with assistance from Rodolfo Mosquera D., Calixto Cunampia, Gabriel Minguizama, Eloy Arifio, Fidel Sabúgara, Briceño Flaco, and Julio Ovispo, and volunteers Jerónimo Valdespino, Rigoberto Aripio, and Rutilio Calderón. Mark Watson provided important contributions during 2006.

COLLABORATORS

The Harpy Eagle project depends on the partnership of many individuals and organizations, including Autoridad Nacional del Ambiente (ANAM) and its National Parks (Soberania, Chagres, Camino de Cruces, and Darien), Autoridad del Canal de Panamá (ACP), Fundación Ciudad del Saber Ecological Police, Comarca Emberá-Wounaan and Tierras Colectivas, Smithsonian Tropical Research Institute. Asociación Nacional para la Conservación de la Naturaleza (ANCON), Summit Zoo, Patronato Amigos del Aguila Harpía, and Stichting De Harpij. In Belize we count on the support and partnership of the Ministry of Natural Resources and the Environment, Programme for Belize, The Belize Zoo/Tropical Education Center, Air Wing of the Belize Defense Force, EcoFlight, Lighthawk, Royal Air Force 25FLT AAC BATSUB, and Global Heritage Fund. Important assistance in Mexico was provided by Sophie Calme, Consejo Natural de Areas Protegidas (CONAP), and the Reserva Natural Calakmul. In Guatemala we received logistical assistance from CONAP, WCS-Peten, and Tikal National Park.

Major financial support was received from the U.S. Agency for International Development (US-AID), Wolf Creek Charitable Foundation, Liz Claiborne and Art Ortenberg Foundation, Disney Wildlife Conservation Fund, and the Ledder Family Charitable Trust.

NEOTROPICAL ENVIRONMENTAL EDUCATION

GOAL Change human attitudes toward birds of prey, especially Harpy Eagles, to reduce persecution and help conserve their habitat and the biodiversity it contains. The Harpy Eagle, one of the largest forest raptors in the world, has been suffering from habitat loss and human persecution due to its size and curious nature. Created in 2002, the Neotropical Environmental Education Program works to educate the public and dispel myths and misconceptions about this magnificent bird of prey. Through innovative education techniques we work to transform negative attitudes toward birds of prey into positive actions for the conservation of raptors and their habitats.

RESULTS

The Neotropical Environmental Education Program is based in the Republic of Panama, a country rich in ethnic diversity. We work with five of the seven indigenous groups found in Panama. In 2006, we directly reached more that 6,000 children and adults through community events, presentations, and school visits. Three main target areas were chosen because of the presence of Harpy Eagles. The first, Darien Province, is a large, heavily forested area that connects Central America with Colombia, South America. Due to significant amounts of intact forest, low human population, and lack of roads, Darien has become the last stronghold for wild Harpy Eagles in Central America. In 2006, we worked directly with 15 communities in the region that are in close proximity to identified wild Harpy Eagle nests. The second area, known as the Panama Canal Watershed, includes communities that surround Soberania National Park, where we are conducting releases of captive-bred Harpy Eagles. In this area, we worked with a total of 17 communities over the past

year. The third area, Bocas Del Toro Province, is a remote province rich in biodiversity and close to the border of Costa Rica. Here we have experimentally released Harpy Eagles to strengthen a much diminished wild population. Within the province, we visited 18 communities located near Harpy Eagle release sites. In addition to our community visits, we also broadcast radio messages that promote understanding and conservation of raptors in our target areas.

To ensure the information in our community presentations is being learned by our audience, we have implemented an evaluation system to help us assess the impacts of these talks. This system entails collecting and comparing data on community members' knowledge of raptors from evaluations handed out before and after our presentations. This technique has helped us tailor our presentations to ensure that we are successfully educating our audiences.

We continue to work in Panama City receiving school groups at our Neotropical Raptor Center, visiting schools, and attending local festivals, all with the aid of Luigi, our Ambassador Harpy Eagle. Having a live Harpy Eagle is a powerful education tool that captivates and holds the

attention of the audience, something we could never achieve as effectively using pictures alone.

This past year, we also continued to work closely with the students from "Mission: Harpy Eagle," a student group from the local school Colegio Brader, who work to disseminate information to their classmates and community about the Harpy Eagle. We recently used some of the students' voices to record a new series of educational radio messages that will be broadcast in forested regions of Panama.

We are always striving to create sustainable education projects and reach broader audiences. With this goal in mind, we created an environmental education guide for teachers called *Las Aves Rapaces* (*Raptors*). The guide provides information on the biology and conservation of raptors, and includes 12 suggested activities for teachers to use with their students in the classroom. After much hard work, the guide was published in March 2006 and was approved by the Ministry of Education for use in schools throughout Panama. To ensure the guides are utilized once in teachers' hands, we offer teacher training

workshops throughout the country. In 2006, we organized and hosted three of these workshops, attended by 77 teachers. In the 40-hour workshop, teachers learned about raptors and the Harpy Eagle while practicing activities from the guide, which include: using recyclable materials to construct life-size Harpy Eagles, bird watching and identification activities, simulating raptor migration in an avian Olympics game, and examining the general causes of extinction in an interactive activity called "The Map of Extinction."

In April 2006, we hosted the second annual Harpy Eagle Day, "Festiarpia," in Panama City to celebrate the country's national bird.

8 | NEOTROPICAL RAPTOR CONSERVATION PROGRAM





More than 600 people attended the event, which included games, a raffle, face painting, a zip line, a raptor costume contest, and informational stands from over 20 organizations that work in conservation. Of course the star of the show was Luigi, who flew majestically across an open field, much to the delight of everyone in attendance.

Internationally, we have begun distributing our education guide and other printed materials to our partners in Belize, Dominican Republic, and Guatemala. Requests for the guide have also come from as far away as Chile, Argentina, and Ecuador. In 2006, we hosted two students from McGill University in Canada to conduct an independent study to evaluate different methods of increasing adult participation in our environmental education program activities. We have met with other international organizations, such as The Nature Conservancy and the Spanish Embassy, to discuss projects on which we could combine forces and work together. Finally, we have been working with the U.S. Peace Corps to include a Harpy Eagle lecture in their training program for new volunteers, with the hope that they will take the Harpy Eagle conservation message into the communities where they go to work.

