THE PEREGRINE FUND WORLD CENTER FOR BIRDS OF PREY

2000 ANNUAL REPORT

Working to Conserve Birds of Prey in Nature

Rabert Baleman

Letter from the President

Each year the challenges to conserve global raptor populations grow, rather than lessen. The map on this page reflects

those challenges.

An easier organizational path for The Peregrine Fund would be to ignore the vulture crisis in Asia, the decline of Harpy Eagles in Central America, and other new and critical conservation needs in which we are participating. We are well aware of our resource limits—money, qualified and dedicated people, and time. Return on resources invested now, however, will never be greater. A dollar invested today will have a far greater return than tens or hundreds of dollars a few years in the future. Tomorrow will be too late for the species we do not save today.



As is the tradition, our annual report updates donors and other cooperators and provides results from The Peregrine Fund programs and projects. We hope you enjoyed the new format for the newsletter where we highlighted a limited number of topics. A rapidly expanding source of information is our web site at *www.peregrine-fund.org*. Using the web site, we provide regular updated information, photographs, video and audio clips, and maps showing movements of raptors we are tracking by satellite, and much more. Through the Internet it is our goal not only to inform, but to engage readers in our global conservation and research activities.

Absent from this report and our other current information is the Hawaiian Endangered Bird Conservation Program. You may recall that in re-focusing our organization on raptors in 1999, the Hawai`i program, complete with staff, facilities, and equipment, was transferred to the Zoological Society of San Diego. Not only was the transition very smooth, but the program has continued to achieve good results. We do emphasize, however, that until the Federal and

Hawai`i state governments address the persisting habitatrelated issues (introduced rats, mongoose, cats, disease, etc.) that cause population declines and species' extinctions, viable wild populations of most native Hawaiian birds cannot exist. In 1999 we celebrated the de-listing of the Peregrine Falcon from the list of endangered species and looked forward to establishment of a monitoring plan for wild populations as required by the Endangered Species Act and to having authority transferred to state wildlife agencies for management of the species. In 2000 we also expected the announced and planned de-listing of the Bald Eagle by the U.S. Fish and Wildlife Service. None of these actions happened. Perhaps the situation will change for the better in 2001.

Thank you for your continued partnership in conservation of birds of prey and nature.

Sincerely yours,

Bill Burnham President

Board of Directors Update

Leadership is critical to success, and The Peregrine Fund continues to succeed with a truly exceptional Board of Directors.

Leading the Board we have had five Chairmen. The Founding Chairman is Tom Cade. Following Tom as Chairman were Roy Disney, Jerry Herrick (deceased), Julie Wrigley, and Hank Paulson. We now are honored to have a new Chairman and Vice Chairman of the Board, Jim Nelson and Paxson Offield, respectively.

Hank Paulson served two, two-year stints as Chairman of the Board. During his tenure the accomplishments were many, ranging from re-focusing the organization's actions on raptors and developing of a plan for the next century to de-listing of the Peregrine Falcon and raising the financial level of our endowment where its interest covers all administrative costs, allowing 100% of each dona-

tion to go directly to programs. Hank, in his new status as Chairman Emeritus and Board member, will continue to play a key role in the organization.

During Hank's time as Chairman, Jim Nelson served as both Vice Chairman and Chairperson of the Board's Nominating Committee. Both of those roles have now been assumed by Paxson Offield, our former Treasurer. The dedication and competence of both Jim and Paxson are well documented by their past leadership, and they have the full confidence of Board and staff.







Clockwise, from left: Jim Nelson, Chairman of the Board of Directors, with wife Karin in Uummannaq, Greenland.

Hank Paulson with Harpy Eagle at Neotropical Raptor Center in Panama.

Paxson Offield satellite tagging in Mag Bay, Baja, California, for The Billfish Foundation.

Northern Aplomado Falcon Restoration

he beautiful Aplomado Falcon was once a regular member of the coastal and interior grasslands of the American southwest. The best information



All photos, © Brian K. Wheeler



To establish a selfsustaining wild population of Aplomado Falcons in the southwestern United States and northern Mexico through captive propagation, release, and management with the ultimate goal of removing this species from the Endangered Species List.

describing the historical distribution and relative abundance of this species has been garnered from museum collections and from the notes of professional egg collectors. These records indicate

that the Aplomado Falcon was fairly common throughout south Texas, west Texas, southern New Mexico, and southern Arizona at the beginning of the twentieth century. Surprisingly, the number of Aplomado Falcon egg sets collected in south Texas between 1890 and 1915 outnumbered those of both the White-tailed Hawk and the Crested Caracara, species which remain common today. Unlike the White-tailed Hawk and the Crested Caracara, the Aplomado Falcon declined rapidly over the next few decades with the last nest recorded near Deming, New Mexico, in 1952. Perhaps the most plausible explanation for the Aplomado Falcon's decline was the combined effects of large-scale habitat change and human persecution. In addition, the widespread use of persistent pesticides probably eliminated the few Aplomado Falcons that remained, and effectively prevented any possibility for re-colonization from southern populations.

In 1977 The Peregrine Fund decided to develop a captive breeding and reintroduction program for the Aplomado Falcon because suitable habitat appeared still to exist and because their habitat requirements were consistent with certain forms of current land use, notably cattle ranching. Twentyfive nestlings were collected over a period of several years from populations in Mexico, from which a total of 578 captivebred falcons have been released into the wild. The Aplomado Falcon recovery effort received its first hint of success when a pair of adult falcons, bred and released by The Peregrine Fund, successfully fledged young in Cameron County, Texas, in 1995. This first successful nest heralded the return of a species that had been absent from the United States for some 43 years.

RESULTS

2000: The captive propagation team, under the direction of Cal Sandfort, was able to raise a total of 115 young from 29

breeding pairs. Their husbandry was excellent with fully 97.5% of all young hatched being successfully raised to maturity (see Captive Breeding for details)!

Three young falcons were retained for breeding, and 112 captive-bred falcons were released at eight sites along the Texas Gulf Coast. We estimate that 65% of the released falcons reached independence, a process usually requiring four to six weeks. The most significant impact upon the success of our release effort was aggression by territorial pairs of Aplomado Falcons and predation by Great Horned Owls.

By the end of the 2000 season we confirmed the location of 30 pairs of Aplomado Falcons. This represents a significant growth in the number of

pairs known, from the 19 pairs observed last year. South Texas is big country with limited access and we are confident this is a conservative number and that an additional number of pairs remain undetected. There are, at present, two core breeding areas which appear to be developing as a result of our release efforts. Ten pairs have been established on Matagorda Island, and a second group of 20 pairs approximately 240 km (150 mi) to the south around Laguna Atascosa National Wildlife Refuge. Of the 30 known pairs, 17 (57%) attempted to breed, and eight pairs successfully fledged a total of eight young. An average of 0.47 voung were fledged from pairs that attempted to nest. Mortality at nest sites remains high due to





Left and on opposite page: Adult breeding Aplomado Falcons.

Program direction, Peter Jenny; coordination, Bill Heinrich; propagation, Cal Sandfort; reintroduction, Brian Mutch; field manager, Angel Montoya; science assistance, Lloyd Kiff; field assistant, Amy Nicholas; and hack site attendants, Jon Abu-Saba, Thom Benedict, Matt Cambier, Marta Curti, Dale Dixon, Kate Hanson, Heather Jo Jensen, Ben Kinkade, Kristine Ann Lightner, Blake Massey, Jennifer Nixon, Molly Severson, Peter Toot, and Mike

STAF

COOPERATORS

Tuffelmire.

We cooperate with the U.S. Fish and Wildlife Service, the Secretaia De Medio Ambiente Recursos Naturales Y Pesca (SEMARNAP), and the Texas Parks and Wildlife Department. Support is received from many partners from the private sector. Working closely with Miguel Mora of the Patuxent Wildlife Research Center, we continue to analyze levels of environmental contaminants found in the blood collected from released falcons and from their addled eggs.

Providing essential financial support were the Lee and Ramona Bass Foundation. The Brown Foundation. Inc., Houston Endowment, Inc., Ruth O. Mutch, Robert J. Kleberg, Jr. and Helen C. Kleberg Foundation, National Fish and Wildlife Foundation, The Tapeats Fund, The Charles Engelhard Foundation, EXXON/Mobil Corporation, Turner Foundation, Inc., American Electric Power, U.S. Fish and Wildlife Service-Albuquerque, Karen and Tim Hixon, Bureau of Land Management-Idaho, USFWS-Clear Lake, State of Texas, Walter Negley, Herman Stude, Jane Smith Turner Foundation, Norcross Wildlife Foundation, and Mike and Carolyn Maples.

predation from Great Horned Owls and Raccoons. Over the years, the most successful pairs have been those nesting on power poles.

FUTURE PLANS

We will continue to release Aplomado Falcons in south Texas. Due to the increasing reluctance of commercial carriers to convey live animals, however, we have been forced to employ charter aircraft to transport Aplomado Falcons to release sites, adding considerable expense.

To protect released young from aggression by established pairs of falcons, and to achieve the program goal of establishing a self-sustaining population,

requires that we expand our efforts geographically and continue to develop new release sites. This year the U.S. Fish and Wildlife Service amended our Aplomado Falcon Safe Harbor Permit to include west Texas. To reduce landowner concern over the Endangered Species Act, we have now successfully enrolled more than one million acres of potential falcon habitat under the "Safe Harbor" Habitat Conservation Plan. This conservation plan provides protection for the landowner from potential restrictions imposed by the Endangered Species Act while at the same time providing access to essential habitat for the recovery of the Aplomado

Falcon. With the protection of private property rights provided by this conservation tool, we now hope to develop Aplomado Falcon release sites in west Texas. We are also working with the U. S. Fish and Wildlife Service in Region 2 to develop a mechanism under Section 7 of the Endangered Species Act which would permit the release of Aplomado Falcons in New Mexico without causing undue concerns for the private sector and users of public lands.

We will be working to develop ways to reduce the rate of nest mortality by encouraging falcons to utilize artificial predator proof nest structures and through experimentation with chemical repellents. Blood samples and addled eggs will continue to be analyzed for contaminant levels, and a manual describing propagation and release techniques for the Aplomado Falcon will be completed for publication.

The final goals of this conservation effort are to restore an important part of the unique wildlife heritage of Texas and to increase participation by the private sector in species restoration by instilling trust and by developing workable applications of the Endangered Species Act.





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



Previously released condor visits young burds prior to their release.

California Condor Restoration

he criteria for considering downlisting to threatened recommended in the U.S. Fish and Wildlife Service California Condor Recovery Plan is the establishment of three disjunct populations of condors, each numbering 150 individuals, including at least 15 breeding pairs in each of those populations. Two of the populations would be in the wild, while the third would be made up of captive birds. Once these objectives, as well as having a reproductively self-sustaining and increasing population with adequate genetic diversity, have been met, the status of the condor could be changed to threatened.

We are steadily working towards that goal. The captive population at the San Diego Wild Animal Park, the Los Angeles Zoo, and the World Center for Birds of Prey now numbers 98 with 34 pairs in breeding situations. As of 1 March 2000 the wild population in California was 24 condors, with 10 of those in the southern part of the state being managed by the U.S. Fish and Wildlife Service. The remaining 14 are in central California. managed by the Ventana Wilderness Society. The free-flying population in California is

"endangered" under the Endangered Species Act. The 25 condors flying free in northern Arizona under The Peregrine Fund's care are classified as a "non-essential experimental population" under the 10(j) rule of the Endangered Species Act. The designation, while ensuring the condors are fully protected from intentional harm, means their presence will not restrict current and future land management uses.

As of yet no breeding has occurred in either wild population, but that could change at any time. There are now individuals in each population reaching sexual maturity, between five and eight years of age. We are seeing courtship activities taking place with pairs in both California and Arizona and feel confident that the first breeding in the wild will take place in the near future.

