set
them
free

50 YEARS
THE PEREGRINE FUND

Born from a love for science, falconry, and above all, birds of prey: *The Peregrine Fund received its wings in 1970 thanks to Jim Enderson, Tom Cade, Bob Berry, Frank Bond, Kent Carnie, Jim Weaver, and Bill Burnham.*

THE PEREGRINE FUND
Conserving Birds of Prey Worldwide

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It all began 50 years ago. Tom Cade and a small group of falconers set out to save the Peregrine Falcon from extirpation in North America. They were highly motivated, passionate, and "…failure was not an option."

So began The Peregrine Fund, named simply for the bank account opened to accept the first donations from supporters who were as passionate and engaged as you are today.

Our mission quickly grew to other species in peril, like the Mauritius Kestrel and Bald Eagle, followed by the Aplomado Falcon, California Condor, and many others. Careful scientific research informed our conservation decisions along the way, and sheer tenacity and teamwork fueled success. Full recovery of the Peregrine took almost three decades to accomplish and was celebrated in 1999 with the species' removal from the U.S. Endangered Species list.

Our falconry heritage attracted like-minded individuals for whom wise use of natural resources, and working with stakeholders in ways that favored solutions rather than conflict, were important core values. These traits, along with decision-making based on scientific enquiry, have become firmly rooted in The Peregrine Fund's strategic vision for the future.

And we have much to do. Today's conservation trials may seem overwhelming to some, but we are better informed and better equipped than ever before to rise to the challenge. We have the certainty of past successes to weather the onslaught of the many causes of wildlife decline. Our future is data driven, informed by science, and supported by technology in ways we could not have imagined just 10 years ago. We are working pre-emptively to save threatened species, protect landscapes of special value to raptors that are resilient to change, tackling landscape-level threats affecting multiple species, and inspiring people to value raptors and take action.

At the heart of our strategy—people, with whom we are working to create solutions that enrich lives and support a sustainable future: from fishing communities in Madagascar and indigenous peoples in the rainforests of Panama, to Maasai pastoralists on the plains of East Africa and hunters and land owners in North America. You'll find these stories and more in the following pages of this special *50th Year Commemorative Report*.

Thanks to your generosity of spirit, time, and treasure, together we can solve today's problems for our children's and grandchildren's future.

Thank you for joining us on this great journey!

Yours in conservation,

Richard T. Watson, PhD
President & CEO

...we are better informed and better equipped than ever before to rise to the challenge.

4,000+
Peregrine Falcons raised and released before de-listing of the species in 1999 **PAGE 4**

3
Asian vulture species saved from certain extinction
PAGE 29

442
California Condor eggs laid at our facility as of 2019
PAGE 35

170%
increase in Ridgway's Hawk breeding productivity
PAGE 24

30
Aplomado Falcon pairs breeding in South Texas **PAGE 39**

3
"Extinct" bird species rediscovered in Madagascar
PAGE 8

136
Advanced degrees earned by students with our support
PAGE 16

50
years conserving birds of prey worldwide

97
California Condors in the wild Arizona/ Utah population
PAGE 36

50+
people trained to respond to wildlife poisoning in Africa
PAGE 32

2 million
images of Gyrfalcons collected by nest cameras
PAGE 42

48
Harpy Eagle nests studied and protected in Darien, Panama
PAGE 10

184
names on The Archives of Falconry Wall of Remembrance
PAGE 50

1
Global Raptor Impact Network to collect, analyze, and share data to enable rapid decisions
PAGE 44

3,489
nest boxes registered with the American Kestrel Partnership
PAGE 40

>1 million
Guests who have met live raptors at the World Center for Birds of Prey **PAGE 46**

150+
volunteers at the World Center for Birds of Prey
PAGE 48

1,500+
scientific publications by staff and students
PAGE 18

Dear friends in conservation,

I joined the Board of The Peregrine Fund in 1987 as a lover of falconry with a deep-rooted respect and passion for the conservation of raptors. Over the past 33 years, I have had the esteemed pleasure of serving as a leader of this incredible organization and it has, in return, exceeded my expectations by all measures as the world leader in conserving birds of prey.

Throughout my tenure I have seen the unwavering efforts of thousands of staff members, volunteers, and collaborative partners bring about lasting and positive change to raptors, their habitats, and communities around our world.

We lost two such leaders this past year that deserve recognition: **our founder, Dr. Tom Cade,** whose passion to save the Peregrine Falcon led to the formation of The Peregrine Fund in 1970 and the removal of the Peregrine Falcon from the US Endangered Species list in 1999; and former **Board President, Steve Thompson,** who dedicated his professional and personal life to collaborating with partners and developing the next generation of conservation leaders through his leadership role at the U.S. Fish and Wildlife Service and The Peregrine Fund.

What I have come to understand and gain an immense amount of respect for over the past few decades are the people who dedicate their lives to this work. They are not only on the front lines of conservation management in the field, but also working with creative innovation to meet conservation needs globally on our rapidly changing planet. They collaborate with partners around the world to effectively address community needs that also protect critical raptor habitats. And they embrace a unified commitment to train and mentor the next generation of conservation leaders to take the torch we've lit and carry it forward.

The Peregrine Fund's successes are a testament to the passion, dedication, and expertise that our staff and Board leadership bring to each conservation effort. **In our 50th year as an organization we have much to celebrate and much to still accomplish.** Challenges of the past, such as restoring the Peregrine, seemed insurmountable at the time; but now we look forward to future conservation challenges with the same enthusiasm, focus, and drive.

I want to personally thank each of you for your steadfast support for the past five decades and ask you to continue to help The Peregrine Fund thrive for the next 50 years.