FUTURE PLANS

Our community education efforts in Darien, Panama Canal Watershed, and Bocas del Toro will continue, along with our evaluation system which assesses the success of our community presentations. We will seek out and visit additional communities in our target areas. In addition, we plan to design, print, and distribute a small raptor identification guide for communities in Darien. Our radio messages will continue to be broadcast, and we plan to develop a short song on Harpy Eagle conservation that will also be played on radio stations throughout the country.

We will continue with the teacher training workshops for our guide, *Las Aves Rapaces (Raptors)*, hosting at least three workshops per year. In addition, we have begun making plans with the University of Panama to host a teacher training workshop for student teachers who are in their final year of university.

On 14 April 2007 we will host the third annual Harpy Eagle Festival, "Festiarpia." This year we seek to reach even more children and adults through this exciting event, and we plan to team up with local organizations to increase community participation.

Once again we will host students from McGill University for a threemonth independent study project examining deforestation and its effects on raptors in Panama. We will continue working with the U.S. Peace Corps and will attend their regional meetings to give presentations on Harpy Eagle conservation to volunteers already in the field. Finally, we plan to expand our international environmental education program to additional areas in Latin America such as southern Mexico and Guatemala, where some of our captive-bred Harpy Eagles have dispersed. Opposite page: Angel Muela feeds Luigi, the education Harpy Eagle, after a flight demonstration.

Left: Two children in a rural community read our educational brochure.

STAFF

The project is conducted by Sean Davis, Kathia Herrera, Marta Curti, and Saskia Santamaría with assistance in the field from José Vargas and others. Michele Kim also assisted with the education program.

COOPERATORS

We collaborate with Panama's Ministry of Education (MEDUCA), National Environmental Authority (ANAM), Panama Canal Authority (ACP), Soberania, Chagres, and Camino de Cruces National Parks, the Ecological Police, National Institute of Culture (INAC), Tierras Colectivas Emberá y Wounaan, Consejo Naso Tjerdi, Smithsonian Tropical Research Institute (STRI), Parque Metropolitano, The Nature Conservancy (TNC), U.S. Peace Corps, and Colegio Brader-Mission Harpy Eagle.

Important financial support was provided by the U.S. Agency for International Development (USAID) and Wolf Creek Charitable Foundation. Caribe Stereo provided in-kind donations.

ORANGE-BREASTED FALCON PROJECT

GOAL Determine the status of the species and the consequences of population isolation in fragmented landscapes, and develop captive breeding and release methods for future species restoration management.

NEOTROPICAL RAPTOR CONSERVATION PROGRAM

20



In the absence of cliffs, OBFs have been using Mayan temples in Tikal as nesting sites.



s a charismatic, colorful, and approachable signature species of the rainforest, the Orange-breasted Falcon (OBF) can play a significant role in the conservation of the tropical forest for the benefit of all biodiversity supported by this habitat. Despite our long history of working with this falcon there is still much to learn about its biology, habitat needs, and the factors limiting its distribution. For example, for reasons still to be understood, this species appears to be absent from apparently suitable habitat in much of Central and South America. Our work occurs in Panama and Belize, and consists of field studies, experimental captive breeding, and release.

RESULTS

Field Studies

Due to the frequency of nesting failure that we have seen in both Panama and Belize, one of our

goals is to determine the reasons for this apparent low productivity. This year we continued to observe OBFs during their breeding season, which usually lasts from early March to late June. In Panama, we monitored four breeding pairs located in the remote forests of Darien National Park. Access to these nests is only possible by helicopter. Only one of the four nests was active, and only two chicks were produced. In Belize, we monitored seven OBF breeding pairs. By the end of the breeding season we were only able to confirm the successful fledging of one chick from each of two nests. We also visited a previously active site which has now been determined to be inactive. The cliff remains intact but much of the surrounding forest has been cut down. No OBFs were heard or seen at this site during our visit.

To learn more about this elusive species' behavior, gain a better understanding of their breeding habits and prey base, and to find possible clues to nesting failure, we placed a camera at one nest in Belize. This nest is located in a large limestone sink hole, so we had to rappel 120 ft (40 m) to reach the nest and install the camera. We recorded over 120 hours of footage over several weeks, including the female incubating her eggs, and the adults feeding the one chick that hatched. We also recorded the female feeding on the remains of a broken eggshell. Volunteers spent six weeks camping at the nest site, from the time the chick hatched until fledging, observing many activities not caught on camera, such as hunting behavior and prey exchanges. The pair was observed feeding on bats, parakeets, and even a small reptile. Additional pairs will be observed and filmed in 2007 to increase sample size.

Captive Breeding

The year 2006 was a landmark year for captive propagation of OBFs. For the first time in over 20 years we successfully bred OBFs in captivity. Sixteen eggs were laid in five clutches by the three 2002 hatch-year females. Four fertile eggs were produced by artificial insemination, and four healthy chicks, two males and two females, successfully hatched. All four of these birds will remain in captivity to further augment the captive-breeding population.

FUTURE PLANS

We will continue monitoring wild populations of Orange-breasted Falcons and, as possible, expand the search to locate nests in new areas. We will install two remote cameras in two different nests to find out more about the breeding behavior of these rare falcons, and to determine the reasons for the high nesting failure in the wild. We will also look for potential release sites in Central America where we can begin to establish an experimental population.

If captive breeding pairs produce enough young in 2007, we will continue our experimental releases. Goals of the release include testing new telemetry systems to track the movements and activities of the young falcons prior to and, if possible, after independence.

To identify the factors that limit OBF distribution and abundance, we aim to establish and study an experimental breeding population within its former range. Factors that may limit OBF populations include suitable nest sites in cliffs and emergent trees, and availability of food—birds and bats of suitable size. These factors may be influenced by environmental effects such as habitat, climate, and predation. Human effects such as logging, agriculture, and shooting may play a role as well. The species' size, sexual dimorphism, wing-loading, speed, maneuverability, and other physical characteristics may help or hinder survival in various habitats for example, flat versus mountainous terrain may offer unique hunting opportunities or impediments to prey availability.



Marta Curti ascends after installing a camera in an OBF nest to record behavioral information about this little-known species.



Adult Orange-breasted Falcon.