RESULTS

The first release by The Peregrine Fund occurred in Arizona on 12 December 1996. Since that time there have been six releases totaling 47 California Condors in Arizona. Four releases occurred at the Vermilion Cliffs and two at the Hurricane Cliffs. There have been 18 mortalities, and an additional nine birds were returned, at least briefly, to captivity. Five of the returned condors have been re-released, and two additional birds will be rereleased next year. The remaining two returned condors were adults that were briefly released (see below) and returned to captivity. The wild California Condor population in Arizona is presently 25.

2000: The most significant result of the year for the California Condor project is courtship behavior by the oldest free-flying condors. Although most of the condors in Arizona over five years old periodically show courtship behavior, it is, of course, the six oldest birds which are the most encouraging. One pair is now seen regularly copulating and exploring potential nesting cavities. If things proceed as we hope, it should only be a matter of time until the first released condors are breeding in Arizona.

This year's releases in Arizona have been some of the most challenging of all. Please see The Peregrine Fund Newsletter No. 31, Summer/Fall 2000 for details.

In an attempt to accelerate breeding in the wild and to avoid mortality prior to condors reaching breeding age, we experimented this year with release of adult California Condors. In late 2000, we released two pairs of adult condors (9 and 10 years old) after holding them at the Vermilion Cliffs release site for over a month.

Both pairs were from our captive population at the World Center facility and had courted and laid infertile eggs. Years before we had good success releasing a group of two year olds held in captivity and felt that despite their having lived only in captivity, these older birds would also be able to adapt to the wild.

Soon after release, these older condors were seen feeding and flying together. They were, however, attempting to roost on the ground where they were more vulnerable to predators and had to be continually flushed to higher perches. The years in captivity had not allowed the condors to develop adequate survival skills. About three weeks after the first pair was released, covotes killed both condors of one pair. The second pair was quickly captured and returned to the World Center. Although this release did not turn out as we had hoped, we did learn a great deal from the experiment, and other strategies will have to be devised.

FUTURE PLANS

In 2001 the maximum number of condors possible will be released in northern Arizona based on breeding results. No changes are planned for rearing methods, but based upon our expanding knowledge gained since 1996, we will release the 2001 hatch year condors at a slightly older age. With falcons we learned the critical importance of timing release to

the wild to correspond with the right stage of behavior development of the species. We are hoping to expand our facilities at the World Center to allow for holding condors slightly longer prior to release and for rearing larger numbers of captive-bred young. This new facility would also accommodate condors returned after initial release in Arizona. As explained in the condor article in Newsletter 31, we have learned we can successfully re-release and establish in the wild condors brought back into captivity because of inappropriate behavior after first release.





STAFF

Coordination, Bill Heinrich with assistance from Brian Mutch; reintroduction Chris Parish, Sophie Osborn, Shawn Farry; field assistance Kirk Stodola, Amy Nicholas, Gretchen Druliner, Janelle Cuddeford, Gantt Charping, Helen Johnson, Lisa Fosco, Blake Massey, Adam Hutchins, Kristine Lightner, and Jody Bartz; and scientific assistance, Lloyd Kiff.

COOPERATORS

Assisting with transportation of the condors has been the Bureau of Land Management's Boise Smoke Jumpers, the Idaho National Guard, the U.S. Forest Service, Norm Freeman (based out of Phoenix), and The Salt River Project with both fixed wing aircraft and helicopters.

Additional cooperators are the U.S. Fish and Wildlife Service, the Los Angeles Zoo, the Zoological Society of San Diego, the Arizona Game and Fish Department, the Bureau of Land Management, and the National Park Service, as well as the local ranchers and lodge owners. Our special thanks to Maggie Sacher.

Financial assistance this year was provided by the U.S. Fish and Wildlife Service, Burns Family Foundation, Wallace Research Foundation, Netagonia, Turner Foundation, Inc., Jane Smith Turner Foundation, Idaho Bureau of Land Management, The Kearney Foundation, Bank One, Sidney S. Byers Charitable Trust, Norcross Wildlife Foundation, Inc., APS Foundation, Inc., and Tejon Ranch.

STAFF

Captive propagation at the World Center is accomplished by Cal Sandfort and Randy Townsend with assistance from Randy Stevens, Ross Dickinson, and Nedim Omerlegovic. Food production is managed by Amel Mustic with assistance from Roy Britton and Dalibor Pongs. Facility maintenance is under the direction of Randy Stevens.

COOPERATORS

Major financial assistance is provided by the U.S. Fish and Wildlife Service, the Lee and Ramona Bass Foundation, the Idaho Bureau of Land Management, and donors listed under species project

reports. Pathology and veterinarian support are provided by Meridian Veterinary Clinic, the Zoological Society of San Diego (Bruce Rideout). Washington State University (Lindsay Oaks), the Idaho Department of Fish and Game, Wildlife Health Laboratory, **Caine Veterinary** Teaching Laboratory, and The Raptor Center (Pat Rediq).

The World Center for Birds of Prey is a complex of buildings including those housing the breeding raptors.

Captive Breeding

aptive breeding is the cornerstone for the Aplomado Falcon and California Condor restoration programs, as it was for the Peregrine Falcon. Each year we are totally dependent on the skill of our staff and our captive populations of these species to produce the young required to advance recovery programs. Harpy Eagle propagation remains developmental, as



we can not yet predictably produce consistent numbers of birds for releases.

RESULTS

Ablomado Falcon - In 2000. 29 captive Aplomado Falcons laid 253 eggs of which 145 (57%) were fertile, 118 young hatched (81%), and 115 (97%) survived. Two falcons laid for the first time while all (27) falcons laving in 1999 did so again this breeding season. Three breeding age (2+ years) Aplomado Falcons did not lay but were only two years old and should lay in 2001. Of the 29 pairs, 11 copulated and produced 88 eggs with 64 (73%) fertile, 48 hatched (75%), and 46 (96%) survived. Seventeen of these 29 females were artificially inseminated with semen obtained by "stripping" paired males. Those inseminated females produced 162 eggs, 81 (50%) were fertile, 70 (86%) hatched, and 69 (99%) young survived.

By removing each Aplomado Falcon egg as it is laid, production can be increased from three eggs to eight or more eggs. Since Aplomado Falcons only incubate a three-egg clutch and natural incubation doubles the chance of the egg hatching, surrogate incubation is provided for the extra eggs by non-breeding Peregrine Falcons retained after the successful recovery of this species. In recent years this technique has increased the number of Aplomado Falcon chicks by over 60 percent.

California Condor - Nineteen of the 20 pairs of California Condors held at the World Center during the breeding season produced 26 eggs during 2000. Eight of the 26 eggs were fertile, and seven hatched. Eight females laid for the first time, and two of those produced a fertile egg each. One of these new pairs raised a condor chick

to fledging this season. A third pair produced its first fertile egg after having only infertile eggs the previous seasons. We are managing pairs to encourage them to hatch and raise their own young. After the breeding season four pairs of condors that had been producing only infertile eggs were switched

with other mates in the hope this will encourage the production of fertile eggs in the upcoming seasons.

There are presently 19 pairs of California Condors at the World Center. After the breeding season, and later in 2000, we released two adult pairs in Arizona with the hope that the release of older birds would accelerate breeding in the wild and help to bypass the juvenile mortality (see California Condor Program). Unfortunately, coyotes killed one pair. The second pair was immediately captured and returned to the breeding facility. Since this unfortunate loss there are now 19 breeding pairs in Boise instead of the 20 which began the breeding season.

We are presently in the planning stage for a new condor holding and chick rearing facility. The new structure will have two large flight pens for holding juvenile condors prior to transfer to the release site and over



Propagate the required number of the best possible physically, behaviorally, and genetically constituted raptors for release to the wild. 20 small enclosures where condor chicks can be raised while observing flying condors. There will also be two elevated observation stations allowing biologists to monitor and study the condors in the flight pens prior to release.

Harpy Eagle - Three females laid nine eggs, seven (78%) were fer-

tile, and a record three hatched and survived. All breeding age female Harpy Eagles laid. We accomplished a first—a young eagle was raised from a pair of captive-produced Harpy Eagles. We remain committed to moving all breeding pairs to our new Neotropical Raptor Center to enhance reproduction and to avoid the complexities of the U.S. Fish and Wildlife Service permitting system.

Archives of American Falconry

The Archives of American Falconry was established as a program of The Peregrine Fund in 1986, but the association between The Peregrine Fund and falconry is not new. The Peregrine Fund's Founders of the Board, along with many early employees, are falconers. Most derived their appreciation and insight for raptors from original association with the sport. Their use of falconers' techniques and insights in species recovery efforts was natural and played an important role in the successes enjoyed. Much of the original breeding stock—and funding—for the Peregrine restoration program came from the falconry community.

When we realized irreplaceable evidence

of the sport's American history was being lost with each death of a pioneer falconer, The Peregrine Fund established the Archives of American Falconry. The Archives is unique in its function, worldwide. Its success in acquisitions is unrivaled, and the extensive collections have attracted visitors from around the globe. Occupying quarters in the James N. Rice Wing of the administrative building at the World Center, the normal oper-

ating expenses of the Archives are met by proceeds from its own endowment fund provided by falconers. Thus, within The Peregrine Fund the Archives does not compete with funding for conservation projects.

RESULTS

2000: The value of the material accessions to the Archives this year (\$100,000+) was double its annual average. While

dollars per se are not

the important issue,

means for comparison.

Of special interest are

they do provide a

very successful and innovative

Similarly, Jack Oar, another

the same period. From the

we received a vast series of

Kodachrome slides, many of

them depicting a variety of fal-

conry personages and activities

at the North American Falconers

Association (NAFA) field meets

during the 1970s. It is the

career from 1968 to the present.

widely regarded veteran, gave us

estate of the late limmy Cleaver

his own notes covering almost



several donations of the To collect and convery types of materials serve evidence of the Archives was created the history of falto collect and preserve. conry and to doc-Dan Cover, a highly ument the role of respected falconer, falconers in raptor passed to us his comconservation in plete series of falconry the Americas. diaries documenting his

uniqueness of collections such as these that gives special significance to our preservation efforts.

Associate Librarian John Swift's continuing collection efforts have brought our library, already unsurpassed in English language references on the sport, to new heights. John was honored at the 2000 Annual Field Meet of NAFA with the joint Archives/NAFA "Heritage Award," in recognition of his role in the establishment of such an extensive collection, acknowledging it as an asset for the entire American falconry community!

Our Archives Heritage Publication Series, commenced last year, has enjoyed an auspicious beginning. The elegant "Patron's Edition" of the first volume, American Falconry in the Twentieth Century, is already outof-print, and 90% of the copies of the standard edition also have been sold. Brochures will go into the mail soon announcing publication of the second volume in the series—the diary of the historic 1940 visit to India by John and Frank Craighead. Information will also be on our web site at www.peregrinefund.org. All indications point to an even greater demand for this new volume, which should appear in late summer 2001.

FUTURE PLANS

The rapidly expanding archival collection has exceeded the space constructed for it in 1991. A similar situation exists for The Peregrine Fund's science library and specimen collections, and a new shared building is planned. These new quarters will allow us to upgrade the quality of our archival environment as well as the extent and configuration of our display and stor-

age facilities. The planned new building will thus fulfill our need for a quality facility, adequate for the long-term future. Funds are currently being sought for this expansion.



From top: Dan A. Cover, Jack Orr, and John Swift.





STAFI

Curator Archivist, S. Kent Carnie: Research/Editorial Associate, William G. Mattox: and Non-residential associates: Library, John Swift: Research, Craia Culver and Peter Devers; and Graphics, Don Garlock and Jim Stabler.

COOPERATORS

The Archives is dependent on the generous support of many friends, falconer and non-falconer alike. In 2000 particularly noteworthy assistance was received from Bill Boni, the California Hawking Club, Elizabeth and Kate Canby, Kent Carnie, Dan Cover, Walter Hill, the North American Falconers Association, Bill and Marcie Oakes, Jack Oar, Williston Shor, Sally Spofford, and John Swift. 7

Come visit us at the Velma Morrison Interpretive Center, open seven days a week.