In conservation and with gratitude,

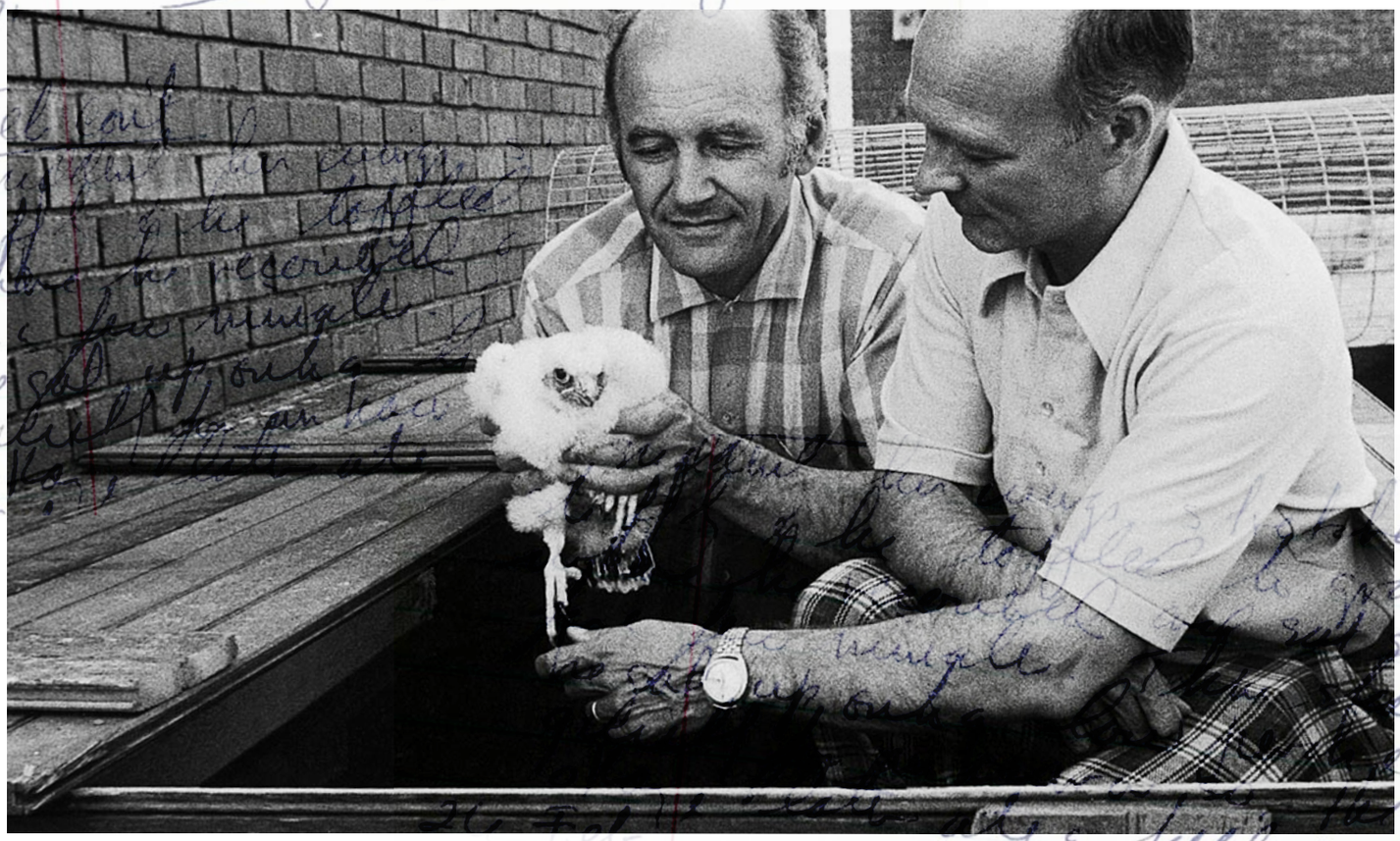
Carter Montgomery
Chairman of the Board

... the people who dedicate their lives to this work... embrace a unified commitment to train and mentor the next generation of conservation leaders to take the torch we've lit and carry it forward.

BROKEN EGGS *again*

He snapped a quick photo, took some samples of broken eggshell, and began working his way across the narrow ledge to the slight slope on the cliff where he could easily scramble back up. Once on top, he discussed it with his buddies. His love of falconry, biological sciences, and problem solving were coming together.

He didn't know if he could fix the problem, but he knew he had to try. Those broken eggshells were about to change his life in a way that would impact thousands of people and birds of prey all over the world.



When Dr. Tom Cade set out to save the Peregrine from fading to extinction, *no one even knew if it could be done.*

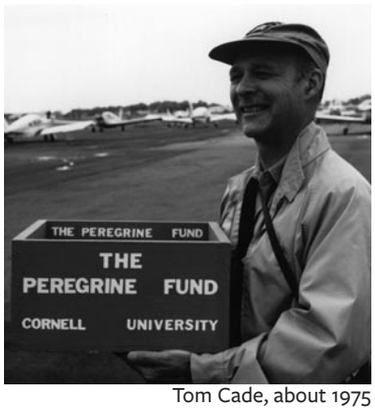
What they did know was this: it would take teamwork among falconers and biologists and politicians and the public. It would take tenacity, because conservation doesn't happen overnight. And it would take action. All Peregrines east of the Mississippi were gone, and they were sparse in the West.

Colleagues like Dr. Heinz Meng (above left, with Tom Cade) understood the urgency. In 1974, he and Tom attempted the first reintroduction of captive-bred Peregrine Falcons.

Dichlorodiphenyltrichloroethane, commonly known as DDT

was the culprit in the decline of North America's fastest animal as well as many other species—even the United States' national symbol, the Bald Eagle. Working together, politicians banned DDT, falconers and scientists learned to breed Peregrines, and volunteers guarded the young fledglings on cliff-sides, marsh towers, skyscrapers, and bridges. Co-founder Jim Weaver (on ladder, with Steve Sherrod at right) installed one of the first release boxes in 1975 near a historic Peregrine nest at Taughannock Falls.

This fertile environment of teamwork, tenacity, and the indomitable energy of ignited minds hatched the influential conservation organization now celebrating five decades of success: **The Peregrine Fund.**



Tom Cade, about 1975

This fledgling organization's first global project was on the tiny island of Mauritius off the eastern coast of Africa. This habitat was home to the last known