STAFF

Field work is coordinated and carried out by Angel Muela and Marta Curti. Robert Berry is responsible for captive breeding at his facility in Wyoming. Volunteers monitoring the pair of OBFs at the sinkhole in Belize were Chris Hatten, Phil Hannon, Ryan Phillips, and Cody Phillips.

COOPERATORS

Robert Berry assists as a research associate in developing captive-breeding techniques for the species. In Panama we work with authorization of the Autoridad Nacional del Ambiente (ANAM) and Comarca Emberá-Wounaan. Important assistance was provided by Piñas Bay Resorts, S.A. In Belize we work with authorization of the Ministry of Natural Resources and the Environment. The Belize Zoo/Tropical Education Center provided logistical support. Hidden Valley Inn continues to provide valuable assistance and support.

Financial support was provided by Wolf Creek Charitable Foundation.

WEST INDIES PROJECT

GOAL Help prevent the extinction of raptors found only on the islands of the West Indies and conserve native habitats important for North American migrating birds.



Adult Ridgway's Hawk.

Field assistant Samuel Balbuena de la Rosa prepares to release a Ridgway's Hawk. The West Indies Project focuses on raptors found only on the Caribbean Islands. These islands are among the most important biodiversity hot-spots in the world, supporting a variety of habitats ranging from tropical rainforests to cactus scrub, and many plant and animal species that occur nowhere else. Rapidly growing human populations threaten these unique environments, which support some of the world's most critically endangered raptors. Our research and conservation efforts thus far have focused on the Ridgway's Hawk in Dominican Republic on the island of Hispaniola, the Grenada Hook-billed Kite, and the Cuban Kite. Our goal is to better understand the population biology and factors limiting raptor distribution and abundance, conserve the most threatened species, increase public awareness, and develop the local capacity for conservation through training and support.

RESULTS

Dominican Republic—The critically endangered status of the Ridgway's Hawk is based on its population size of no more than 250 individuals. Realistically, this number may be much less. Its current distribution appears to be restricted to forests, secondary vegetation, and forest fragments surrounding the 460 mi² (1,200 km²) Los Haitises National Park in northeastern Dominican Republic. The park is characterized by undulating limestone hills (*mogotes*) and valleys, and a subtropical broad-leaf forest which has been highly modified by a long history of agricultural activity. Since the first study was conducted in 1976, forested habitat has decreased dramatically. The loss of habitat, along with direct human persecution, appears to be the most significant cause for the extreme rarity of the Ridgway's Hawk.

We began with surveys in 2000 to locate as many Ridgway's Hawks as



possible to establish a population baseline from which conservation intervention could be developed and measured. Working with and training local cooperators, we found nine breeding pairs in 2002, 30 pairs in 2003, 72 pairs in 2004, and 74 pairs in 2005, all in Los Haitises National Park (LHNP) and a few forest fragments bordering the park. In 2006 our local partners Jesús Almonte of Fundación Moscoso Puello, Inc. and Samuel Balbuena de la Rosa of Dirección Nacional de Parques-Los Haitises recorded 241 Ridgway's Hawks in the LHNP and surrounding region, which included 114 territorial pairs and 13 single birds. Ninety pairs attempted nesting and 53 pairs were successful in producing 83 fledglings. Two of the three radiotagged juveniles from the 2005 breeding season were still present within a few kilometers of their nests. One juvenile from 2006 was radio-tagged and is being tracked and observed along with two juveniles from 2005 in an ongoing study to understand dispersal and survival of young.

We provided financial and material support to Sociedad Ornitologica de la Hispaniola to conduct conservation awareness and environmental education programs focused on the Ridgway's Hawk. The program occurred in four communities adjacent to LHNP—Sabena de la Mar, Los Limones, Paraguay, and Pilancon.

Haiti—In 2006 we provided funding and field equipment to Paul Rudenberg at the American University of the Caribbean to support Samson Compere in his search for Ridgway's Hawks in southwestern Haiti. There have been no confirmed sightings thus far.

Grenada—Collaborator and trainee Desmond McQueen conducted Grenada Hook-billed Kite surveys to assess the status and distribution of this remnant breeding population. He located six breeding pairs, and four young successfully fledged. He also spent one week on Carriacou Island, 20 miles north of Grenada, searching for kites, but none were observed. Since 2000, 15 nesting sites for kites have been confirmed, and Grenada's kite population appears to be around 50 birds.

Cuba—Collaborator Arturo Kirkconnell conducted surveys to verify the existence of the Cuban Kite in eastern and southeastern Cuba. Although there have been signs that the species may still exist, none have been observed since 1992.

FUTURE PLANS

We plan to continue surveys and monitoring of Ridgway's Hawks until we have enough information to determine their distribution and status, and implement conservation measures. In Dominican Republic in collaboration with SOH and the National Parks Department we will continue developing a local conservation awareness and education campaign for the Ridgway's Hawk and its habitat. In Haiti we will provide further support to Paul Rudenberg and Samson Compere in their search for Ridgway's Hawks. In Cuba, we will continue to support Arturo Kirkconnell in his efforts to determine the existence of the Cuban Kite.

> A 2006 juvenile female Ridgway's Hawk is radiotracked using a backpack-mounted transmitter.





A young Ridgway's Hawk nestling is weighed and measured as part of our research.

STAFF

This project is managed by Russell Thorstrom.

COLLABORATORS

We work in partnership with the Grenada Dry Forest Biodiversity Conservation Project, Grenada Forestry Department, Alan Joseph. Michael Jessamy, and Desmond Mc-Queen. Independent researcher Bonnie Rusk provided assistance and expertise. In Dominican Republic, biologist Jess Almonte conducted field work in the Los Haitises region. We collaborate with Dominican Republic National Parks Department and thank them for allowing Modesto (Samuel) Balbuena de la Rosa to assist in the field work in Los Haitises region. Valuable advice was provided by Jim Wiley, U.S. Fish and Wildlife Service. We collaborate with Angélica María Varela L. and Elvis Cuevas of Fundacion Moscoso Puello, Inc., and Jorge Brocca. Pedro Rodríguez, and Eladio Fernández of Sociedad Ornitologica Hispaniola. In Cuba, we collaborate with biologists Arturo Kirkconnell and Pedro Regalado. Genetic research is accomplished by leff Johnson and David Mindell of the University of Michigan.