STAF

Education Director, Nancy Freutel; Education and Raptor Care, Kim Middleton; Volunteers and Gift Shop, MaryAnn Edson; and Facility Management, Paul Malone.

VOLUNTEERS

Donating over 100 hours of service in 2000 were: Lillian Azevedo*, Pat Baumback, Christa Braun*, Karen Brender*, Helen Crewse*, Robin Didriksen, Don Disotell*, June Disotell, Betsy Eldredge, Phil Eldredge, Leo Faddis*, Anne Fitzsimmons, Bob Fitzsimmons*, Linda Fraser*, Joni Frey*, Pam Harris, Jerry Heimbuch*, Bryan Jennings*, Jeanne Koeberlein, Robert Koeberlein*, Pat Kolb, Mike McSweenev*, Milton Melzian*, Bob Murray*, Trish Nixon*, Brit Peterson*, Carole Smith*, Nikki Stilwell*, Dick Thatcher*, and Julia Zeise. * Docents

COOPERATORS

Our thanks to our many partners, including financial assistance from the Laura Moore Cunningham Foundation, Inc., the M. J. Murdock Charitable Trust, The Ahmanson Foundation, U.S. Bank. Union Pacific Foundation, J.A. & Kathryn Albertson Foundation, Boise Cascade Corporation, Bank of America Foundation, Trus Joist, a Weyerhaeuser Business. The Idaho Statesman and Gannett Communities Fund, and numerous individual donors and supporters.

Education Program

e accomplish our goals by providing factual information to the public and visual and hands-on experiences

during visits to the World Center for Birds of Prev. The Education Program formally began in 1985 with the first 3,500 visitors touring the World Center by appointment only. Since that time we have reached over 530,000 people through direct contact visiting the World Center and in our offsite programs. Additionally, we have reached an uncounted

through brochures, the media, letters, and internet.

The Velma Morrison Interpretive Center is our educational center. Built in 1992-93 and dedicated in May 1994, the visitors center fulfills the increasing demand by the pub-



Inform and educate the general public and primary and secondary students on the importance of birds of prey, nature. and our organization's accomplishments.

and increasingly large audience

lic to learn about our organization and our need to share factual information with the public. Since its opening the center continues to evolve and improve through updates in the facility and displays.

Year 2000: A balanced informative and entertaining educational experience was provided to all visitors. Our on- and off-site educational activities directly

reached over 31,000 people. The total number of admis-



Volunteer Ted Hanford leads an off-site school group in a "feather lesson."

sions to the Velma Morrison Interpretive Center was nearly 30,000. Our visitors included 306 school classes totaling 7,213 children. These children received specially designed



Of the over 4,800 who signed the guest register this past year, all 50 states and 30 foreign countries were represented. While 29% of these visitors were from the Boise/Treasure Valley area, 62% were from outside the state of Idaho. When this same group was asked how they were referred to our World Center, 55% indicated they visited because of recommendations of their friends and family.

A Golden Eagle was added to our education birds, and visitors are thrilled to be able to get such a close view of the magnificent bird. In the building's central core, our stage was completed and gives us a perfect location for bird presentations while allowing the visitor an excellent opportunity to take pictures. The new Discovery Room also received several exhibits and murals. The space is a welcome addition, especially for the school tours.



Our newest education member is "Jack," the Golden Eagle, introduced to our visitors by Trish Nixon. have always been a crucial component of our program, and we are seeking more. This past year 130 volunteers donated almost 8.000 hours of service. They led tours, staffed the gift

Volunteers

shop, cleaned raptor chambers, provided maintenance, performed general office tasks, served on display and education committees, gave off-site presentations, edited our volunteer newsletter, scheduled and trained other volunteers, and performed many other tasks. Our volunteers generously give their time and talents, and we give them our sincerest thanks.

FUTURE PLANS

We continue to improve the visitors center and exhibits to enhance the quality of the experience. Two exhibits currently under construction will be completed to give visitors more "hands-on" opportunities. We will also be planning an expansion to incorporate more of the Gerald D. and Kathryn Swim Herrick Tropical Raptor Building into the Education Program. This will increase space available for exhibits, offices, education birds, and even an indoor flight show.

The Peregrine Fund **Internet Web Site**

RESULTS

We established our web site (www.peregrinefund.org) in 1995 and enjoyed a few thousand visitors to the site that year. In 2000, nearly a half a million people used The Peregrine Fund's web site! Our site's popularity has increased partly because of the efforts to incorporate new technologies and ideas into the content of the site. There are now more than 150 million Internet users worldwide, visiting 6.6 million sites. These numbers continue to grow at an astonishing rate. The opportunity to distribute our information around the world is limited only by the number of people we can attract to our site-tell your friends!

FUTURE PLANS

In 2000 we added weekly update maps showing movements of Gyrfalcons tracked by satellite. In 2001 we will also be using this new technology to track California Condors and Peregrine Falcons, and adding maps to the web site.

One of the original uses of the Internet was for electronic mail ("e-mail"). Distribution of "E-Newsletters" to our members and interested parties will be added. These will be in addition

to our regular printed newsletters and annual reports and will not be replacing them. We are in the process of preparing our e-mail mailing list and initiating the E-Newsletter program. If you would be interested in having your e-mail address added to our list, please send your name and e-mail address to *tpf@peregrinefund.org*, place your e-mail address in the appropriate place on the envelope in this report and return it to The Peregrine Fund, or watch our web site. The E-Newsletters will inform vou of additions to the "What's New?" section of our site. This will include field notes, articles, updates from biologists, video, and audio

the experience and integrate users with our worldwide effort. Also planned for our web site in 2001 is the Global Raptor Information Network (GRIN). Among other aspects, this new program will include detailed species accounts, bibliographies, and contact data for experts on globally rare and little-known species of raptors. GRIN will grow into a new and valuable resource for conservationists. scientists, and the public.

from our projects around the

world. This will better share



To provide well written, factual, and timely information to the general public about our organization and its activities and in-depth information on raptors for conservationists and biologists through the Internet.

C O A



Brenda Ruckdashel and

The Internet site is maintained by Brenda Ruckdashel with assistance from Linda Behrman and Jeff Cilek.

COOPERATORS

Partial financial support for the Internet site was provided by the Ten Times Ten Foundation.



falcons were banded

Specimen Collection

RESULTS

Cumulative: The Peregrine Fund's reference specimen collection contains about 7,500 eggshell specimens and over 300 bird study skins. Some of these unique items are available for the public in the Discovery Room in the Velma Morrison Interpretive Center.

2000: Other than the routine addition of eggshell specimens and salvaged bird

specimens from the captive breeding programs and other sources, there was relatively little change in the status of the specimen collections in 2000. The most important acquisition

was a nice study skin of the extinct Passenger Pigeon from James Enderson, longtime Board member and Professor at The Colorado College. Jim also donated study skins of several falcon species.

Peregrine Falcon eggs represent a portion of the approximately 7,500 eggs in the specimen collection.

FUTURE PLANS The main specimen collections are presently housed in

temporary quarters. When the new library/archives facility is completed, the collections will be moved to a room especially designed to house them. More

specimen cabinets will be acquired, and efforts will be made to acquire collections of

GOAI

Develop and

tor study skin

specimens for

eggshells accumulated from captive breeding maintain systemprojects and pesticide atic collections of studies at other instieggshells and raptutions. In addition, more efforts will be directed toward research and refenlarging the reference erence purposes. collection of the

> world's diurnal raptor species through exchanges and gifts from museums.

STAFF

The specimen collections are supervised by Lloyd Kiff Science Director. Specimens are prepared by John Schmitt.

Research Library

RESULTS

Cumulative: Our research library continued to grow steadily in size during 2000, owing to gifts, purchases, and exchanges for items previously unrepresented. It now houses nearly 6,000 books and monographs on ornithology and conservation biology, as well as partial or complete runs of over 400 journal and magazine titles. Our catalogued collection of reprints, mostly on raptors, now includes over 11,000 items with about 5,000 more awaiting cataloguing. We presently maintain subscriptions or exchange agreements for over 200 journals, magazines, and newsletters.

2000: Robert Bowman. Professor Emeritus at San

Francisco State University and a leading authority of the birds of the Galapagos Islands, generously donated a substantial portion of his large research library, adding many valuable books and reprints to our collection. Other major gifts of library items were received from Jack Carter (Silver City, New Mexico), Board member James Enderson

(Colorado Springs, Colorado), Robert W. Storer (Ann Arbor, Michigan), and the Estate of Barbara Winternitz, late Professor at The Colorado College. Sally Spofford, of Portal, Arizona, again donated more materials from the huge library that she had amassed with her late husband, Walter ("Spoff") Spofford. She plans to donate the remainder of the library and Spoff's exceptional collection of photographs and slides in 2001.

A major milestone was reached in 2000 when cataloguing of the library, using the vast OCLC database, was completed. An increasing number of extramural researchers used the library, both through personal visits and by postal mail, faxes, or e-mail, and this trend is expected to increase as the

conservation/ research communities become aware of this globally important resource.

FUTURE PLANS

All available shelf space in our library is filled so it is very gratifying to begin solidifying plans for the construction of a new facility to house the research library, Archives of



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 biological community.

American Falconry, and specimen collections. This opportunity is in part being made available through a lead gift from the Jerry and Kathy Herrick estate. Preliminary architectural plans for the new building were included in our Summer/Fall 2000 newsletter, and it is hoped that we will break ground for the structure in summer 2001. We hope to complete the new building by early 2002. As

always, we continue to seek donations of libraries and individual books, especially now that we will soon have plenty of room to house them!

STAFF

The library is supervised by Lloyd Kiff. Dan Battaglia and Janna Secord catalogued reprints in 2000.

COOPERATORS

Financial support was provided by the Laura Moore Cunningham Foundation, Inc.



Student Education

RESULTS

Cumulative: Starting with our original close association with Cornell University, we have directly assisted students in completing 15 Ph.D. and 33 M.Sc. degrees or equivalents, and more than a dozen undergraduate degrees.

2000: Most of the students supported during 2000 were in pursuit of their Masters degrees, involved in species-specific studies on an interesting assortment of birds of prey, and associated with our Pan-Africa or Madagascar Projects. They included Ato Lakew Berhanu, who

studied the Bearded Vulture in Ethiopia, Mburu Chege, who studied the Egyptian Vulture at Hell's Gate National Park in Kenva, Susanne Schultz, who investigated the ecology of the Crowned Eagle in the Ivory Coast, and Gilbert Razafimanjato, who conducted studies on the endemic Peregrine Falcon population subspecies in Madagascar.

Two students, Ruth Tingay (University of Nottingham) and Carter Ong (Leicester University), completed their



Falcons.

provide research and educational M.Sc. degrees during opportunities for 2000. Ruth conductundergraduate ed field research on and graduate stuthe roles and reladents, both in the tionships of extra-United States and pair individuals at in other countries, Madagascar Fish especially in con-Eagle nests, and has nection with our extended her studies field programs.

to gain her Ph.D. Carter concluded a multi-year field study of the Martial Eagle in Kenya.

Mongolian biologist Nyambayar Batbayar began his studies at Boise State University in the Raptor Biology Masters degree program.

Four Pakistani students are being supported in the Asian Vulture project. They are using aspects of their field work in support of Masters equivalent degrees in Pakistan.

In association with our work in Greenland and the High

Arctic Institute, two Boise State University Masters degree students are being assisted. Catherine Wightman is in the final stages of her thesis writeup on Peregrine nesting habitat while Travis Booms completed his first of two planned field seasons looking at Gyrfalcon

diet. Both are working in the Kangerlussuag area.

FUTURE PLANS

We will continue the support of Malagasy and African students, and Boise State University students Nyambayar Batbayar and Travis Booms. As

always, we will encourage the publication of theses and dissertations by former graduate students we sponsored and will continue to seek highly qualified graduate students, particularly from developing countries, for participation in our projects.