four Mauritius Kestrels

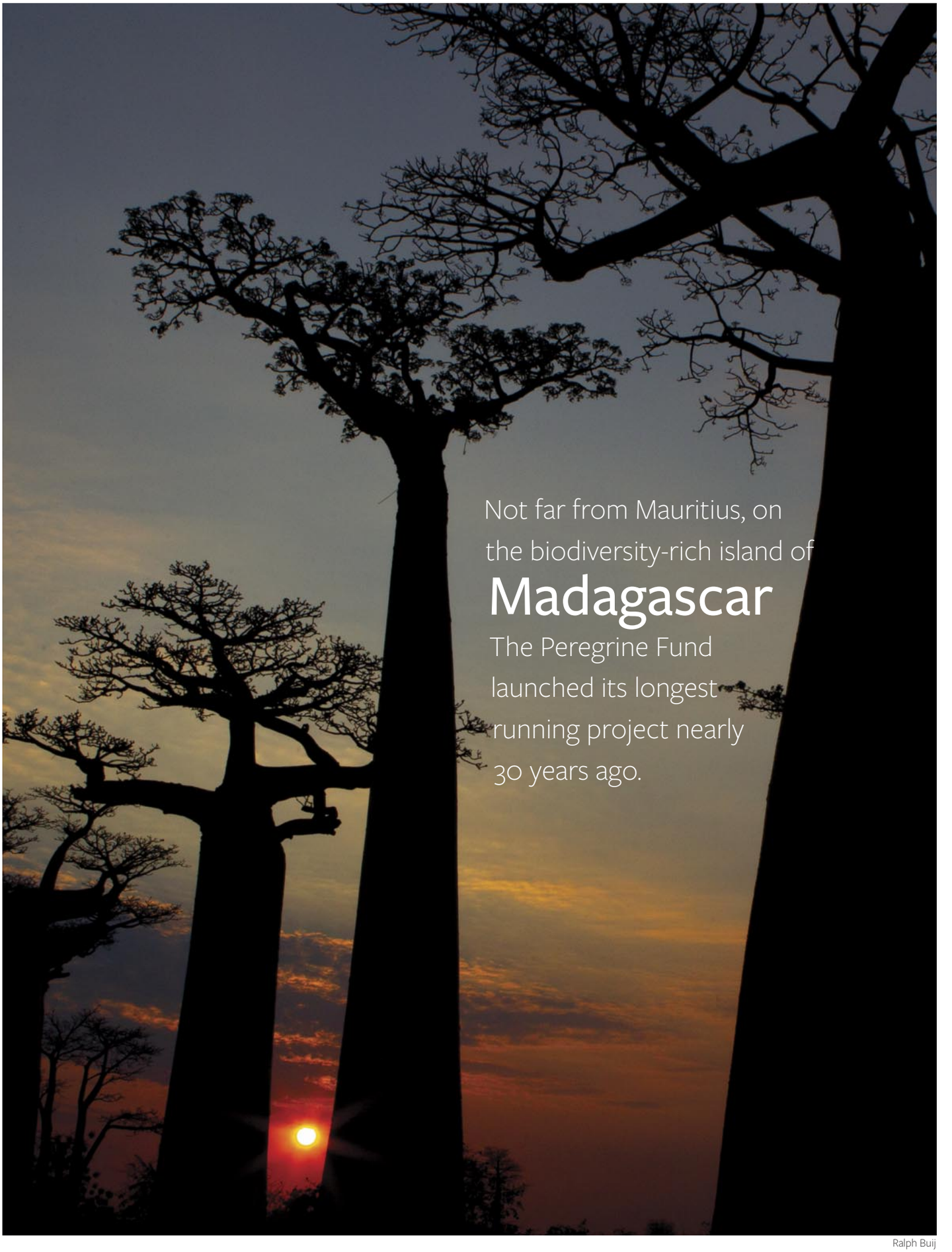
and Tom Cade had an audacious idea: apply the lessons being learned from Peregrines back home to breed and release these little falcons. Thanks to his student, Carl Jones, it happened.

The population has varied since its recovery, from about 400 Mauritius Kestrels to a more recent count of about 200.

Carl Jones

The Peregrine Fund excelled at its first international project by saving a species

but **something else important occurred:** expertise for saving species was passed on, inspiring a vision that defines The Peregrine Fund to this day.



Not far from Mauritius, on the biodiversity-rich island of

Madagascar

The Peregrine Fund launched its longest running project nearly 30 years ago.

Ralph Buij

Ralph Buij

Ralph Buij

Dr. Rick Watson (standing at left, above) was hired to spearhead this new endeavor, and often with his young family in tow he made the treacherous three-day journey from Madagascar's capital city to a remote field site: a large complex of lakes in the middle of dense forest and wetland habitat. The health of these lakes was of vital importance to the Critically Endangered **Madagascar Fish Eagle.**

What Rick would soon discover was that many of the same environmental issues that impacted the lake were also harming the people who had depended on its rich resources for thousands of years. Overfishing strained both eagles and humans, whose sustenance depended on a robust fish supply. Plus, fishermen were cutting large trees at an unsustainable rate to make dugout canoes, destroying important nest sites.

Rick and his team (previous page) went to work building trust with the communities. They helped them develop regulations they could enforce to stop outsiders from overfishing, and economies that allowed the replacement of dugouts with sturdier, long-lasting fiberglass canoes.

He also recruited Malagasy biologists to support and train. One of those young students was Lily-Arison Rene de Roland, who now holds a doctorate and directs the entire Madagascar Project, heading a team of more than two dozen Malagasy conservation leaders and students.

Investment in future conservation leaders has become a pillar of The Peregrine Fund's strategy since then, enabling the growth—and long-term viability—of raptor conservation efforts worldwide.

While working deep in the Malagasy forests, Lily and biologist Russell Thorstrom, a decades-long veteran of raptor fieldwork, made some important discoveries: four new lemur species and a new species of gecko.

What really set the conservation world astir: **rediscovering species thought to be extinct**—the Madagascar Red Owl, Madagascar Serpent Eagle, and Madagascar Pochard (right).

Today The Peregrine Fund studies and conserves these species, partnering with collaborators to lead the pochard recovery. Though still Critically Endangered, the pochard population is now thought to number up to 49 individuals.

The Peregrine Fund's Madagascar Project is the first **community-based conservation** program that engages local people, dependent on the same resources as the birds, to steward their environment. Numerous conservation organizations throughout Madagascar and around the world follow this model now; combined efforts created four nationally recognized Protected Areas that save half a million acres of forests, lakes, marshes, grasslands, and mangroves for Madagascar Fish Eagles and other endemic birds of prey.

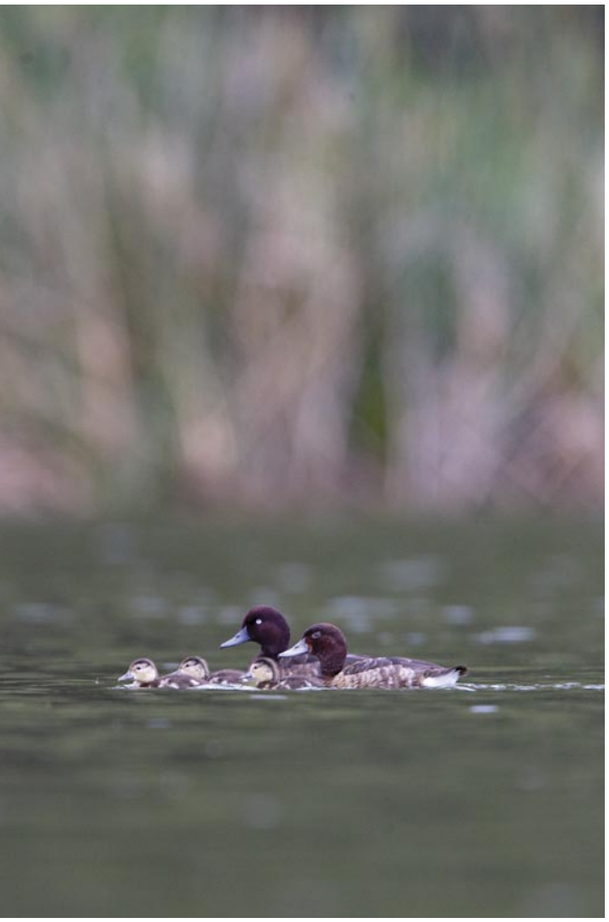
Meanwhile, on the opposite side of the globe, another **biodiversity hotspot** was ripe for the same approach to save raptors, rainforest, and indigenous heritage.