Financial support for this project was provided by the Wolf Creek Charitable Foundation.



he goal of the Pan Africa Raptor Conservation Program is to help stem the loss of biodiversity in Africa. Protected areas contribute to this goal, but by themselves will likely not be enough; wide-ranging rap-

tors must also survive in human-dominated landscapes. By attempting to meet the ecological needs of raptors we can reasonably expect to also save significant portions of biodiversity in the food chain below them.

RESULTS

GOAL Conserve raptors and their habitats through research, education, developfor conservation and intervention.

STAFF

Rick Watson directs the Pan Africa Conservation Program

with assistance from project

Financial support for this pro-

gram was provided by grants

from the Disney Wildlife Con-

servation Fund, Paul Tudor lones II. and important Board

support. Genetic research is

accomplished by Jeff Johnson

and David Mindell of the Uni-

versity of Michigan.

staff listed separately.

COOPERATORS

ment of local capacity science, and hands-on

Results of our East Africa. Madagascar, and Zimbabwe Projects are described separately in the following pages. Rick Watson chaired a workshop on Cape Vulture conservation in South Africa which resulted in the publication of a Cape Vulture Conservation Plan and the creation of the Cape Vulture Conservation Task Force. Three small grants were provided in support of raptor research and conservation in Africa. Pat Benson received support for his long-term population study of endangered Cape Vultures in South Africa. Andrew Jenkins received support for a firstever survey for the rare and widely dispersed Teita Falcon in South Africa. The Mauritius Wildlife Foundation received a grant to complete an islandwide survey of the Mauritius Kestrel in 2007.

Cape Vulture Project, South Africa— The 2006/2007 reproductive season at the Kransberg Cape Vulture colony was the 26th year of observations at this site. A total of 700 occupied nest

sites (where nest building activities occurred and an egg may or may not have been laid) were observed at the colony this year, a 5.4% increase over the 2005/2006 nesting season (664). Of the 700 occupied nest sites, 674 were active nest sites (where an egg was laid), representing a 6% increase over the number of active sites during the 2005/2006 breeding season (636). The number of reproductively active pairs in the 2006/2007 season was the highest in the last seven years and 18th highest in the 24 seasons for which complete data are available. The number

A Crowned Eagle chick at its nest in Aberdare National Park, Kenya, prepares to take its first flight.

FUTURE PLANS

We plan to continue supervising existing projects in Madagascar, Kenya, and Zimbabwe as well as evaluate and support small grant projects, as possible, and assess needs and opportunities for new projects. We hope to expand our conservation, research, and training opportunities to additional countries in Africa, ultimately developing local capacity throughout the continent and its islands.

of fledglings ties for ninth highest in that same period. These data suggest that Cape Vulture numbers may be leveling out after a declining trend since the study began in early 1980s.

> Teita Falcon Survey, South Africa— Twelve people participated in the Teita Falcon survey from 17 September to 1 October 2006, accumulating 58 person-days of effort at nearly 40 observation points. These points were situated immediately above or below a minimum of 50 potential Teita nest cliffs, spread along about 40 km (25 mi) of the linear Drakensberg escarpment from Scotland Hill in the south to Chedle in the north, including the vast complexity of the Blyde River Canyon and concentrating on sites most likely to hold Teita pairs. Starting with a population of two known sites occupied by Teita Falcons, each with a history of successful breeding going back to the late 80s or early 90s, we were able to verify these as still active and add another two confirmed sites. Doubling the known population of the species for South Africa is no small achievement. In addition to the Teita Falcon sites, we also located active nest sites of Peregrine Falcon, Lanner Falcon (including three formerly occupied by Peregrines), Rock Kestrel, Verreaux's Eagle, Black Stork, Jackal Buzzard, and White-necked Raven. This information will be provided to the Blyde River Canyon Nature Reserve for use in management decisions in the canyon area.

EAST AFRICA PROJECT

GOAL Conduct raptor

research in threatened habitats to stimulate interest and conservation, help develop local capacity through student training and support, and increase public understanding about the need to conserve raptors and their habitats.

Above: The African Fish Eagle is a good indicator of aquatic ecosystem health.

Below: Simon Thomsett scans the vast Tsavo National Park landscape in search of released Crowned Eagles. ast Africa's spectacular habitats support more than 100 species of raptors (81 species of diurnal raptors and 21 species of owls), the majority of which are struggling to survive the tide of human-caused habitat loss and degradation. Declines in populations of previously common raptors throughout tropical Africa have created an urgent need to take stock and identify those species that require immediate conservation action. Long-term raptor studies in threatened habitats combined with education, training, and awareness programs, and the establishment of wildlife conservancies, will help create new possibilities for raptor conservation in East Africa.

RESULTS

Long-term Raptor Studies

When the East Africa project began in 1991, we established singlespecies studies in threatened habitats as part of student development programs and to increase our knowledge about little-known species. Over the last 15 years, these studies have provided a critical platform from which raptor populations could be measured and their role as indicators of ecosystem health accurately assessed. We provide this information to decision makers so that conservation actions are based on sound science.

African Fish Eagle—Since 1994, we have worked with the University of Leicester (United Kingdom) at Lake Naivasha in Kenya's Great Rift Valley to understand how the lake's African Fish Eagle population responds to environmental and human-caused habitat changes. The lake's water is used to support an expanding flower industry and the domestic needs of a rapidly growing human population. The subsequent effects on the lake include deteriorating water quality and shoreline habitat, and the ecological impacts of alien species introductions. These impacts have resulted in substantial year-to-year fluctuations in numbers of resident fish eagles. Between 2005 and early 2006, fish eagle numbers steadily increased from 100 to 130 individuals, with 23% as juveniles. This was a result of the proliferation of two accidentally introduced alien fish species. With this superabundant supply of food, fish eagles began to breed prolifically and increased in number. However, by the end of 2006, numbers declined to 82 individuals with juveniles comprising 6% of the population.

Out of 46 adult eagles banded over the last ten years, nine have been recovered dead, and only two banded birds were regularly observed alive. This raises questions as to whether the lake may be acting as a "sink" where birds die at a higher than normal rate, but are quickly replaced by birds from afar which are attracted to vacant territories around the lake; or whether fish eagles frequently migrate to other lakes. Our ongoing population study will provide a better understanding of fish eagle behavior and population dynamics in this rapidly changing ecosystem.