Scientific Publications and Presentations

RESULTS

By the end of 2000, 817 publications, including 297 technical journal articles, dissertations, and theses, had been produced by biologists affiliated with The Peregrine Fund. Forty-four publications

appeared in 2000. A large number of these were in Raptors at Risk, a World Working Group on Birds of Prey volume that reported the proceedings of an international symposium on raptors held in Midrand, South Africa, in 1998. Indeed, 14 of the 90

papers in that volume were authored by Peregrine Fund staff members on a wide variety of topics.

Several additional technical journal articles continued to flow from the long years of field work on the Maya and Madagascar Projects, and by now nearly every raptor species of regular occurrence in the respective study areas, Guatemala and Madagascar, has been the subject of at least one important paper by our biologists. The field work in Madagascar has yielded 66 peer-reviewed papers, and 43 came from the Maya Project

> and the closely related Orange-breasted Falcon Project. Almost all reported virtually the first substantive information available on the various study species.

The published contributions of accomplished field biologist Russell Thorstrom, who worked on both projects, deserve special

mention. By year's end he was the author or co-author of 29 peer-reviewed titles, plus numerous in-house reports, on previously little-studied raptors and other species in these regions.

Dave Whitacre completed and submitted for publication the draft of a proposed book

on Raptors of the Maya Forest, a comprehensive summary of the most important findings of the eight-year Maya Project. This will be the first book on Neotropical birds of prey.

FUTURE PLANS

In the future, more emphasis will be placed on publishing the results of some of our projects, e.g., the Harpy Eagle, California Condor, and Aplomado Falcon, for which we now have several years of valuable, but unreported, data.



The mark of a good biologist publishing the field results! Dave Whitacre in his office, working through a mountain of results.





Present the results of research studies to scientific forums, government agencies, and interested groups.

High Arctic Institute





Conservation and understanding of Gyrfalcon and Peregrine Falcon populations and their environments in Greenland.



Above left: very early spring in the high Arctic.

Chad Cyrus prepares to release a white Gyrfalcon after banding, Maniitsoq Area, Greenland.

seabird, waterfowl, shorebird, and songbird species. West Greenland is an Arctic oasis and it is critical to expand our overall knowledge of the wildlife in this area in order to meet the challenges of future potential climactic changes and increasing human disturbances.

reenland is home to one

of the most unique and

life-challenging environ-

ments in the world. In

all, Greenland is 2,656 km

(1,660 mi) long and 1,045 km

(650 mi) wide, with only 15%

of the island being ice-free land

and the remaining 85% covered

with this small amount of land.

than an estimated 1,500 pairs of

estimated pairs of Gyrfalcons, in

Peregrine Falcons and over 750

addition to tens of millions of

Dovekies, more than a million

Thick-billed Murres, and other

by the Greenland Icecap. Even

Greenland is home to more

The Peregrine Fund officially began working in Greenland in 1993, building on a base of information, the first collection of which began in 1972 under the direction of Bill Mattox and with assistance from Peregrine Fund biologists using their vacations to volunteer and help out. In 1997 we founded the High Arctic Institute to demonstrate our long-term commitment to Greenland's natural resources and their management. Since that time our involvement has continued to expand, and this past summer we had projects in four different geographical locations within Greenland.

RESULTS

North Greenland—Thule Area

During the months of July and August, the 2000 season falcon survey located four active Peregrine Falcon nest sites and four active Gyrfalcon nest sites. The survey was conducted on foot, by kayak, and by boat and covered more than 350 km (217 mi) of coastline. At our Dovekie banding site we re-captured 141 individual Dovekies that were banded in previous years and placed 213 bands on new birds, bringing the total number of Dovekies banded since 1995 to 974 birds.

West Greenland

Inland—Kangerlussuaq Area From May through August, 83 known Peregrine Falcon nesting sites were checked for occupancv, and 51 were found to be active with an average of 2.82 young per successful pair. In addition, 58 known Gyrfalcon nesting sites were checked for occupancy, and 15 were found to be active, producing an average of 3.28 young per successful pair. Travis Booms initiated research on Gyrfalcon prey selection for his M.Sc. in raptor biology at Boise State University.

Coastal—Maniitsoq Area Beginning on 21 September and running through 15 October, a trapping station for Gyrfalcons and Peregrine Falcons was operated on a small island near Maniitsoq. During this period biologists lived in a small tent in below freezing temperatures, traveling weekly back and forth to town to get supplies in a nine-foot inflatable boat. A total of 18 Gyrfalcons were captured, five adult and 13 immature birds. Seven Peregrine Falcons were trapped, two adult and five immature birds.

Uummannaq Region— Uummannaq Area

During the month of June researchers conducted a survey

of 207 out of 210 previously known seabird, waterfowl, and falcon breeding locations recorded in the early 1900s by a medical doctor and amateur ornithologist. The results were disappointing as we found not a single Thick-billed Murre, where less than 100 years before over 1,000,000 murres were reported to nest in this area. Other species which had greatly declined in numbers were Common Eider Ducks, Blacklegged Kittiwakes, and Razorbills of which only a few individuals were seen. These sharp declines in bird populations are most likely caused by human-related factors.

Satellite Tracking—Maniitsoq Area

On 21 September and 13 October we placed platform transmitter terminals (PTTs) on adult female Gyrfalcons at our trapping station near Maniitsoq. Since that time we have been monitoring their movements via satellites to determine where these individual birds nest and winter. You can follow their movement on The Peregrine Fund home page by going to www.peregrinefund.org and clicking on "What's New?" and looking under "Gyrfalcon Satellite Transmitter Monitoring in Greenland." Maps are updated every two weeks, and spring movements to nesting sites should begin sometime in late March or early April.

Launching of TPFS Rasmussen— Kangerlussuag to Thule

During the early afternoon of 29 June a new "SafeBoat" slid off its trailer into the cold Arctic waters of Kangerlussuaq, Greenland. The 25 ft 4 in custom-made SafeBoat, made in Port Orchard, Washington, arrived in Greenland via a 109th Air National Guard C130 Hercules in early May. The maiden voyage of The Peregrine Fund's Ship Rasmussen was from Kangerlussuag to Thule, with a month spent in the Uummannag area conducting bird surveys (see "Notes from the Field" on web page *www.peregrinefund.org* for details). In all more than 4,345 km (2,700 mi) were logged. The Rasmussen is a welcome addition at the High Arctic Institute field station at Thule.

FUTURE PLANS

From early July through the end of August, eight satellite transmitters (PTTs) will be placed on Gyrfalcons and four PTTs on Peregrine Falcons in the Thule area. This will be the first time that PTTs have been placed on Gyrfalcons or Peregrine Falcons this far north and should lead to exciting new information. Be sure to check our web page to monitor the progress of these falcons.

> Ruth and Brian Mutch band Dovekies near Pituffik Glacier, North Greenland.



hoto by Kurt K. Burnham

STAFF

The project is managed by Kurt Burnham under the general direction of Bill Burnham with special assistance from Bill Mattox. Also participating in 2000 were Ryan Blaedow, Travis Booms, Tom Cade, Chad Cyrus, Gregg Doney, Mark Fuller, Laura Gissibl, Bill Heinrich, Tim Gallagher, Brian and Ruth Mutch, Jack Stephens (Thule Coordinator), Rob and Bill Studebaker, Robert Rosenfield, and Catherine Wightman.

COOPERATORS

Authorization was provided by The Commission for Scientific Research in Greenland, Greenland Home Rule Government, Danish Polar Center, and by the United States Air Force. We cooperate with Thule Air Base, the U.S. Department of the Interior/Bureau of Land Management, Conservation Research Foundation, VECO Polar Resources, New York Air National Guard, 109th TAG, Boise State University, Bent Brodersen/KISS Center, the University of Copenhagen Zoological Museum, and Danish scientists Knud Falk and Kaj Kampp, among others. Major financial support was provided by The Charles Engelhard Foundation, Ruth Mutch, Bennu and the Florence Heavi Family Trust, Jim and Karin Nelson, and the Arthur H. Weaver Family Trust. 13

The Prengrine eyrie fas gividus as switters and but the Arctic.

Neotropical Raptor Conservation Program

Region	Total Raptor	Endangered/	Poorly
	Species	Vulnerable	Known
Neotropical	86	16	21

ver the past two decades, The Peregrine Fund has achieved significant conservation and research results in the



Neotropics (the biological region from tropical Mexico south throughout Central and South America and the islands of the West Indies), from Harpy Eagles in Venezuela to the Maya Project in Guatemala, greatly increasing our knowledge on over 20 forest raptor species. Since developing our Raptor 2100 global strategic plan in 1999—The Peregrine Fund's approach to help ensure the survival of the world's birds of prey-we have worked to organize our efforts globally into meaningful actions in biologically similar regions. The





Development and implementation of a comprehensive program for conservation and research, and development of local capacity throughout the Neotropics by focusing on raptors.

Neotropical Raptor Conservation Program is the result of extensive input by Peregrine Fund staff and others to achieve conservation of biodiversity using a focus on raptors. The program has the support of the United States Congress, with some funding anticipated through the U.S. Agency for International Development (USAID).

ANTICIPATED RESULTS

Major goals of the program are: (1) conserving raptors known or likely to be in jeopardy because of their small or declining populations and/or limited or disjunct ranges, e.g., Orange-breasted Falcon and Harpy Eagle; (2) improving knowledge and conservation of raptor species, especially those for which too little is known to determine their status, e.g., Isidor's or Black-and-Chestnut Eagle; (3) answering important land management and conservation questions using the ecological needs of raptors as a yardstick for conservation, e.g., studies planned to understand how to minimize the impact of logging; (4) influencing human behavior using raptors as a flagship for conservation of tropical biodiversity, e.g., our developing



A traditional Embera/Wounaan woman with palm die tatoos.

Top: as part of our conservation education effort, staff members Edwin Urriola and Katia Herrera present a Christmas gift to a child in a rural community near the Harpy Eagle release location.

Below: Ecological Policeman Hilario Rodriguez has worked closely with our Harpy Eagle project since its inception. Shown here, he is providing a gift after giving a talk in a community near where "James," a captive-bred and released Harpy Eagle, was shot.



This young girl, an Embera/ Wounaan Indian, lives in the Darien region of Panama. Her friend is a young sloth.

Neotropical education program; (5) conserving important tracts of habitat for conservation of biodiversity, e.g., our participation in impact assessments of proposed dams on the Panama Canal; and (6) providing leadership and developing local capacity for raptor conservation and research in Latin America, e.g., Latin American student and staff support and training in Panama, a Harpy Eagle symposium in 2002, and other activities. Specific results and future plans are described separately in the following pages.

Neotropical Raptor Center

he Peregrine Fund's Neotropical Raptor Center (NRC), the headquarters of the Neotropical Raptor Conservation Program, is in tropical America in the Republic of Panama. Situated on top of a forested hill, it is adjacent to Camino de Cruces National Park as well as our offices within the City of Knowledge, formerly Fort Clayton. The Center includes offices, breeding facilities,

laboratories, and a base of operations for the region. This facility is centrally located to address the great challenges in Central and South America. The Panamanian Government has joined us in this conservation commitment on many levels, including providing land and facilities for the Center. Long-term studies of raptors can now be carried out literally in our backyard.

Top: Hank Paulson, then Chairman of the Board of The Peregrine Fund, and Alberto Aleman Zubieta, Administrador of the Panama Canal Commission/Autoridad del Canal de Panama sign an agreement establishing the Neotropical Raptor Center on properties managed by the Commission.

Right: we are converting former U.S. Army facilities for the Neotropical Raptor Center and adding new buildings atop a hill overlooking the Panama Canal. The Neotropical Raptor Center now houses Harpy Eagles, and a state-of-the-art Orange-breasted Falcon building is a recent addition. The Harpy Eagle enclosures have been built into the rainforest with minimal disturbance to surrounding vegetation. Other enclosures for forest-dwelling raptors will be added as needed. The site benefits from a high, clear area, which provides a breezy and panoramic site for birds, such as

> the Orange-breasted Falcons, which live above the canopy. The hilltop is also a hub for local and migrant raptors, and our future plans include the construction of lookouts to monitor the migration.