Daniel Byers

In addition to the Protected Areas, The Peregrine Fund helped create Masoala National Park (Madagascar's largest) encompassing more than **a million acres of rainforest and marine parks.**

Russell Thorstrom

Ralph Buij



Ralph Buij

Ralph Buij

José de Jesús Vargas

The **Darien Rainforest** in Panama is home to more than 500 bird species and a vast array of plant life found *nowhere else in the world*.

Angel Muela

For more than 20 years, The Peregrine Fund has conducted the longest-ever study of a magnificent forest giant: the **Harpy Eagle.** Darien is home to the largest known population in Central America.

Researchers like Marta Curti (left) established The Peregrine Fund's successful breeding and release program there, but learned quickly that local people often feared or misunderstood the eagles, leading to frequent killings.

Marta, an experienced educator and author as well as biologist, knew this was not a dead end. She developed an intensive environmental education program for schools throughout the region. She spent time with students and teachers, showing them the value of coexisting with forest predators like the Harpy Eagle, and her efforts paid off. To date, Marta and her team have reached more than 20,000 people in the Darien and 100,000 across Panama with their educational messages.

In 2002, the people of Panama formally embraced the Harpy Eagle by declaring it their national bird. That designation increased legal protections for the species; its habitat, however, remains far from secure.

Over the last decade, **human pressures** on the Darien region have intensified.

Outsiders log and farm portions of the forest at a rate of more than 20 acres daily. Indigenous communities are seeking to earn money and send their children to school. And Panama's government is weighing the value of cutting a road through the rainforest, bridging the only gap in the Pan-American Highway that stretches from Alaska to Argentina.

Residents like Matias and his son (below) are challenged to balance progress with preservation.

David Bates

Mauricio Ramos

Mauricio Ramos

José de Jesús Vargas

Fortunately, Peregrine Fund biologist José de Jesús Vargas González (with local children, above) works in the Darien and has built trust with the indigenous Emberá and Wounaan people there for decades. He knows they want to protect their rainforest homeland and heritage, but the landscape is at a breaking point. He began to focus on improving livelihoods for the communities, growth that would not require logging or burning, like planting new trees (left); he trained and hired local people to help with field research and arranged education grants. To date, The Peregrine Fund has supported more than 100 local students from five indigenous communities, resulting in 20 completing elementary school, 15 high school, and two college graduates.

In 2018, Panama's Ministry of the Environment, MiAMBIENTE, signed an historic agreement with The Peregrine Fund to support conservation of the Harpy Eagle in Panama. A year later, the first-ever **Stakeholder Workshop for the Conservation of Darien** was attended by representatives of 40 agencies and non-governmental organizations. This team crafted a collective vision of the challenges to biodiversity, and identified projects that conserve both biodiversity and native cultures in the Darien.

Community engagement was critical at the start in Madagascar 30 years ago, and it is equally critical at other project sites around the globe

like Indian villages (right), where residents were asked to discontinue use of a common veterinary drug that was decimating their vulture populations. In Africa (below), elders offered their wisdom to help biologists understand community attitudes about birds of prey.

The way people interact with their environment and natural resources is often the direct cause of species and habitat decline. But because people are the cause, they can also be the solution.

Linking local conservation to local prosperity can take many forms; for example, an artisan in Panama (opposite) now has The Peregrine Fund's online store and gift shop as a venue for her work, alongside other handmade, fair trade goods from Africa and Peru.

Munir Virani

Eric Ole Reson

Biologists in the field must be versatile: in addition to finding and studying birds of prey, they work to connect with local people in three transformative ways.

First, they **inspire** people to value raptors. From revered elders to curious school children, residents need familiarity with local wildlife, and power to protect it.

Second, they **catalyze** change. Partnering with diverse people, organizations, governments, and businesses increases the chances of a shared success.

Finally, they **invest** in communities by training and educating tomorrow's conservation leaders.

The ultimate goal: **a conservation leader in every country,** continuing The Peregrine Fund's mission in perpetuity.

David L. Anderson

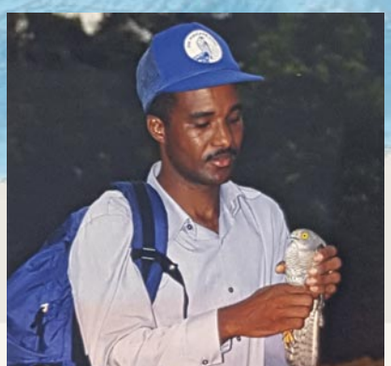
It's an ambitious goal, but progress is already well underway.

In 50 years, The Peregrine Fund has supported and trained **34 PhD and 102 Masters graduates respectively.** An additional 23 students are currently earning advanced degrees with The Peregrine Fund's help. All together, students have come from more than 25 countries throughout Africa, Asia, Europe, North America, and Central and South America, and continue to make lasting impacts on the conservation of wildlife in their home countries today.

Twelve of these former students still work for The Peregrine Fund. Dr. Munir Virani (right) is now Executive Vice President and Global Director of Conservation Strategy.

Growing up, Munir spent hours watching wildlife documentaries and marveling at the work of field biologists. He wanted to work with wild animals and make a difference. Rick Watson gave him that chance (right, below) by inviting Munir to The Peregrine Fund's conservation leadership program. He developed his skills as a biologist, earned a Masters and PhD, and went on to inspire and train many other conservation leaders around Africa, India, Pakistan, and Nepal.

Kaisaan Virani



The field known as **raptor biology** didn't exist for Tom Cade and his students. Degree programs, textbooks, and field manuals now ensure their knowledge is shared and expanded.