Augur Buzzard—In the southern Lake Naivasha area, we compared existing Augur Buzzard territories with those studied in the mid 1990s in different land use areas. The number of Augur Buzzard territories declined by





East Africa Project—continued from page 25



Populations of the previously abundant Augur Buzzard have declined in the Lake Naivasha region. 57% in the flower farming areas and by 40% in Hell's Gate National Park. A decline of this magnitude for a species that is still considered one of the most common raptors in the region is alarming and justifies a review of the status of all raptors in East Africa. We have shared this finding with other conservation organizations working in East Africa, and plan to participate in a review of the status of all raptors in East Africa at the Pan Africa Ornithological Conference next year. We will continue monitoring this species to identify factors that caused its population to decline.

Sokoke Scops Owl—We completed surveys on the endangered Sokoke Scops Owl in the Arabuko-Sokoke Forest, the second most important forest in mainland Africa for bird conservation. Despite extensive logging and forest degradation, owl densities only marginally declined compared with our measurements first made in 1993. Information collected from our monitoring studies of this diminutive owl will contribute toward the forest's management plan, overseen by the Arabuko-Sokoke Forest Management team (ASFMT), and help ensure species survival.

Rüppell's Vulture—We continued with our fifth year of monitoring southern Kenya's largest Rüppell's Vulture colony at Lake Kwenia, an important wetland and wilderness area that is threatened by human encroachment. The vulture population has remained stable since 2002 at 180 individuals with a maximum of 60 occupied nests recorded in April 2006. The conservation status of this species is under review with the possibility of it being adjusted to "near threatened" in 2007. Our work at Kwenia has been used by the local Masai community to help in developing the area into a wildlife conservancy.



Masai Mara Vultures—Following recommendations from our successful Vulture Workshop in the Masai Mara, we began wing-tagging vultures to track and monitor the birds' distribution, abundance, and movements. This project involves public participation in reporting sightings, so it also serves to generate public awareness about the value of vultures in the Mara-Serengeti ecosystem. Eighteen vultures have been wing-tagged and have been sighted as far as the Serengeti National Park in Tanzania. The annual wildebeest migration in the Serengeti-Mara ecosystem has been recognized as one of the Seven "New" Wonders of the World. Our studies on vulture-wildebeest dynamics will contribute to the preservation of this unique wildlife spectacle.

Crowned Eagle—With the support of Kenya Wildlife Service and Finch Hattons Lodge at Tsavo West National Park, we are helping to create awareness about the need to conserve forest eagles and their habitat through the monitoring of captive-bred and released Crowned Eagles. Egg depredation by unnaturally high densities of baboons continues to be a major problem affecting successful breeding attempts of an established pair of eagles. We are investigating ways to prevent baboons and other predators from destroying active eagle nests. The Crowned Eagle releases at Kitich successfully concluded in late 2005, and in 2006 we received reports from the local community that the birds continue to do well.

Vultures watch from the treetops over the annual migration of approximately 1.5 million wildebeest in the Masai Mara. Wildebeest provide an important food source to vultures and other predators.



Munir Virani prepares to wing-tag an African Whitebacked Vulture in the Masai Mara.

STAFF

The East African Project is conducted by Simon Thomsett and Munir Virani.

COOPERATORS

In Kenya, we collaborate with the Department of Ornithology at the National Museums of Kenya, Kenya Wildlife Service, Game Ranching Limited Athi River, Hell's Gate Management Committee. David Harper of University of Leicester (United Kingdom), Lake Naivasha Riparian Association, Arabuko-Sokoke Forest Management team (ASFMT), A Rocha, Nature Kenva, Michael Koikai, Senior Warden of the Masai Mara National Reserve. County Council of Narok. Baringo and Koibatek, Heritage Hotels, and Peter and Connie Frank of Finch Hatton's Lodge, Tsavo West National Park, In Uganda we collaborate with Makerere University Institute of Environment and Natural Resources (MUIENR) and Nature Uganda, while in Tanzania we collaborate with the Department of Environment, Government of Zanzibar.

Financial support for this project was provided by a valued anonymous donor.

Education, Training and Awareness

We provided a small grant to Darcy Ogada, a PhD candidate at Rhodes University studying the ecology of the Mackinder's Eagle Owl, a unique highland owl in Central Kenya. Darcy completed two and a half years of fieldwork, and with the help of field assistant Paul Muriithi, identified 16 owl territories within a 5.4 mi² (14 km²) area. Her study has shown that six prey species representing nearly half of the owls' diet were commonly found in small plantations within the owl territories.

We also provided a small grant to Paul Kirui, a naturalist/guide with exceptional field skills, who has been conducting a breeding study on vultures in the Masai Mara National Park. Over the last three breeding seasons, Paul has located and collected breeding information from 49 nests of four species of vultures, and will submit the results of his study to the Kenya Professional Safari Guides Association to achieve a Gold Certificate, the highest award category.

Our Athi River Raptor Facility continues to be popular among organized school groups and wildlife clubs where they learn about birds of prey and conservation issues affecting them. We conducted a raptor biology workshop for students at Makerere University in Kampala, Uganda, plus two five-day intensive raptor courses for students at the raptor facility.

FUTURE PLANS

We will continue our long-term population studies on African Fish Eagles at Lake Naivasha to understand how environmental and humancaused changes influence their populations. As feasible, we will continue to build on our existing studies on Augur Buzzards, Rüppell's Vultures, and Sokoke Scops Owl populations. In collaboration with the Government of Zanzibar, we will conduct a study on the little-known Pemba Scops Owl to obtain new information about the species that will help ensure its survival. Monitoring of captive-bred and released Crowned Eagles will continue at Tsavo and Kitich to understand how these large forest eagles survive after release and adapt in marginal habitats. The Athi River Raptor Facility will continue to provide a venue for student and public education. We will continue to promote interest in raptor research through training, and publication of popular and peer-reviewed articles. Our research efforts and priorities will be dependent on the security situation in the region which has worsened, particularly over the last five years.

MADAGASCAR PROJECT

GOAL Prevent the extinction of endangered raptors, assist in the conservation of essential habitat, and develop local capacity for conservation using Madagascar's rare and endangered birds of prey as a focus.