COOPERATORS

Establishment of the NRC is made possible by assistance from the Autoridad del Canal de Panama (ACP), the City of Knowledge/Fundacion Ciudad Del Saber, and the Autoridad Nacional del Ambiente (ANAM). Jacobo Lacs, who serves on our Board of Directors, has provided invaluable advice and assistance.

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



GOAL



Adult female Harpy Eagle feeds its small chick. Notice the huge nest, no doubt used for many years.

Right: nestling Harpy Eagle stretches its wings.

human persecution, and by

reestablishing lost and bolstering remnant eagle populations through propagation and release where habitat remains, and by expansion of knowledge of the eagle through research.

Harpy Eagle Conservation and Research

e have focused our work on Harpy Eagles in Panama where our goal is to create an exportable model in the conservation of this and other similar species. Panama is culturally diverse, and it is probably the last frontier in Central America for a viable population of this magnificent bird. Thus, it is there we find most of the factors imperiling Harpy Eagles throughout their range. Panamanian forests connect from its bustling capital to remote villages in the Darien.

Panamanians consider the Harpy Eagle their national bird, but only recently has legislation been proposed to make this the law. An important step towards recognizing this national treasure, this legislation will also buttress its protection. After several years working in Panama, we are beginning to see tangible changes in the public perception of wildlife. However, the road ahead is a long one, and human persecution continues to be the principal cause of Harpy Eagle population decline.

RESULTS

Propagation: This year three young Harpy Eagles, two females and one male, were produced. Because of the need for public education, they have been placed temporarily in

three different educational programs. When they are of breeding age they will be paired at our Neotropical Raptor Center in Panama.

Release of Captive-Produced *Eagles:* To date, five Harpy Eagles have been released in Panama. We have successfully brought them to independence

and have refined methods for the reintroduction of this species. Nonetheless, tracking birds daily to insure their safety in the forests around the canal may not be feasible. Instead, focussing on

increasing public awareness to reduce the risk to the young eagles may be a more effective conservation tool. This was brought home when "James," our veteran male of the Smithsonian research island (Barro Colorado Island), ventured off the protected monument and was promptly killed. We plan to place a female and male, also independent for over two years, on the island as they approach breeding age.

Research: We continue to collect valuable data on Harpy

Eagles, both in the wild and with our released birds. Ricardo Gil da Costa and Marc Hauser collaborated with us on a series of experiments detailing the anti-predator behavior of an important Harpy Eagle prey species, the Howler Monkey (see Newsletter No. 31). Our biologists Jose Vargas and



Edwin Urriola are collecting data from wild Harpy Eagle nesting territories in order to assess habitat use and estimate the population size. Biologists Ianeene Touchton and Kathia Herrera focussed on

studies of released birds and public education with assistance from our ecological policemen, Hilario Rodriguez and David Mojica.

Public Education: Our most successful educational program to date has been the conveyance of school materials to rural communities in the name of Harpy Eagle conservation. Spearheaded by Helen Kiser, a Texan school teacher working in Panama, we collect school materials from the more affluent urban schools and donate

them to people living in needy communities near nesting Harpy Eagles. Each child prepares a package including pens, pencils, erasers, and notebooks which is then sent to children in communities where we are working. These much needed materials serve to involve parents, teachers, and students alike.

This year, our public education efforts also targeted the sector of society most likely to shoot Harpy Eagles, the rural non-indigenous people. This group generally lacks the traditions found in indigenous groups, including respect for large predators. These people are also penetrating forest habitat at a rapid rate. Kathia Herrera has given most of the presentations in rural communities with help from staff experienced in this task with indigenous communities.

We continue to work with various film crews devoted to conservation, in particular with long-time Harpy Eagle researcher and cinematographer Neil Rettig. These films reach a wide audience and have a significant impact on conservation.

FUTURE PLANS

Our Harpy Eagle facility housed within the Neotropical Raptor Center is now nearly complete. One young pair is already housed there and when the nesting cycle of our eagles at the World Center for Birds of Prey in Boise is complete the eagles will be transferred to our Panamanian facility. We expect our Harpy Eagles will make themselves at home in the large enclosures nestled in the rainforest.

Research goals this year will focus on the publication of material from both wild and released birds. We plan to expand our studies of prey species to include the Capuchin Monkey with our Harvard University collaborators, as well as continuing our studies of Howler Monkeys. Mostly, we will continue to gather data from our now sizable population of known nesting territories. These first years have marked the beginning of the long road ahead to save the Harpy Eagle in Central America and elsewhere.





Top: Angel Muela with recently hatched Harpy Eagle chick.

Below: Harpy Eagle country.

STAFF

Alberto Palleroni manages the project in Panama and directs our research activities there under the overall guidance of Rick Watson. Also participating are Angel Muela (captive breeding and management), Francisco Barrios (operations and field work), Edwin Urriola, Jose Vargas, and Kathia Herrera (field biologists), Janeene Touchton (field biologist, Barro Colorado Island), and Hilario Rodriguez and David Mojica (Ecological Police). Lilia Mendoza manages the office.

COOPERATORS

The partnership of many individuals and organizations has made this project possible, including, in Panama, the Presidency of Panama, Autoridad del Canal de Panama, Autoridad Nacional del Ambiente, Autoridad de la Region Interoceanica, Patronato Amiaos Del Aguila Harpia, Smithsonian Tropical Research Institute, City of Knowledge/Fundacion Ciudad Del Saber, Fundacion de Rehabilitacion de Especies Tropicales, USAID, Jacobo Lacs, David de Castro, Asociacion Nacional para la Conservacion de la Naturaleza, Alcaldia del Distrito de Panama/Summit Gardens, Canopy Towers, Bern Empresas, ANCON, Panama Audubon Society, the Collective Lands of the Embera and Wounaan Indians, Kuna Yala (San Blas Lands), Comarca Nogbe Bugle (Teribes, Waymies, and Bokota Indigenous Lands), and Soberania, Darien, Camino de Cruces, and Chagres National Parks. From the United States we cooperate with Marc Hauser of Harvard University.

Major financial support for this project in 2000 was received from the Offield Family Foundation, The Charles Engelhard Foundation, the Ledder Family Charitable Trust, Mr. and Mrs. Jacobo Lacs, and Pennzoil Company.



First photograph of a Grenada Hookbilled Kite nestling!

STAFF

Russell Thorstrom leads this project.

COOPERATORS

Participating with us in this project are the Grenada Dry Forest Biodiversity Conservation Project, Grenada Department of Forestry, Grenada Department of National Parks, Dominican Republic Department of Forestry, and Annabelle Dod Bird Club.

West Indies Project

he West Indies form a sweeping 4,020-km (2,500-mi) arc of islands that run east and south from Cuba to Grenada. Cuba lies only 144 km (90 mi) south of Key West, Florida, and 200 km (125 mi) east of Mexico's Yucatan Peninsula Grenada is located 137 km (85 mi) off the eastern tip of Venezuela. In general, endemic species found only on islands are vulnerable to extinction

because their habitat and range are severely limited. The raptors (at least six species in jeopardy) and other species found only on the West Indies islands of the Caribbean are no exception.

The West Indian flyway is a critical link in the migratory routes of shorebirds and songbirds, including about 100 migrant species that breed in North America, as well as Peregrine Falcons, Merlins, and other raptors. By focusing on the conservation needs of island endemics and endangered raptors that require large areas of intact habitat in which to survive, we can hope to provide an umbrella of protection to many other plants and animals that are unique to this island chain.

The West Indies project will provide up-to-date information on the conservation status and ecological needs of our initial focal birds, the endangered Ridgway's Hawk and Grenada Hook-billed Kite, and help establish new conservation efforts for these

species and their

environments based

on new information

and science. Work

could potentially

to other endemic

progress from there

raptors in jeopardy,



Help prevent the extinction of raptors found only on the islands of the West Indies.

> Gundlach's Hawk and Cuban Hook-billed Kite. In 1999 a pair of Peregrine Falcons nested for the first time ever in Cuba; this remarkable event could lead to establishment of a new breeding population, which should be monitored during its buildup.

such as the

RESULTS

2000: Surveys for Grenada Hook-billed Kites identified at least 15 individuals, some in areas not previously reported, and located two nesting pairs and two other pairs exhibiting courtship behavior. We estimate the population may be about 50 birds. Surveys for Ridgway's Hawks located only two individuals and no nests. The two individuals were found in and near Los Haitises National Park in the Dominican Republic. The population is most likely gone in Haiti. Overall, we estimate the population to be critically low.

FUTURE PLANS

Surveys are planned to determine the species' population status and understand what factors limit their distribution and abundance within the islands. Potential factors that we will investigate include food sources and possible limitations (e.g., introduction of predatory snails that consume suitable prey snails for Grenada Hook-billed Kites) and nest sites and their limitations (e.g., nesting habitat for all species may be diminished). Evidence of persecution by people will be investigated. On each island we have identified local collaborators and will investigate the potential for training and support of a raptor biologist. Development of a local biologist focused on conservation of birds of prey is an essential goal of each of our projects, so we can expect conservation efforts to continue beyond The Peregrine Fund's involvement.

Orange-breasted Falcon Project

he Orange-breasted Falcon is among the least known and rarest of all falcons. Although the overall range of this species at least once extended from southern Mexico through Central America and throughout portions of South America, it is sparsely distributed, difficult to detect, and apparently threatened by habitat alteration and possibly the associated expansion of avian competitors. Central American populations appear to have become isolated from their South

American counterparts and may be vulnerable, if not in jeopardy, due to small size and genetic isolation. Isolation of small populations of tropical forest raptors is already a conservation problem in some parts of the world (e.g., the Javan Hawk Eagle, Indonesia) and will increasingly become so

as forests are fragmented and lost. Understanding the consequences of isolation and developing methods to combat its negative effects are important for conservation and to improve our scientific understanding. This project aims to (1) determine whether the Belize/Guatemala population is isolated from its South American counterparts, (2) develop methods needed to bolster isolated populations through captive propagation and release, and (3) understand the consequences of isolation and assess how they may be mitigated.

RESULTS

Cumulative: Studies in the 1990s located 19 pairs of Orange-breasted Falcons in Belize and Guatemala and gathered important new informa-



Understand the consequences of population isolation in fragmented landscapes and develop captive breeding and release methods.

tion on the species' ecology. Surveys in 1999 located no Orange-breasted Falcons in what appeared to be ideal habitat in the Sierra del Warrunta range in Honduras. 2000: Aerial and

ground surveys from Belize south through Central America produced no Orange-

breasted Falcon sightings until Panama. Biologists concluded that there is little suitable habitat remaining between the northern population in Belize and Guatemala and pairs found in Panama. Even where suitable habitat remained, no falcons were found.



FUTURE PLANS

Comparative ecological studies are planned in South America to understand how tree-nesting may affect our estimates of the distribution and abundance of the Orangebreasted Falcon. Genetic studies will be undertaken to determine whether differences exist between isolated northern populations and the majority of the species in the south. At the same time, we will begin working on techniques for conservation and restoration to bolster remnant populations and to restore extirpated populations.

Objectives include (a) predictable captive breeding, (b) release techniques that maximize survival and reproductive potential, and (c) reproduction in the wild of captive-bred and released falcons. Collection of nestlings for captive breeding is planned for 2001. Propagation will primarily occur at the Neotropical Raptor Center, Panama. Initial releases will take place in Panama and/or Belize and then expand into the region where the falcons were known to occur but now are believed to be absent.

STAFF

This project is coordinated by Rick Watson and conducted by Alberto Palleroni, Russell Thorstrom, and Peter Jenny. Aaron Baker and Serena Ayers assisted during 2000.

COOPERATORS

In Panama the work is authorized by the Autoridad Nacional del Ambiente. Funding for the project is provided by the Wolf Creek Charitable Foundation.