Dr. Hernán Vargas, director of The Peregrine Fund's Neotropical Science and Student Education program, started with limited opportunities in the Galapagos Islands and got his "big break" with a Peregrine Fund grant to study raptor biology at Boise State University. As a graduate student, he received hands-on training with Cal Sandfort (right), The Peregrine Fund biologist and falconer who raised thousands of captive-bred raptors for release.

Hernán now directs the studies of dozens of students throughout Central and South America, including (left to right) Jorgelina Guido, Santiago Zuluaga, Pablo Alarcon, and the team that works on Andean Condor conservation.

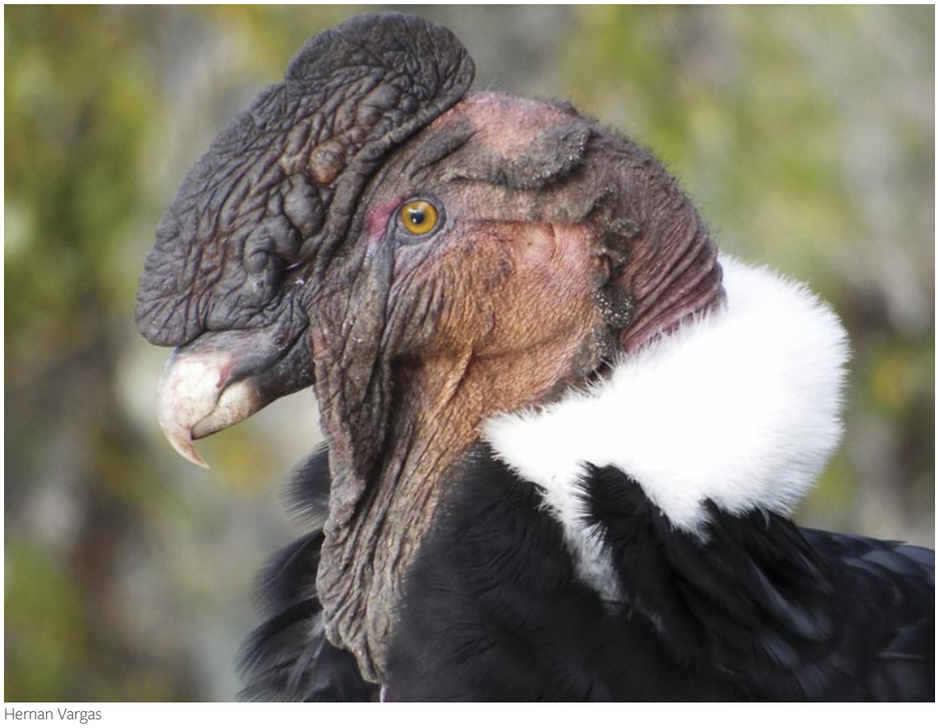
Gonzalo Ignazi

Santiago Zuluaga

Gonzalo Ignazi

Hernan Vargas

Sebastian Kohn



Hernan Vargas

In the Andes Mountains, Hernán and his students use satellite transmitters to understand the movements of **Andean Condors** and protect them from landscape-level threats and persecution. Several thousand Andean Condors were reported in Ecuador a century ago, but today just 100 are known to exist.

The data and advice provided by Hernán and his students help protect a 33,733-hectare area of condor habitat in southern Ecuador, showing that

it's not too late to save this iconic national symbol, along with numerous other Neotropical species.

Russell Thorstrom

Among the many threats to Neotropical raptor species, none can cause more rapid devastation than a hurricane.

When Peregrine Fund biologist Russell Thorstrom completed surveys for **Puerto Rican Sharp-shinned Hawks** in early 2017 he had found most of the population, totaling only 75 individuals. Their habitat needs confined them to a small portion of the island, which put the species in danger of extinction.

When Hurricane Maria struck head-on in September 2017, he feared the worst.

Russell Thorstrom

The following breeding season, Russell picked through nest sites reduced to toothpicks, finding only 19 birds—a quarter of the previous population.

Hana Weaver

Hana Weaver

Biologist Hana Weaver (left) immediately went to work with a team of volunteers. On May 5, 2018, she wrote with exciting news:

"At 2:45 a.m. I watched with **excitement, exhaustion, and pure happiness** as the very first Puerto Rican Sharp-shinned Hawk known to hatch in human care pushed the cap from its shell and wiggled free."

Hours later the second one hatched. "Small and delicate, it is hard to imagine these two will grow into the incredibly swift and lethal hunters I have observed in the forest," wrote Hana.

Since that historic moment, Hana and her team (including Melissa Murillo and Tom Hudson, left) have released numerous young birds and bolstered the success of wild nests. The Puerto Rican Sharp-shinned Hawk is still vulnerable, but for now the species has escaped its brush with extinction.

Russell Thorstrom

Long before hatching a plan for the Puerto Rican Sharp-shinned Hawk, The Peregrine Fund gained valuable insight from a nearby Critically Endangered species: the **Ridgway's Hawk,** found only on the island of Hispaniola. Like the hawks in Puerto Rico,

a single storm, fire, disease, or infestation could have made it disappear forever.

Dax Roman

Christine Hayes

Dax Roman

Eladio Fernandez

Christine Hayes

Rather than attempt to breed hawks in captivity, Peregrine Fund biologists tried something new: relocating nestlings hatched from wild nests to a site that promised better habitat and protection, a resort in Punta Cana on the eastern coast of the Dominican Republic. At the same time, Marta Curti applied her outreach experience from the Harpy Eagle project, persuading the local community to protect, rather than shoot, the birds. The effort was so successful that on 25 May 2014, the country celebrated its first annual Ridgway's Hawk Day in honor of the first wild hawk to hatch in the new Punta Cana population a year earlier.

As local school children (opposite) gain familiarity and affection for the hawks, biologists like Thomas Hayes (above, right) and Martin Quiroga work throughout the breeding season to manage the health of Ridgway's Hawks.

Just as in Panama, biologists learned that shooting was a regular cause of hawk deaths, but the motivation was different. Residents in the Dominican Republic feared the hawks would eat their chickens, a valuable food source. Hawks, snakes, and other predators do eat chicks, but the risk was minimized when The Peregrine Fund's biologists made coops and trained residents to use them until their chickens grew large enough to be less enticing prey. The biologists also hired and trained resident field technicians (below), linking economic benefits to the hawks' success.

Shooting was just one of the challenges to overcome, however. In Punta Cana, biologist Thomas Hayes discovered hawks electrocuted by power lines. He built a relationship with the power company, and soon protective coverings were installed. Thomas also found nestlings killed by parasites: larvae of flies that infest many hawk nests. Innovative research led to a pesticide treatment that eliminated the fly larvae without harming nestlings.