Adagascar is one of the world's most remarkable natural areas because of the island's vast biological diversity found nowhere else. The island is home to 24 raptor species of which 13 are endemic. Three of these species are known to be endangered: the Madagascar Fish Eagle, Madagascar Serpent-Eagle, and Madagascar Red Owl. The Peregrine Fund began work in Madagascar in 1990 to help conserve endangered birds of prey and their critical habitat, and develop national and local capacity for conservation through personnel and student training, education, and support. Our Malagasy staff of 25 has become one of the most effective conservation organizations in Madagascar, with a proven track record of innovative and successful conservation results. Right: Yves A. Rakotonirina and Adrien Batou, Peregrine Fund biologists, collect data about the lake where Pochards were re-discovered.

Below: Biologists were searching for Madagascar Harriers when they discovered the Pochard.



create Madagascar's largest (518,900 a or 210,000 ha) rainforest reserve. Working from Andranobe Field Station on the west side of the peninsula, we have continued to gather natural history and ecological information on endangered and poorly-known raptors, and assist Project Masoala and Association pour la Gestion des Aires Protégées (ANGAP) in conservation efforts. This year our field technicians assisted in the Madagascar Cuckoo-Hawk study and searched for Madagascar Serpent-Eagles from October to December. They searched four known serpenteagle nesting sites, and only observed three individuals, of which none were showing nesting activity.

The Madagascar Harrier is threatened by loss of nesting habitat as marshes are transformed to rice fields, wildfires burn marshes and grasslands, and humans collect Harrier young for consumption. This year we collected information on the distribution and abundance of the Madagascar Harrier throughout the country, recording only 77 individuals. We believe this species warrants endangered status based on the low numbers we found.

In November 2006 we re-discovered the critically endangered Madagascar Pochard, a diving duck, in a remote region of northern

RESULTS

Since inception, the Madagascar Project has focused on two major project sites. The first is in the western central part of the country where the Madagascar Fish Eagle and community-based Wetlands Conservation Project is centered on three lakes in the Manambolomaty conservation area. We developed an innovative community conservation project at this site that now serves as a model for others throughout the country.

In 2006, we continued logistical support to two community associations, FIZAMI and FIFAMA, which are under a 10-year charter agreement with the government to achieve natural resource management at the lakes. In a community that has no electricity or water, producing something as simple as identification cards does much to enhance the associations' ability to control fishing on the lakes.

Among the Madagascar Fish Eagles inhabiting the three lakes, eight of 11 territorial pairs (about 10% of the world's population) attempted breeding and five young were raised and left the nest in 2006. In the region immediately around the lakes, we monitored an additional 17 territorial pairs of which 12 attempted nesting and eight pairs successfully fledged one young each. This year we also conducted fish eagle surveys from August to September south of the Manambolomaty area in four regions: Miandrivaso, Belo-sur-Mer, Manja, and Belo-sur-Tsiribihina. We observed 17 individuals of which six pairs attempted breeding.

We continued surveys for Madagascar Fish Eagles in the Tambohorano area, from June to October 2006, where we recorded six pairs of fish eagles. Three pairs attempted breeding but only one pair successfully fledged one young. The human disturbance in this region is high, so we are planning an education and public awareness campaign focused on fish eagles and biodiversity conservation.

Our second major project site in Madagascar is located in the lowland rainforests of Masoala Peninsula, in northeastern Madagascar. This roadless region is one of the largest blocks of intact lowland rainforest remaining on the island. It was here in 1993 that we rediscovered the Madagascar Serpent-Eagle and Madagascar Red Owl, and in 1997 helped



Left: A Madagascar Pochard family. Thought to be extinct, this species was re-discovered by our biologists in November, 2006.

Below: The intense rainy season in Madagascar makes routine driving impossible; these biologists walked 12 hours on a flooded road to reach their study site.



died in captivity in 1991, and was widely held to be extinct. We are working with the Malagasy government and local communities to protect the pochard, other threatened species, and the wetland habitats they occupy. Malagasy student Juliot Ramamonjisoa is preparing to defend his Master of Science thesis on the Torotoroka Scops Owl at the University of Antananarivo. Donatien Randrianjafiniasa is writing his thesis on the nesting ecology of the Madagascar Cuckoo-Hawk at Ambatovaky Special Reserve in the eastern rainforest. Felice Rafarantsoa from the University of

Reserve in the eastern rainforest. Felice Rafarantsoa from the University of Tulear completed his second field season, studying the nesting ecology of the Black Kite in the southern region of Madagascar where he observed nine breeding attempts. For a third year, National Director Lily-Arison Rene de Roland taught a one-week course in avian ecology at the University of Tulear.

Madagascar. We documented a small breeding group of about 20

individuals. This species has not been seen since the last known individual

FUTURE PLANS

We will continue to assist the two local resource management associations, FIZAMI and FIFAMA, at the fish eagle and wetlands conservation site for as long as necessary to help ensure they successfully manage the natural resources they share with Madagascar Fish Eagles. In 2007 we will begin a new effort to establish protected areas under Madagascar's new protected areas system in the Manambolomaty conservation area and in two new sites, Bealanana and Tambohorano. Our capacity development effort will provide study opportunities for new Malagasy students, support their education, and help them publish research. We will also continue to provide educational opportunities and experience to our staff, and disseminate results and information through publications, conferences, meetings, and other venues at the national and international level.

STAFF

Russell Thorstrom manages the Madagascar Project with Lily-Arison Rene de Roland, Jeanneney Rabearivony, Marius Rakotondratsima, Jeanette Rajesy, and a staff of 22 in Madagascar who are listed in the staff section of this report.

COOPERATORS

We collaborate with the Ministère de L'Environnement et des Eaux et Forêts (MinEnvEF), Ministère de l'Enseignement Supérieur (MinSup), and Ministère de la Recherche Appliquée au Développement (MRAD), Association pour la Gestion des Aires Protégées (ANGAP), Office National pour l'Environnement (ONE), University of Antananarivo, University of Tulear, National Ramsar Committee (CONARAMS), United Nations Education, Scientific and Cultural Organization (UN-ESCO), Parc Botanique et Zoologique de Tsimbazaza, World Wide Fund for Nature (WWF-Madagascar), Wildlife Conservation Society, Conservation International, Ranomafana National Park, Projét Masoala, Madagascar Faunal Group, Durrell Wildlife Conservation Trust, and many others.