Pan-Africa Raptor Conservation Program

Region	Total Raptor	Endangered/	Poorly
	Species	Vulnerable	Known
Pan-Africa	89	16	7





Above: Crowned Eagle in its habitat.

Left: Rick Watson, International Programs Director.

STAFF

Rick Watson directs the Pan-Africa Conservation Program.

COOPERATORS

Cooperating with our work are the Conservation Planning Unit of the University of Pretoria, State University of New York, University of Liverpool, National University of Abobo, Abidjan, and Taï National Park. onservation in Africa has historically focused on preserving the large mammals for which the continent is famous—antelope, elephant, buffalo, and predators like the lion, leopard, and cheetah—in large protected areas. As the human population has increased, protected areas have

increasingly come under pressure for use by herders, subsistence farmers, and others. Despite the tracts of land set aside in the past century, the importance of developing a conservation ethic that includes "living with wildlife" in the humandominated landscape is increasingly understood by conservationists and decision makers. As farranging predators, ranto

ranging predators, raptors typify the kinds of animals that benefit most from this broader approach. The Pan-Africa Conservation Program aims to help conserve raptors and other biodiversity in Africa's humandominated landscapes through public education, hands-on conservation, research, and development of local capacity to help ensure the effort is sustainable.

RESULTS

Cumulative: The Pan-Africa Program started 10 years ago with new efforts in Kenya by Simon Thomsett, combined with ongoing work in Zimbabwe and Madagascar. In a decade we have trained and supported three Ph.D., 15 M.Sc., and numerous other local, as well as U.S., students. Many now work in conservation, some for The Peregrine Fund. Research has contributed new knowledge

GOAL

Conserve raptors and their habitats through research, education, and development of local conservation and science capacity, and hands-on conservation. ributed new knowledge on raptors, such as the Bearded Vulture, Sokoke Scops Owl, African Fish Eagle, Crowned Eagle, Martial Eagle, Cape Vulture, and others. Habitat conservation accomplishments are highlighted by our having helped create Madagascar's largest rainforest national park and by having established a community-

based wetland conservation project. Hands-on conservation includes the reintroduction of Bearded Vultures to Hell's Gate National Park.

2000: We completed a pilot study using Geographical Information Systems technology to model raptor distributions in Madagascar, based on habitat, climate, and human parameters. The objective was to predict raptor distributions and identify species and areas in need of special conservation attention. If this approach proves successful, it will provide an important tool for identifying conservation priorities for The Peregrine Fund and could be made available on our Internet-based information site (Global Raptor Information Network) as a tool for users worldwide.

Susanne Shultz is investigating the ecological and behavioral role of the African Crowned Eagle in Taï National Park, Ivory Coast, the largest intact primary forest in West Africa. Her goal is to use Crowned Eagle diet analysis to detect change in medium-sized mammal populations in response to illegal poaching. These data will be used to leverage resources to curtail illegal activities within the park. Susanne and her Ivorian colleagues completed another season of field work, and Simon Thomsett provided training and assistance with capturing Crowned Eagles for radio-tagging and tracking. Susanne successfully completed her Mastersdegree as a result of this study and is continuing with her Ph.D. through the University of Liverpool, United Kingdom.

FUTURE PLANS

We will continue to provide direction, training, and support for research on little-known species and/or those in jeopardy. Project plans are described in the following pages.

20

Bearded Vulture Reintroduction to Kenya

The Bearded Vulture is globally threatened, and endangered in Kenya, South Africa, and Europe. No breeding Bearded Vultures are known for Kenya. Reintroduction in Europe has been somewhat successful, but this project is a firstever attempt at reintroduction in Africa. Bearded Vultures last nested in Hell's Gate, Kenya, in 1979. They were most likely lost because of rock climbing and other activities prior to Hell's Gate National Park being established in 1984. Now that the area is protected, the chances are high for successful reintroduction to this once famous breeding area.

RESULTS

Cumulative: Kenya Wildlife Services first invited our leadership in this project in the early 1990s. Research indicated that Ethiopia was the most suitable source for young birds and discussions began there in early 1998. First translocations occurred almost two years later in 1999, for release in 2000.

2000: Two nestlings from Ethiopia were rescued from siblicide (death of the secondhatched chick, usually caused by the first hatched), and translocated from Ethiopia, where numbers are still reasonable, to Kenya in December 1999. They

were raised in captivity until within two to three weeks of fledging age when they were transferred, in March 2000, to a specially constructed release site on the cliffs of Hell's Gate Canyon. Here they were cared for in a protected nest cavity until old enough to fly. Both birds flew immediately upon release in April 2000, but as we hoped, they returned to the release site to be fed for several weeks while they grew independent, explored further, and became adept fliers. The birds were tracked daily, and were rescued on several occasions when, in their early days, they landed on the ground and could not take flight again. They seemed to be doing well until one was found dead in an exhaust tower of a nearby geothermal power plant. We hope to convince the plant managers of the need for covers on the exhaust towers which could easily have prevented this fatality. The second bird is still doing well, foraging in the vicinity of its release site and supplied food at our "vul-

Perhaps one of the greatest benefits of this first year's release was the public and media interest in the release. Local land-owners, Masai chiefs and herders, Kenya Wildlife Service personnel, and press

ture restaurant."

were present at the release. The impression of two Bearded Vultures flying free for the first time reinforced the conservation lecture given before the release, that large, far-ranging birds such as Bearded Vultures need large intact areas of habitat in which to survive. They need the cooperation and protection of private land-owners as well as protected areas.

This project is also providing an opportunity to train numerous Ethiopian and Kenyan conservation personnel. Biologist Lakew Berhanu is being supported through his Masters degree in conservation biology at Durrell Institute of Conservation and Ecology, United Kingdom, to help increase the number of conservation specialists.

FUTURE PLANS

Long-term success for this project will depend on multiple releases of many birds. Mortality of young birds before reaching sexual maturity is typically high, even in the absence of human interference, such as the exhaust towers or poisoning by herders. If human factors can be mitigated, then we would expect to release about 10 young birds for every breeding pair established. At this time Simon Thomsett is again raising three





To re-establish the Bearded Vulture (Lammergeier) as a breeding species in Hell's Gate National Park, begin restoration throughout Kenya, and help develop in-country raptor conservation in Ethiopia.

nestlings translocated from Ethiopia for release in Hell's Gate National

Park. He is also working with the geothermal plant officers and Kenya Wildlife Services staff to mitigate human hazards to these birds in and around the national park.

Project management in Kenya and Ethiopia is by Simon Thomsett.

COOPERATORS

We collaborate with the Ethiopian Wildlife Conservation Organization, Hell's Gate Management Association, Kenya Wildlife Services, Ornithological Department of the National Museums of Kenya, and others.



Photo by Rick Watson

Simon Thomsett scans cliffs for nesting Bearded Vultures, Ethiopia.



Help prevent the imminent extinction of the Cape Verde Red Kite and promote conservation of other raptors on the Cape Verde Islands.

An example of the rugged and hostile environment inhabited by the Cape Verde Kite and local people.

STAFF

This project is directed by Rick Watson and conducted by Sabine Hille.

COOPERATORS

We work closely with the Cape Verde Institute of Agriculture (INIDA), the Konrad Lorenz-Institute for Comparative Ethology in Austria, and The National Birds of Prey Centre in the United Kingdom.

Cape Verde Red Kite

The Cape Verde Red Kite is found only on the Cape Verde Islands, a volcanic archipelago about 500 km off Senegal, west Africa. Until the 1950s, it was widely distributed in the north-

western islands of the archipela-

go, but a rapid decline in num-

bers was recorded in the 1960s.

and by 1999 only two individu-

als were found on the island of

Santo Antào. The principal aim

of this project is to help prevent

the imminent extinction of this

critically endangered species.

This year may be the final chance to save this species if it still exists. A second important aim is to evaluate the low and declining population of the Cape Verde Buzzard and evaluate and monitor the status of other raptors on the island of Santa Antào, Cape Verde.

RESULTS

2000: The Peregrine Fund was contacted and asked for assistance. Rick Watson made a reconnaissance trip to the Cape Verde Islands in September 2000. Based on that visit, a project has been designed, staffed, and is about to be implemented.

FUTURE PLANS

Field work will commence in April 2001. The project is divided into two parts: (1) survey Santa Antào for kites, buzzards, and other raptors; and (2) if kites are found, evaluate the most effective conservation actions and possibly capture remaining individuals for captive breeding. Outcomes of the project include improved understanding of the population status of raptors on Santa Antào with a plan for future conservation and monitoring. If kites are found, a second outcome may be the establishment of a long-term captive breeding and reintroduction program to help restore the species to its former range.



Zimbabwe

RESULTS

Cumulative: The Peregrine Fund has worked with and supported the efforts of the Zimbabwe Falconers Club (ZFC) since 1983 when Tom Cade and Jim Weaver made their first trips to search for the little-known and vulnerable Teita Falcon. In 1983 only three Teita nests were known in Zimbabwe. As a result of the ZFC's work, another 20 Teita sites have been identified over a much wider range of the country, and more is known about their ecology in Zimbabwe than probably any other country. In 1991 we began a formal collaboration with the ZFC to help develop local capacity for raptor research and conservation. Their accomplishments

since then are remarkable, as

represented in the year 2000 accomplishments below.

2000: The project provided training and research opportunities to one B.Sc. honors student and numerous high school students. Studies accomplished were: (1) the status and distribution of Teita, Peregrine, and Lanner Falcons in Zimbabwe; (2) the role of Rock Hyrax in the distribution and status of Black, Crowned, and African Hawk Eagles in the Bubiana Conservancy; (3) the effect of



Develop local capacity for research and conservation of birds of prey through training, support, and hands-on conservation.

sugar cane farming on the distribution and abundance of large winter breeding eagles at Triangle; (4) timing of laying, reproductive success, and nesting density of the Secretary Bird in the Shangani and Esigodini areas; (5) monitoring of the raptor community around Falcon College, including the African Hawk

Eagle, Martial Eagle, Tawny Eagle, Blackbreasted Eagle,

Pan-Africa Raptor Conservation Program

Brown Snake Eagle, African Fish Eagle, Spotted Eagle, and Wahlberg's Eagle; Blackshouldered Kite; Black and Little Sparrowhawks: Gabar and Little Banded Goshawks; and Barn, Pearlspotted, and Whitefaced Owls; (6) monitoring of the raptor community at Mbalabala (the study site has been affected by land invasions; sites of new settlements and impacts have been documented. and breeding success of raptors was low); (7) Teita and Peregrine Falcon surveys in Batoka Gorge; (8) input given on the new Tourist Master Plan for Victoria Falls, including the ZFC proposal to the Department of National Parks and Wild Life Management to designate Batoka Gorge a special bird of prey sanctuary; and (9) review and publish human impacts and selected biology on the Ayres'

Hawk Eagle. Falcon breeding projects produced eight Peregrines from five pairs, and four Teita Falcons from five pairs, potentially helping build a captive breeding population of eight Teita Falcon pairs. Three scientific articles were published.



COOPERATORS

The Peregrine Fund collaborates with the Zimbabwe Falconers Club and the Zimbabwe Department of National Parks and Wild Life Management. Partial support was provided in Zimbabwe by Dunlop Company and Eagle Insurance Company.

Cape Vulture

Large, long-lived birds of prey that range over areas larger than can be protected by parks and reserves are particularly vulnerable to extinction caused by human's degradation of the environment. The colonial nesting Cape Vulture is exemplary of this situation. The endangered Cape Vulture is found only in southern Africa. Its decline came with the disappearance of migratory antelope herds and widespread use of poisons. This project, being conducted by Pat Benson, is an unprecedented study, now in its 20th year, begun in 1981 to measure and understand both natural and human effects on 25% of the remaining Cape Vulture population that nests on the Kransberg mountain range, South Africa. Results will be used by national, provincial, and private conservation agencies to ensure the survival of this

conspicuous member of South Africa's wildlife heritage.