With these solutions already in use, the team felt confident enough to establish a third population of young hawks. Their future is bright, given the excitement of the nearby community of Los Brazos.

Eladio Fernandez

Thomas Hayes

Eladio Fernandez

The estimated number of Ridgway's Hawks is 500–600, increased from fewer than 300 when the project began; and three populations spread across the island mean **long-term resilience for the species.**

Klaus Nigge

Islands are hotspots for some of the most threatened raptors in the world.

The **Philippine Eagle** is one of these, inhabiting just four islands; it is classified as Critically Endangered. Habitat loss and persecution are the main causes of decline for this forest giant, with only about 400 remaining.

To conserve this beautiful species, The Peregrine Fund has collaborated with the Philippine Eagle Foundation since the 1980s.

Maje Egento/Philippine Eagle Foundation

Philippine Eagle Foundation

Philippine Eagle Foundation

Neil Rettig and Laura Johnson

With financial support, biologist training, propagation training and advice, and scientific analysis, The Peregrine Fund empowered dedicated biologists in the Philippines to save their national bird. Employing strategies similar to those pioneered by The Peregrine Fund in Madagascar, the Philippine Eagle Foundation leads the way to educate and engage people in the communities near the eagles, developing programs that boost local economies and hiring more than 500 Forest Guards to protect the birds and their habitat.

In the 1980s, large numbers of three vulture species ranged throughout southern Asia: **Oriental White-rumped, Slender-billed, and Long-billed.** In fact, White-rumped Vultures were the most abundant large raptors in the world, numbering in the millions!

Only four percent of the 500 million cattle in the region are consumed by humans, leaving vultures to play a crucial role: disposing of carcasses.

In the mid-1990s, populations of all three species crashed by up to 99 percent. Conservationists coined the term **Asian Vulture Crisis,** and teams raced to discover a cause, traversing three countries to examine vulture remains.

Vultures were dropping dead at an alarming rate, and the reason was a mystery.

All photos by Munir Virani

Led by Rick Watson, The Peregrine Fund's team including Lindsay Oaks, Pat Benson, Martin Gilbert, Munir Virani, and five Pakistani students did the painstaking forensic research in field and lab that uncovered the culprit in 2003: an anti-inflammatory drug, diclofenac, had been introduced to treat livestock. Vultures that fed on the carcasses of treated cattle ingested the drug, and suffered rapid kidney failure and death.

As millions of vultures succumbed, feral dogs in India had less competition for food. Their population exploded to approximately 5.5 million, which led to more dogs biting humans, resulting in more than 47,000 additional human deaths from rabies and a $34 billion increase in treatment costs across India.

In 2006, based on the advice and research provided by The Peregrine Fund and its partners, the governments of Nepal, India, and Pakistan banned the veterinary use of diclofenac, and populations of these critically endangered species began to stabilize across South Asia.

Numbers are increasing in some places thanks to many conservation partners who have local programs in place.

Vulture populations are **in freefall around the globe,** mostly because of poisoning.

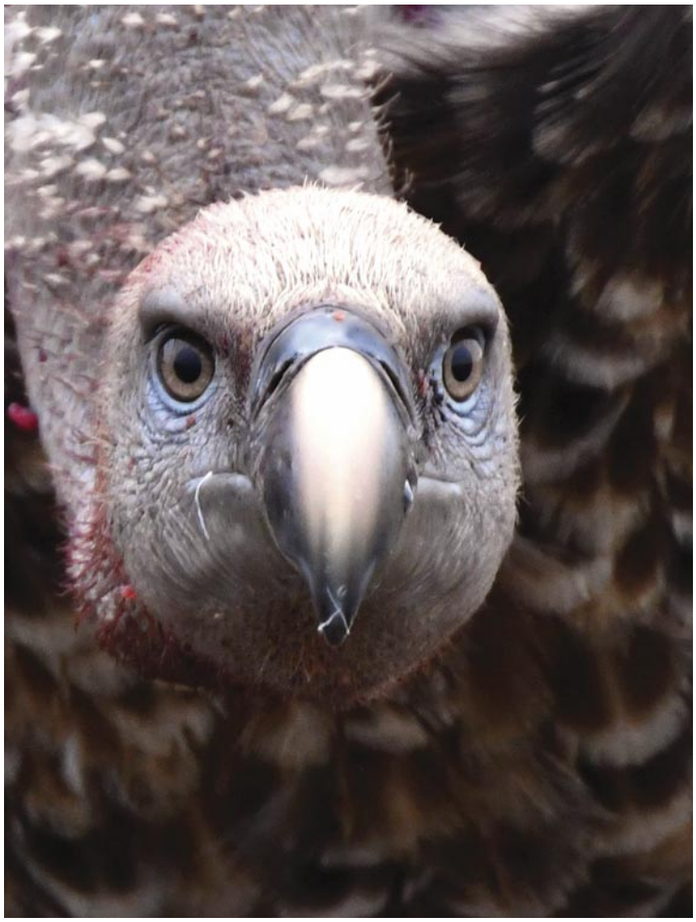
Other threats include illegal trade in vulture body parts for traditional medicine, killing for bush meat, collisions with power lines and wind turbines, and loss of habitat and food. These factors combined make vultures one of the most threatened animal groups in the world.

The Peregrine Fund's project based in Kenya is addressing the unacceptable loss of these ecologically valuable birds.

That begins with good data gathered by concerned researchers like PhD candidate Bill Okemwa (left, attaching a transmitter to a Critically Endangered African White-backed Vulture).

Collaborating with the organization Habitat Info, The Peregrine Fund and partners helped developed the **African Raptor Databank** (ARDB), a smartphone app used to record raptor sightings. Since 2014, ARDB has amassed more than 200,000 records from 38 African countries. A paper authored by Peregrine Fund biologist Dr. Darcy Ogada used ARDB data to document *declines of up to 80 percent in eight of Africa's 10 vulture species,* justifying an official status upgrade to Endangered or Critically Endangered.

The status upgrades sounded the alarm internationally, prompting organizations to redirect funds and staff.



All photos by Munir Virani

Vultures are often the unintended victims when pesticide-laced carcasses are used as **bait to kill predators** like lions and hyenas that attack livestock.

Intentional poisoning also occurs; poachers throughout Africa target vultures to prevent the birds from circling overhead and revealing the location of a poached elephant or rhino.