Financial support for this project was provided by Conservation International-Madagascar, Liz Claiborne and Art Ortenberg Foundation, Little Family Foundation, and several important individuals.



GOAL Conserve species in jeopardy through research, hands-on intervention, and development of local capacity.

STAFF

Rick Watson directs this program and serves as a Trustee on the Philippine Eagle Foundation board.

COOPERATORS

In Papua New Guinea we collaborate with the Research and Conservation Foundation of Papua New Guinea, Wildlife Conservation Society, Andrew Mack and Debra Wright, and the people of the Crater Mountain Wildlife Management Area.

In the Philippines, we collaborate with the Philippine Eagle Foundation, and Jim and Joyce Grier. Important financial support was provided by the Liz Claiborne and Art Orternberg Foundation. The Asia-Pacific Raptor Conservation Program focuses on raptors that occur in the Oriental and parts of the Australasian bio-geographic regions. The islands in this area, roughly between Southeast Asia and Australia, are notable for their species of limited range which are particularly vulnerable to extinction; projects in these islands are described below. Additionally, recent catastrophic declines in *Gyps* vulture populations in South Asia (Indian sub-continent) have resulted in three once common species being listed as critically endangered; the Asian Vulture Crisis Project is described in the following pages.



RESULTS

New Guinea Harpy Eagle Project—The New Guinea Harpy Eagle is one of the least-known large raptors in the world. Neither its basic biology nor population status were known until our studies began in 1999. Our goals are to complete first-ever studies on this littleknown forest eagle and develop local capacity for raptor research and conservation through support and training of New Guinea nationals. This year, New Guinea student Leo Legra completed hands-on training in Panama under our student education program and in collaboration with the Harpy Eagle restoration project. Leo applied for and received a commitment of support for graduate studies in the United States from the Wildlife Conservation Society and has applied to universities aiming to start in 2007. In preparation for his graduate study, we provided him with a small grant to fund field work to develop trapping and tagging methods for this species. Leo submitted a paper for publication on the "Nest-site selection and behavioral biology of the New Guinea Harpy Eagle" based on his previous year's field study. Field assistants Smith and Amos continued to monitor New Guinea Harpy Eagle nests from 10 pairs in various stages of the breeding cycle.

We will continue to provide student support, training, and guidance in the study of the breeding behavior and ecology of the New Guinea Harpy Eagle, and supporting local guides in the location of active nests. Using molecular genetics techniques, we will compare the systematic status of the New Guinea Harpy Eagle with other large forest crowned eagles.

Philippine Eagle Project—The Peregrine Fund assists the Philippine Eagle Foundation (PEF) to conserve and study the Philippine Eagle and other raptors in the 7,000 islands that make up the Republic of the Philippines. Together, we accomplish conservation results by using a holistic approach that includes species restoration through captive breeding and release, field research and monitoring, public conservation education, and community-based initiatives to conserve and restore eagle habitats. In addition to providing financial support and technical advice, in 2007 we will provide guidance and training in satellite radio tracking of Philippine Eagles, and provide an opportunity for biologist Jayson Ibanez to receive hands-on training in Panama.

Dennis Salvador and Doming Tadena of the Philippine Eagle Foundation.

ASIAN VULTURE CRISIS PROJECT

GOAL Help prevent the extinction of critically endangered Gyps vultures in South Asia.

> Hindu culture is tolerant of vultures nesting on buildings, such as this monument in Orcha, Central India, where a Long-billed Vulture nests.



Vultures in the Indian subcontinent have for centuries been icons of devotion, art, and culture, and have prospered for millennia throughout the region. Vultures play key roles in carrion removal, and thus, prevention of disease. Over the last decade, populations of at least three species of *Gyps* vultures have crashed as a result of poisoning from livestock carcasses containing residues of the veterinary drug diclofenac. Once considered among the most abundant raptors worldwide, the Oriental White-backed, Long-billed, and Slender-billed Vulture are now classified as *critically endangered* species and face imminent extinction unless remedial action is taken. Their survival and recovery depends on firm commitment from South Asian governments to completely eliminate veterinary diclofenac and similarly harmful drugs from the environment and to help establish captive breeding facilities throughout the region.

RESULTS

Population Monitoring

In 2000, we began measuring the breeding population size of Oriental White-backed Vultures by recording 2,400 occupied nests in a sample of 13 breeding colonies in Pakistan's Punjab Province. These measurements were repeated annually to document the catastrophic decline in vulture populations in response to diclofenac poisoning. After seven years, during which collecting dead vultures became a daily task, only one site, Toawala, was occupied by 27 breeding pairs of vultures in December 2006. This study has documented possibly the most disastrous population crash of any raptor species.

In the remote desert of Nagar Parkar in the southeastern tip of Pakistan, Long-billed Vultures face a similar fate as we continued with a fourth season of measuring their breeding population. Numbers of occupied nests of Long-billed Vultures have steadily declined from 290 in March 2003 when we began this study to 103 by the end of 2006, with only 40 occupied nests observed in March 2006 and fewer expected by March 2007.

In 2006 we continued monitoring vulture breeding sites in India in the states of Rajasthan and Madhya Pradesh. Oriental White-backed Vultures were not seen at any of our study sites, and numbers of occupied Long-billed Vulture nests further declined by between 20 and 44%. However, we also located, for the first time, and began measuring populations of two large breeding colonies of Long-billed Vultures at Chambal (94 breeding pairs) and Kymore (over 100 breeding pairs).

With the help of our partners, we collected field data on populations of Oriental White-backed and Himalayan Vultures in Nepal. Numbers of Field assistant Ved Prakash hangs a diclofenac awareness poster in Nimli village, Rajasthan State, India.

STAFF

The Asian Vulture Crisis Project is directed by Rick Watson and conducted by Munir Virani and Muhammad Asim. The Asian Vulture Population Project web site is maintained by Munir Virani. Field assistance was provided by Faisal Farid and Jamshed Chaudhry.