RESULTS

2000: At the Kransberg colony, a 29.1% decline in active nests (where an egg is laid) occurred from 1984 to 1998. Data from the 2000/2001 breeding season indicate a further decline. Results of the survey of other Cape Vulture breeding colonies of the former Transvaal Province (now Gauteng, Mpumalanga, Northern, and Western Provinces) in July and August 2000 show a similar decline (17.7% Support the decrease since last surlongest-ever conveyed in 1985). tinuous study on Analysis of over 600 Cape Vulture popcarcasses collected durulation dynamics ing this study indicates and use the that poisoning is a knowledge gained major mortality factor, to mitigate human while disturbance at impacts on the nests by rock climbers species' survival. and hikers, and colli-

GOAL

sion with man-made structures are other human factors increasing mortality. Some of the decline is due to birds not breeding every year, suggesting a lack of food. High nestling mortality during the period of greatest food demand by young vultures supports this view. To add to these problems, rural economic development became a national priority with South Africa's change in government in 1994. Land-use change asso-

> ciated with economic development in the former "homelands" is predicted to inevitably affect environmental quality and diminish wildlife populations. The location of all the largest Cape Vulture colonies in, adjacent to, or very near former homelands makes these birds vulnerable to development in these areas.

FUTURE PLANS

Biologists from the project are collecting data needed for the management of Cape and other vulture species, emphasizing interactions with wildlife and human populations. Monitoring of breeding success and causes of mortality at the Kransberg and other colonies by Pat Benson is the minimum research required to establish population trends and understand causes of decline. Based on this information, potential support can be gained for interventions by provincial and private conservation organizations to eliminate poisoning, reduce disturbance at the nest, and increase food availability through "vulture restaurants."



Cape Vultures.

COOPERATORS

The Peregrine Fund provides financial support to Patrick Benson of the University of the Witwatersrand, South Africa, who conducts the study.

Madagascar Project



Madagascar Harrier-Hawk.





in the world. Three of these endemic raptors are classified as endangered, two occur in the eastern rainforests (Madagascar Serpent Eagle and Madagascar Red Owl) and the other (Madagascar Fish Eagle) occurs in western Madagascar wetlands, rivers, and mangroves, or on offshore islands.

RESULTS

Cumulative: The Peregrine Fund began work in Madagascar in 1990 starting with the Madagascar Fish Eagle. Forty pairs of fish eagles were known to exist prior to this period. We have established a research station on three lakes in central western Madagascar at a site that supports about 10% of the fish eagle's breeding population. From annual surveys we estimate the total population to be about 120 breeding pairs throughout western Madagascar. Since beginning, we have studied the ecology of the Madagascar Fish Eagle and have learned that habitat degradation and human persecution are the main causes of the species' rarity. We have been working with local communities to enhance those traditional laws and practices that effectively conserve wetland habitat for the fish eagles and other wetland species.

We began work in 1991 in the rainforests of northeastern Madagascar where we rediscovered the Madagascar Serpent Eagle in 1993 and the Madagascar Red Owl in 1994, both species once thought to be extinct. Information gathered on these two rainforest species was important in the creation of Masoala National Park. Madagascar's largest park. At our research station on Masoala Peninsula we described the first nests of the Madagascar Red Owl, Madagascar Serpent Eagle, Short-legged Ground-roller, and Bernier's Vanga. We have supported 12 Malagasy university students who obtained Ph.D. and Masters equivalent degrees, along with providing hands-on training and experience to 30 local technicians.



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

2000: One Masters degree student finished a study on the subspecies of Peregrine Falcon endemic to Madagascar and is in the process of writing his Masters equivalent degree. We provided logistical support to Ph.D. student Ruth Tingay studying the unique reproductive strategy and paternity of Madagascar Fish Eagles. As a result of our efforts, two community-based natural

resource management associations were granted government authority to apply their traditional rules to control use of the wetlands region that holds 10% of the breeding population of fish eagles. Final community charters are in the process of becoming a reality for both associations that now can limit who fishes the lakes, control net mesh size and fishing seasons, limit fishing camps to designated areas, and limit to only three species the trees that can be used for construction of dug-out canoes.

On Masoala Peninsula, northeastern Madagascar, we completed the first-ever studies on the nest of the Madagascar Long-eared Owl, continued bird monitoring for indicators of change in the avian community within and at the boundary of the Masoala National Park, and documented the second-ever nesting attempt of the Madagascar Serpent Eagle.

FUTURE PLANS

A long-term monitoring effort of the Madagascar Fish Eagle population will continue with the goal of preventing the extinction of this endangered species by working and collaborating with local communities and Malagasy government and non-governmental organizations with an interest in western Madagascar wetland conserva-





tion. We will continue researching and gathering data on the life history of the poorly known raptors with the intention of publishing a book on Malagasy raptors. We plan to continue training and supporting Malagasy students by involving them in masters or doctoral programs in association with our conservation goals and research.



Top: Madagascar Serpent Eagle. Below: our technician, Möise, holds a Long-eared Owl.

STAFF

This project is directed by Russell Thorstrom and Aristide Andrianarimisa and accomplished by Adrien Batou, Be Berthin, Bonhomme, Jean de Dieu Christophe, Eloi (Lala) Fanameha, Bernabe Fernandez, Loukman Kalavaha, Eugéne Ladoany, Jules Mampiandra, Rivo Rabarisoa, Charles Rabearivelo (Vola), Simon Rafanomezantsoa, Berthine Rafarasoa, Norbert Rajaonarivelo (Velo), Jeannette Rajesy, Gérard Rakotondravao, Yves Rakotonirina, Möise, Gaston Raoelison, Christophe Razafimahatratra, Lily-Arison Rene de Roland, Gilbert Tokahy, and Zarasoa.

COOPERATORS

Our principal collaborators are the Direction des Eaux et ForÍts (DEF), other members of the Tripartite Commission, and Association pour le Gestion des Aires ProtÈgÈes (ANGAP). We also work with the National Office of the Environment (NOE), University of Antananarivo, Durrell Wildlife Conservation Trust, Bemaraha Project, UNESCO, Project Masoala, ZICOMA, CARE-Madagascar, Wildlife Conservation Society, and many others. Financial support was provided by the Liz Claiborne and Art Ortenberg Foundation, The John D. & Catherine T. MacArthur Foundation, The Walt Disney Company Foundation, BP Conservation Award, and others.

Asia-Pacific Raptor Conservation Program

Region	Total Raptor Species	Endangered/ Vulnerable	Poorly Known
Oriental	55	9	11
Australasian	54	16	11

Forest island in a humandominated environment provides a final refuge for some species.



Conservation of species in jeopardy, research on poorly known species, and development of local conservation capacity through training and support.

STAFF

Rick Watson directs the Asia-Pacific Program.

COOPERATORS

Rick

In the Mongolia Project we cooperate with the USGS Snake River Field Station, Raptor Research Center and Boise State University, World Wide Fund for Nature -Mongolia, and Mongolian Academy of Sciences. We are working with Bas van Balen to develop a cooperative effort in Indonesia. Funding has been provided by the Robert Comstock Company, The Walt Disney Company Foundation, and Dan Cover. he Asia-Pacific Program covers portions of three biogeographical regions, Oriental, Palearctic, and Australasian. Our focus is mainly on those little-known and most threatened species found only on the islands between the Indian and Pacific Oceans, such as the Philippine Eagle, New Guinea Harpy Eagle, and Javan Hawk Eagle, or other priority topics, such as the catastrophic decline in vultures on the Indian sub-continent.

RESULTS

Cumulative: The Peregrine Fund first began work in the Asia-Pacific in the late 1980s by assisting the Philippine Eagle Foundation with their goals to prevent the extinction of the Philippine Eagle, described separately in the following pages. Studies on the New Guinea Harpy Eagle were accomplished in 1998 and 1999, and are about to be published. A new effort was started in Mongolia in 1999 where the tradition of hunting with eagles is being replaced by a negative attitude toward raptors, posing a potentially serious threat to Mongolia's wealth of birds of prey. Also in 1999 we supported pesticide contamination studies on the Lesser Fishing Eagle in India where DDT and other chemicals are used in quantity,

and supported two students studying the endangered Javan Hawk Eagle in Indonesia.

2000: To develop the country's first raptor expert, conservation leaders in Mongolia identified biologist Nyambayar Batbayar for future training and education in raptor biology and conservation. He arrived in Boise in March 2000 and spent three months working with raptor biologists in the Snake River Birds of Prey Area receiving hands-on training in field study techniques, as well as English language training. He returned in August to begin classes at Boise State University, enrolled in the raptor biology masters degree program.

FUTURE PLANS

In June 2001 Mongolian biologist Nyambayar Batbayar will begin field work for his thesis dissertation on the ecology of Cinereous Vultures in Mongolia. The study is important in view of the vulture population crash occurring not far away in India. It will provide baseline population data from which to detect change locally, and contribute to understanding the role of avian scavengers in consuming carcasses of livestock when severe weather conditions cause high mortality, as has occurred the past two winters. We anticipate his research and course

work to take another two to three years.

In Indonesia we are working with expert Bas van Balen. We hope to develop cooperatively a comprehensive program that will improve our knowledge of little-known species found there, train Indonesian raptor biologists and conservationists, and develop a network of research and monitoring across this island nation that spans almost 3,000 miles. We would hope to establish study sites initially in West Papua (Irian Jaya) to study the vulnerable New Guinea Harpy Eagle, the littleknown Chestnut-shouldered Goshawk, and other species in jeopardy such as Doria's Hawk and Gurney's Eagle.

During later phases of the projects, programs may also be initiated elsewhere, such as Sulawesi where forests are unique in supporting four Accipiter species that live together or segregated by elevation: Sulawesi Goshawk, Spottailed Goshawk, Vinous-breasted Sparrowhawk, and Small Sparrowhawk. The island of Java provides an advanced opportunity to understand and predict the effects of forest fragmentation on raptors and other fauna. The rainforest of Java has a long history of human (logging, cultivation) and natural disturbances (volcanism, fires,





Native New Guinea woman with young Papuan Hawk-Owl.

droughts), and the present pattern is a mosaic of settlements, agricultural lands, and forest in various degrees of degradation. A number of forest patches on the island have enjoyed protection since colonial times, and the present 130+ patches range in size from just a few to 60,0000 hectares.

As in the Philippines and Madagascar, the time for doing meaningful conservation work in Indonesia and Malaysia is running out. A recent editorial in *Conservation Biology* reports on the devastation of the lowland forests from three decades of intensive logging and the fires that occur in the aftermath.

Asian Vulture Crisis

opulations of at least three Gyps vultures (Indian White-backed, Cliff, and Slender- billed Vulture) have collapsed in the past few years in India, Nepal, and neighboring countries. The catastrophic rate of decline, caused by high mortality of both adult and young birds, has spread global concern that a disaster, as significant as the loss of raptors to DDT in the mid-1900s, is in the making.

By itself, the threat of extinction of three vulture species and the implications for survival of other species in the food web is a potentially staggering setback to conservation of global biodiversity. However, these birds also play an important role in the human dominated ecosystems of the Indian sub-continent. The loss of large numbers of vultures may have significant ecological, human health, and economic impacts. Until now, vultures performed an essential function of ridding the landscape of carcasses that, when left unconsumed, may harbor and help spread bovine and human diseases. With severely diminished numbers of vultures, other scavengers, such as feral dogs that already pose a rabies hazard, are likely

GOAL

Intervene in the threatening extinction of the Gyps vulture populations in the Indian sub-continent and the potential spread of this syndrome to other vultures in Europe and Africa.

burned or buried, imposing a new economic burden that was provided free by vultures. The lack of vultures has placed the cultural beliefs and traditions of the Zoroastrians (Parsees) in jeopardy as well. The Zoroastrians practice a tradition dating back over 2,000 years where their dead are left in sacred grounds known as "Towers of Silence" for vultures to consume.

to increase in

Increasingly,

carcasses will

have to be

numbers.