The Peregrine Fund deployed a team of biologists to develop the **Vulture Protection Network,** connecting nearly 50 individuals trained in wildlife poisoning intervention. Instant messaging alerts them to poisonings, enabling rapid decontamination and sample collection. Since February 2018, the network has ensured that the number of vultures poisoned in the Maasai Mara is down by more than 50 percent.

In 2018, The Peregrine Fund collaborated with Lion Landscapes to launch the **Coexistence Co-Op** to reduce poisoning and the human-predator conflict that triggers it. The Co-Op alerts communities to the dangers of poison, trains people to respond safely (above), and offers instructions for building predator-proof livestock corrals.

Darcy Ogada

Munir Virani

Munir Virani

Munir Virani

Munir Virani

Throughout East Africa, raptor species are under intense scrutiny

thanks to The Peregrine Fund's conservation projects since the 1990s. Whether studying owls affected by forest degradation and habitat loss (like the **Sokoke Scops** owls at left), little-known **Taita Falcon** populations, or **African Fish Eagles** (above) impacted by habitat degradation and expanding energy infrastructure, a team of biologists and ever-growing number of African students are ensuring that Africa's aerial predators thrive in a changing landscape.

John Sherman

North America's largest vulture, the **California Condor,** also has a complex history with humans. During the Pleistocene these giants consumed carcasses left by saber-toothed cats, but their range was limited to the west coast of North America by the early 1800s when Lewis and Clark noted their presence with sketches and written accounts in field notebooks.

Less than two centuries later, the population of this iconic western bird was reduced to just 22.

Andrew Orr

In an attempt to save the species from extinction, the U.S. Fish and Wildlife Service trapped the remaining birds with the hope that they would breed in human care.

In 1993, The Peregrine Fund joined the California Condor recovery program and began breeding the Critically Endangered birds at its headquarters, the World Center for Birds of Prey, in Boise, Idaho.

Over time, the expert propagation staff perfected the art and science of producing and preparing these large yet fragile birds for release in the wilds of northern Arizona, southern California, and Baja Mexico. The task requires great care, as these smart and curious birds can easily grow accustomed to people—a situation that prevents a bird from becoming a good candidate for independence. Today The Peregrine Fund produces more young condors for wild release each year than any other breeding facility.

Andrew Orr

Alan Clampitt

John Sherman

The Peregrine Fund re-established a free-flying population ranging from Arizona's Vermilion Cliffs and the Grand Canyon into southern Utah, where the 1,000th condor since recovery began (right) fledged in 2019. Biologists traverse rugged landscapes to monitor the birds and annually health-check every condor they can trap. Last season, 77 percent of them tested positive for lead exposure.

The Peregrine Fund identified lead as the primary cause of condor deaths, and a common source is the remains of shot animals found in the landscape. Deer gut piles, for example, can contain a constellation of tiny fragments, too numerous to count, in tissue surrounding the bullet's path. These findings aid in condor recovery and help identify preventable lead exposure in the food chain.

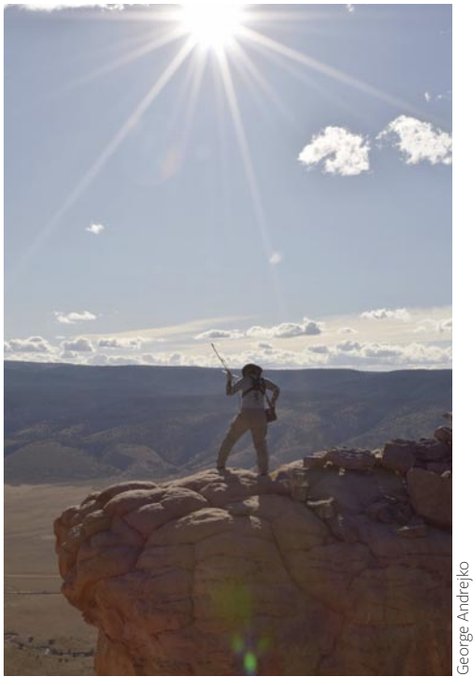
Alan Clampitt

Switching to non-lead ammunition can eliminate the potential for lead exposure.

After more than a decade of work with wildlife agencies, more than 80 percent of northern Arizona and southern Utah deer hunters took voluntary actions to prevent lead exposure. Their conservation ethic will inspire others to make the switch to copper-based ammunition, but the message needs to reach a wider audience.

Biologists Chris Parish from The Peregrine Fund, Leland Brown from the Oregon Zoo, and the Institute for Wildlife Studies united to form the **North American Non-Lead Partnership** (NANP), whose primary purpose is to engage hunters, shooters, and other sporting and conservation groups with the advantages of using non-lead ammunition to harvest animals that become part of the food chain. Today more than 20 conservation and sporting organizations work together to preserve our wildlife conservation and hunting heritage.

With more than 500 California Condors on the planet today (300 flying free across western skies), The Peregrine Fund and its partners are on track to recover this species.



George Andrejko

Chris Parish

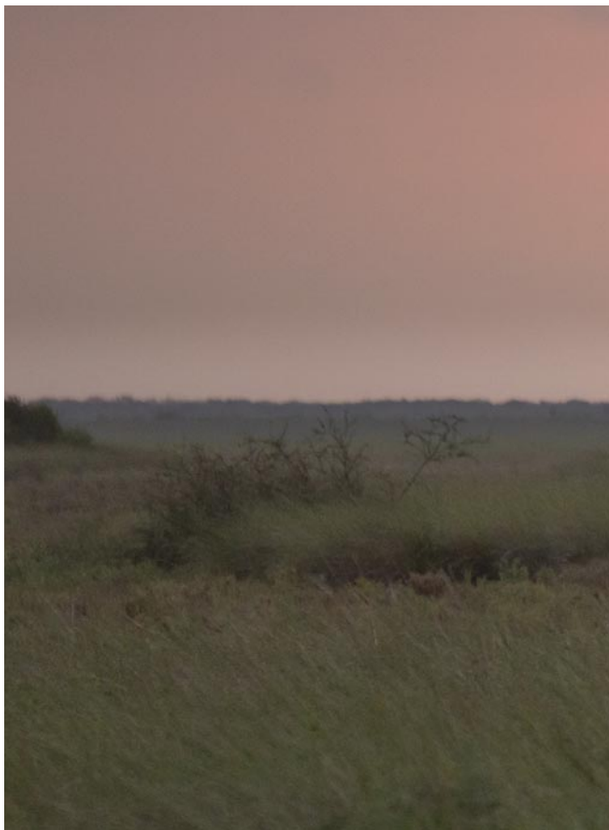
Three decades before condors were rescued, a falcon went missing from the United States.