COOPERATORS

Patrick Benson assisted with fieldwork. Genetic studies are conducted by leff Johnson and David Mindell of the University of Michigan. We work in partnership with Nature Conservation Pakistan, World Wide Fund for Nature-Pakistan, Puniab Wildlife Department, National Council for Conservation of Wildlife (NCCW), Bird Conservation Nepal, The Royal Society for the Protection of Birds (United Kingdom), Bombay Natural History Society, and the Forest Departments of Rajasthan and Madhya Pradesh (Government of India). Financial support for this proj ect was received from the Disney Wildlife Conservation

Fund. Logistical support in In-

dia was provided by Dev Villas

and Nature Safari Limited.

occupied nests of Oriental White-backed Vultures in the Rampur Valley have decreased from 70 in 2002 to 36 in 2006. In the highlands of Annapurna region, population trends of Himalayan Vultures appeared to be stable with no apparent evidence of a declining population. Both results suggest less exposure to diclofenac in this region.

Conservation Initiatives

In February 2006, we participated in a conference on "Vultures and Diclofenac" organized by India's Ministry of Environment and Forests. This was an important meeting where significant progress was made toward a ban on veterinary diclofenac to ensure vulture survival. In May 2006 the Government of India declared that it would be illegal for Indian drug companies to manufacture or import diclofenac for veterinary use beginning on 12 August 2006. To date, 25 manufacturers in India have cancelled their licenses. The Government of Pakistan followed India's

example and banned veterinary diclofenac in September 2006. Nepal has also de-registered diclofenac, preventing the manufacture or import of the drug. This is an historic triumph in The Peregrine Fund's and its partners' efforts to help prevent vulture extinctions. Both India and Nepal are promoting the use of meloxicam as a safe alternative to diclofenac.

We continued provisioning the vulture colony at Toawala, Pakistan, with diclofenac-free food at our "vulture restaurant" feeding station, the first of its kind in South Asia, established in 2003. Our aim was to reduce overall vulture mortality by providing uncontaminated food and reducing vulture foraging range in response to the readily available food source. Despite reducing vulture mortality during the peak of the breeding season, our tracking study showed that between breeding seasons the restaurant had no effect on foraging behavior, and exposure to diclofenac continued unabated. Numbers of occupied nests in the colony declined again this year and at current rates is expected to reach zero in 2007. As a result, we closed the feeding station at the end of the 2005–2006 breeding season. Only one out of the five Oriental White-backed Vultures we had satellite-tagged for this study remained alive, the other four having died of diclofenac poisoning.

In April 2006, we assisted World Wide Fund for Nature (WWF-Pakistan) to collect five nestlings for their proposed captive breeding project at Changa Manga. Two of our former staff, Shakeel Ahmed and



colonies. Results are regularly posted on our web site and allow researchers to share their findings and maintain an up-to-date record of the status of Asian *Gyps* vultures. By February 2007, 31 individuals and organizations had contributed data from over 100 sites. Our web site has been referenced in a number of peer-reviewed journals and highlights the importance of maintaining this site as an information resource on three critically endangered species of vultures. This web site can be seen at www.peregrinefund.org/vulture/.

Faisal Farid, have been employed by

FUTURE PLANS

The ban on the manufacture of veterinary diclofenac imposed by the Governments of India, Pakistan, and Nepal in 2006 provides hope for the survival of remaining vulture populations. We are excited by this prospect and look forward to observing increases in vulture populations at our study sites. We will evaluate the impacts of the veterinary diclofenac ban on vultures by monitoring their populations throughout South Asia through field surveys and by encouraging contributions to our web-based AVPP. We will continue to work with South Asian governments and other organizations to evaluate threats to vultures from other similar veterinary drugs. We will assist WWF-Pakistan in the collection of up to 10 more vulture nestlings in 2007. Last, we will continue to publish scientific and popular articles to share information with other vulture conservationists worldwide.

32

The Peregrine Fund is a not-for-profit

organization and can only operate through the support of voluntary contributions. Because no work could have been done without this financial support, the birds truly are in your hands. We are proud to list the individuals, businesses, organizations, foundations, and agencies who have contributed \$100 or more, including gifts of goods or services, during 2006. We regret that space limits us to listing only those who have contributed at that level and above. Every donor is very important to us, and your continuing participation makes the programs possible. We thank each and every one of you for your partnership.



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\$200-499

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2006

BALANCE SHEETS • 30 SEP	TEMBER 2006	AND 2005
ASSETS	2006	2005
CURRENT ASSETS	¢ 1 450 600	¢ 1 007 00 1
Cash and cash equivalents	\$ 1,452,622	\$ 1,207,294
Merchandise inventory	22,674	30,685
Grants receivable	109,783	113,000
Other accounts receivable	94,077	60,993
Prepaids and other current assets	65,321	45,061
TOTAL CURRENT ASSETS	1,744,477	1,457,033
PROPERTY, EQUIPMENT, AND ARG	CHIVES	
Land	1,513,000	1,513,000
Land improvements	693,045	693,045
Buildings	4,160,061	4,160,061
Trailers	222,396	222,396
Equipment and vehicles	965,512	864,979
Fixtures and displays	699,241	699,241
Construction in progress	562,470	3,147
	8,815,725	8,155,869
Accumulated depreciation	(3,557,159)	(3,260,015)
	5,258,566	4,895,854
Archives	1,835,844	1,785,916
	7,094,410	6,681,770
ENDOWMENT ASSETS		
Cash	10,227	13,517
Investments	9,548,974	8,943,532
	9,559,201	8,957,049
	\$18,398,088	\$17,095,852
LIABILITIES & FUND BALANCES CURRENT LIABILITIES	2006	2005
Accounts pavable	\$ 294,340	\$ 135,451
Accrued taxes and expenses	21,642	15,248
Deferred restricted revenue	481,770	353,985
TOTAL CURRENT LIABILITIES	797,752	504,684
FUND BALANCES	046 725	0.47.240
Unrestricted operating fund	946,725	947,349
Restricted endowment fund	9,559,201	8,962,049
Investment in property,		
equipment and archives	7,094,410	6,681,770
IOIAL FUND BALANCES	17,600,336	16,591,168
	\$18,398,088	17,095,852

Many organizations and individuals contribute materials at no cost or at cost. Services contributed have been recorded at the amount it would have cost The Peregrine Fund.

The Peregrine Fund's financial statements were audited by the Certified Public Accounting firm of Eide Bailly LLP. A copy of the complete financial statements may be obtained by contacting The Peregrine Fund.



The above results do not include Pledges Receivable at 30 September 2006. Investment income consists of interest income and amounts withdrawn from Endowment Assets to fund current year operations. Expenses and related income for capital projects are excluded.



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