The Peregrine Fund is concerned about the possible extinction of vultures in the Indian sub-continent and the implications this rapid, unexplained population collapse has for other Gyps species in Europe and Africa. Based on our experience with species recovery efforts worldwide, we believe it is critical to understand the cause of the decline and quickly develop solutions that will help ensure vulture survival. The amazing speed of the decline adds an unusual level of urgency to this project. By ourselves we can not hope to achieve meaningful results. This effort requires cooperation and collaboration on a scale perhaps never before needed we are working as a catalyst for local and international action.

Our first objective is to understand the cause of the vulture population collapse in the Indian sub-continent. With this understanding, we may help ensure vulture survival and limit the potential for losses among the other Gyps species in Asia, Europe, and Africa. However, no sound conservation action can be

continued on page 28

Cliff Vulture.

STAFF

This project is directed by Rick Watson and conducted by Munir Virani and Martin Gilbert.

COOPERATORS

We are working in partnership with Robert Risebrough, Bodega Bay Institute: J. Lindsav Oaks. Washington State University: Patrick Benson, University of the Witwatersrand: the Ornithological Society of Pakistan: Bombay Natural History Society; and Bird Conservation Nepal. We are collaborating in Pakistan with the Puniab Wildlife Department, Lahore Zoo, National Council for the Conservation of Wildlife. Pakistan Museum of Natural History, and B.Z. Multan University. In Nepal we collaborate with Himalavan Nature and Department of National Parks and Wildlife Conservation Partial financial assistance was provided by The Walt Disney World Company Foundation

Asian Vulture Crisis (continued from page 27)

taken until the cause of increased mortality among vultures is understood.

Our objectives in 2000 were to (1) establish field studies in geographically widely separated sites to measure vulture mortality and understand its causes, and (2) sample dead and dying vultures and send tissues to laboratories worldwide with the capacity to identify the causes of mortality, especially the suspected (but unconfirmed) presence of an infectious disease.

RESULTS

Since beginning work in July 2000, we have successfully and cooperatively established field projects at one site in Nepal, three sites in India, and three sites in Pakistan. Our largest effort is occurring in Pakistan where a large population of White-backed Vultures remains. It is here that we are most likely to document and understand the mortality that has already swept India and Nepal, where only severely depleted vulture populations remain. Since November 2000, with the help of local students and biologists, we have been studying vultures at about 2000 nests at three breeding sites, and at roosts and feeding sites. We are attempting to trap, radio-tag, and mark birds so that they are individually recognizable and can be followed to foraging sites. We are recording behavior, breeding success, mortality, and its causes. In Pakistan, our staff veterinarian, Martin Gilbert, is collecting dead and dying birds, conducting necropsies, and sampling tissues for analysis in the U.S. by collaborating avian virologist Lindsay Oaks.

Results to date indicate that unusual adult mortality is occurring in the Pakistan vulture population, with higher frequency closer to the Indian border where the suspected disease has already devastated the Indian populations, and at a rate that appears to be increasing. In the two-month period from mid-November 2000 to mid-January 2001, 42 dead or dying White-backed Vultures were observed of which 67% were adults. Of those birds necropsied (more than 20 and increasing daily), about 60% show signs of acute avian visceral gout that are consistent with early findings from vultures in India. The suspected disease, however, is not yet affecting birds in Pakistan at a rate that could be considered epidemic. Large breeding populations of White-backed Vultures remain in the Punjab Valley. This situation may change rapidly if

the postulated disease is only now entering the population, or if its effects are seasonal.

FUTURE PLANS

The first tissue samples arrived in the U.S. in mid-February 2001, and important results are expected within the next few months. Analysis of tissue in several laboratories worldwide is considered important by avian virologists, who accept it may take an international team effort to identify the disease quickly and accurately.

We anticipate that initial field and laboratory studies will be completed during 2001 and provide strong information on which to base further research and/or conservation interventions. In preparation for the possible event that reintroduction will be needed to prevent the extinction of these birds and/or to restore their populations, we are working with our partners in Pakistan to be ready to establish an isolated, disease-free, captive flock of White-backed Vultures. These birds could provide the source for reintroduction if and when the cause of the decline is resolved. Similar flocks of Slender-billed and Cliff Vultures potentially could also be established in India, Nepal, or elsewhere.



Philippine Eagle

he Philippine Eagle is a huge, incredibly beautiful forest eagle, which only has ever been known to occur on

four of the over 7,000 islands making up the Philippines. As a result of human persecution, habitat modification, and, in many cases, total elimination of its forest environment, eagle populations have dramatically decreased. There is no doubt this species is the rarest and most threatened with extinction of all the world's

large forest eagles.



In the Philippines there exists a dedicated, hardworking, innovative group totally committed to preserving the Philippine Eagle and its environment—the Philippine

Conservation of ly c the Philippine serv Eagle and its Eag habitat. me

Eagle Foundation (PEF). We report their results here, and The Peregrine Fund strongly endorses this group and its mission. Although their amazing results continue, they struggle financially because of the depressed Asian economy, political turmoil, and conflict on the island of Mindanao. For U.S. based donors who wish to assist the PEF and receive tax benefits. we accept donations and then transfer the funds. The **Philippine Eagle Foundation** can be contacted at the Val Learning Village, Ruby St., Marfori Heights, Davao City 8000, Philippines; e-mail: salvador@dvo.info.com.ph; and the web site: www.philippineagle.org.

RESULTS

2000:

Captive Breeding

Production - Six eggs were laid by captive Philippine Eagles at the PEF propagation facility. Five of those were fertile, and two eaglets hatched and survived. One eaglet was from a naturally breeding pair and the second the result of artificial insemination.

Apprenticeship Program -Seven veterinary medicine students, six from the University of Southern Mindanao and one from Central Mindanao University, were provided hands-on training. They were exposed to different areas of work, food preparation, animal husbandry, egg incubation and chick rearing, and food stock production.

Research and Science

Field Research - The field team continued the radio telemetry study of wild Philippine Eagles which was begun in 1999. It was accomplished at two sites: Mt. Sinaka where an adult female was captured and had a radio transmitter attached and in Mt. Apo where a juvenile fledged in 1999.

Publications - Three important publications were generated and others submitted for publication. Those published include: Miranda, H.C., Jr., D.I.

Salvador, J.C. Ibanez, and G.A. Balaquit-Ibanez. Summary of Philippine Eagle Reproductive Success, 1978-98. *Journal of Raptor Research*.

Miranda, H.C., Jr., D.I. Salvador, and G.L. Bueser. On the Population Biology and Status of the Philippine Eagle. Proceedings, Joint Meeting of the Raptor Research Foundation and World Working Group for Birds of Prey.

Ibanez, J.C., D.S. Afan, G.L. Bueser, K.M. Gatil, G. Balaquit-Ibanez, D.I. Salvador, and H.C. Miranda, Jr. Observations on the Breeding Behavior of a Pair of Philippine Eagles in Mount Sinaka, Mindanano. Proceedings, Annual Conference of Wildlife Conservation Society of the Philippines.

Conservation Education

Teachers Training - The PEF's "Teachers' Training" project, now operating in its fourth year, continued in 2000 with almost 1,800 teachers from all corners of Mindanao island participating. This nationally accredited training project educates teachers about the environment and importance of conservation. Efforts are now underway to implement this program on a national scale.

Visitors - The Philippine Eagle Center hosted 119,696 visitors in 2000. Of these, 54% were adults, 24% teens, and 22% children. The majority of the teens and children were students on school-sponsored field trips. Twelve B.Sc. students were trained and helped with lectures and tours. A drop of 30% in visitors occurred from 1999 because of the Mindanao conflict. Since 1991, the Center has had 1,530,443 visitors!

Broadcaster's Education on Environment and Development -This project's aim is to reduce human persecution of Philippine Eagles through the broadcast media. There are 27 AM radio stations participating. Radio and word-of-mouth are the primary sources of information in rural communities. Following media workshops by PEF staff, posters, flyers, and radio messages were developed. This information is now being disseminated.



Community-Based Initiatives

The community-based initiatives are focused where Philippine Eagles are known to exist. They operate on the premise that the long-term solution to sustainable resource conservation is the empowerment of the communities in deciding how best to conserve the natural environment on which they depend, and which they share with the Philippine Eagle. These projects are typically long-term, some lasting over 10 years, with the PEF working with the communities first to identify their local resources and produce a community resource map that highlights the current condition of their area. Next the PEF staff will help manage these resources and teach the communities developing new skills and knowledge to live sustainably within, rather than to destroy, their forest environment. The PEF has several of these projects underway.

Domingo Tadena candles a Philippine Eagle egg to check embryonic development.

COOPERATORS

Conservation associates Jim and Joyce Grier work closely with Bill Burnham and his co-workers on this project. Joyce has her own separate projects directed at grade school age children—Classrooms That Make a Difference, Co-global Student Partnership for Rainforest Conservation, and the Tropical Rainforest and the People. As a professor of biology at North Dakota State University and an expert on eagles, Jim advises on science issues. Major financial support for the project was provided by The Walt Disney Company Foundation.

THE PEREGRINE FUND

Balance Sheets • September 30, 2000 and 1999



Figures for this audited statement were provided by Balukoff, Lindstrom & Co., P.A., Certified Public Accountants. Full reports are available upon request.

ASSETS	2000	1999
Cash and cash equivalents	\$ 807 201	\$ 781.036
Merchandise inventory	43 637	\$ 701,030 54 134
Crants receivable	43,037	229 161
Pledges and other accounts receivable	98.033	128 210
Prepaids and other current assets	81 786	58 295
TOTAL CURRENT ASSETS	1 508 799	1 250 836
TOTAL CURRENT ASSETS	1,500,755	1,230,030
PROPERTY, EQUIPMENT AND ARCHIVE	ES	
Land	1,513,000	1,513,000
Land improvements*	758,522	803,404
Buildings	6,160,879	5,173,753
Trailers	150,123	150,123
Equipment and vehicles*	1,223,928	1,488,408
Fixtures and displays	594,211	585,240
Construction in progress	23,465	768,321
	10,424,128	10,482,249
Accumulated depreciation	(2,976,964)	(2,854,116)
	7,447,164	7,628,133
Library	237,822	180,591
Archives	600,536	589,432
	8,285,522	8,398,156
ENDOWMENT ASSETS		
Cash	21,710	549,929
Investments	8,841,295	5,567,333
	8,863,005	6,117,262
	\$ 18,657,326	\$ 15,766,254
LIABILITIES AND FUND BALANCES	2000	1999
CURRENT LIABILITIES		
Accounts Payable	\$ 424,812	\$ 53,255
Accrued taxes and expenses	716	620
Deferred restricted revenue	141,742	247,501
TOTAL CURRENT LIABILITIES	567,270	301,376
FUND BALANCES		
Unrestricted operating fund	941.529	949,460
Restricted endowment fund	8,863,005	6,117,262
Investment in property, equipment	-,,	.,,
and archives*	8,285,522	8,398,156
TOTAL FUND BALANCES	18,657,326	15,766,254
	\$ 18,657,326	\$15,766,254

* Decrease reflects transfer of Hawaiian Bird Conservation Program to the Zoological Society of San Diego.

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 2000. 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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We hope you will consider The Peregrine Fund in your estate planning. Memorial gifts and bequests are placed in our endowment fund so that these gifts can permanently support the conservation of birds and their environments. We welcome inquiries about bequests at (208) 362-3716. If you wish to make a provision in your will, the following general form is suggested:

I give, devise, and bequeath to The Peregrine Fund, Inc., an Idaho not-for-profit corporation, located on the date hereof at the World Center for Birds of Prey, 566 West Flying Hawk Lane, Boise, Idaho 83709, the sum of S_____ (or specifically described property)."

Become a Partner

The Peregrine Fund depends on contributions to fund our projects. Our Board of Directors has created an endowment, the interest from which funds our administrative expenses so that 100% of your donation will be applied directly to our projects. You can make a contribution through a direct gift, at work place giving campaigns, or through planned giving. The Peregrine Fund participates in many payroll deduction campaigns, including the Combined Federal Campaign (CFC #0945) through Earth Share, an alliance of national

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