Until the 1950s, the **Aplomado Falcon** was an icon of the Coastal Plain of Texas. As native habitat was converted for ranching and farming, this bright, acrobatic falcon vanished from the country.

From the 1980s through 2013, The Peregrine Fund reintroduced them to South Texas by releasing juveniles bred in Boise, Idaho. To protect the nestlings, biologists erected custom-designed nesting platforms to exclude predators, improved habitat for natural nest sites, and formed partnerships with government agencies, other non-governmental organizations, and private landowners. For the first time in decades, wild Aplomado Falcons began breeding in the United States again.

Biologists Brian Mutch and Paul Juergens (below) spearhead the effort, annually monitoring more than 30 pairs of Aplomado Falcons and maintaining up to 70 artificial nest structures from Brownsville to Rockport, where the population appears to be self-sustaining. In their laid-back but passion-driven style, Brian and Paul also work to expand partnerships where additional habitat management and artificial nesting platforms will further benefit this recovering falcon population along the Texas Gulf Coast.

Chris Parish



Larry Ditto

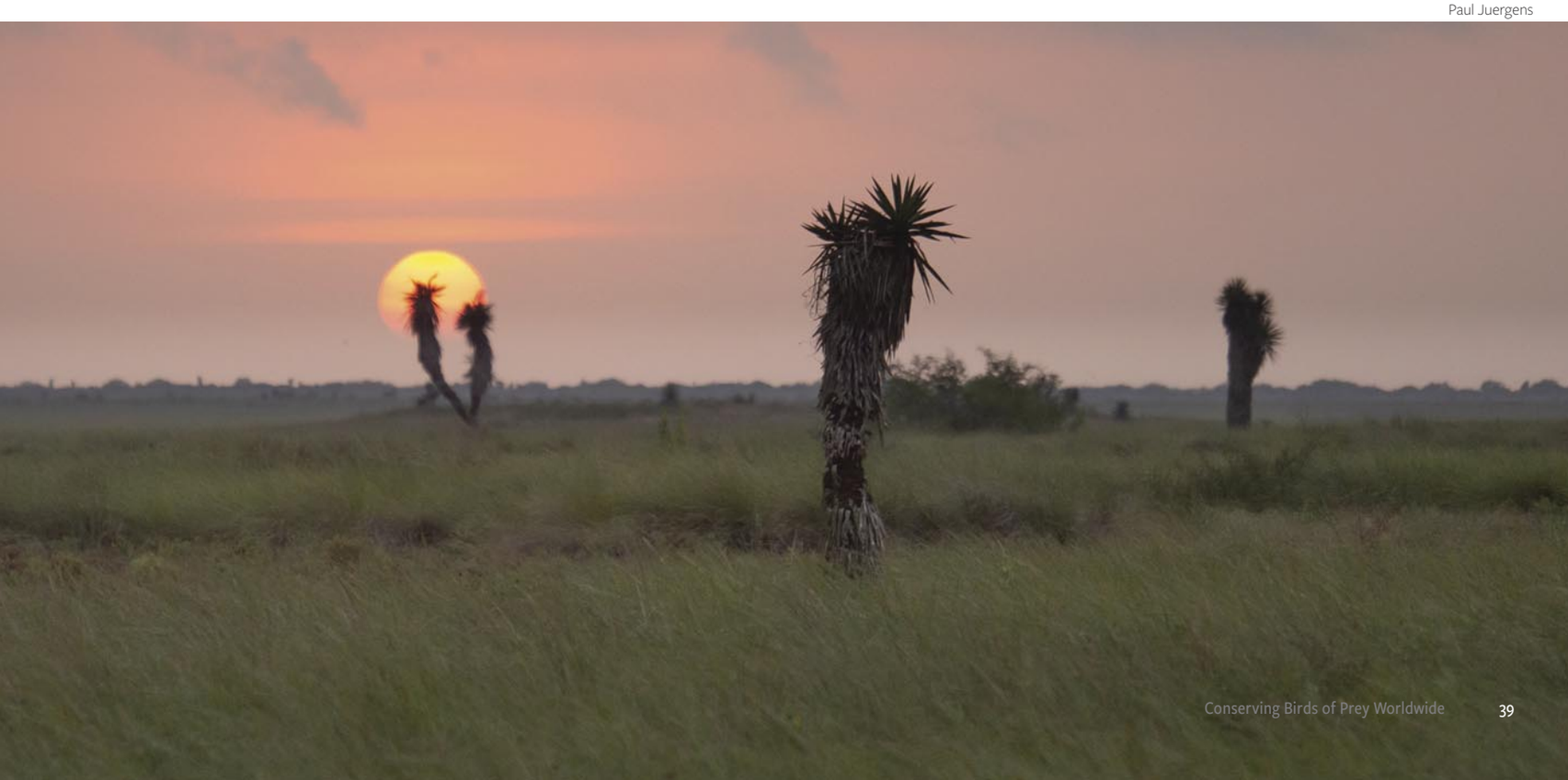
Larry Ditto

After Hurricane Harvey destroyed numerous nesting platforms in 2017, Brian and Paul rebuilt as quickly as possible. Their efforts were rewarded with robust breeding the following spring. The team recently celebrated a major milestone before a crowd of supporters—the 500th banding of an Aplomado Falcon hatched in the wild. Brian reminded onlookers, “These efforts take time, and even the smallest steps can seem insurmountable. That's why we celebrate days like these.”

Much work remains to ensure the sustainability of this species, but the Aplomado Falcon in Texas is surely

one of the great conservation success stories of our time.

Paul Juergens



All photos by Sarah Schulwitz

In contrast to the endangered but thriving Aplomado, the **American Kestrel** is North America's most plentiful falcon. Found in cities, suburbs, and rural areas alike, the beautiful pint-sized raptors are fierce rodent and insect predators.

Continent-wide, this species has declined by nearly half since the 1960s... and the cause is still unknown.

The Peregrine Fund's American Kestrel Partnership (AKP) is the coordinator of an international network of professional and citizen scientists who observe nearly 4,000 nest boxes each year. Partners (like LouAnn Harris and Paulette Epple, with volunteer Evan Carpenter on ladder) commit to monitoring nest boxes each spring, reporting occupancy, number of eggs laid, young hatched, and fledglings taking to the air. Most nestlings (like this one held by Kensey Craft) have identification bands placed on their legs before they fledge.

Scientists tap the resulting database to understand the kestrel's life cycle and search for far-reaching trends that may explain the declines.

Jim Shane

Sarah Schulwitz

Jim Shane

To gain a better understanding of what kestrels do when they aren't breeding—during migration—the AKP has engaged with diverse and uniquely qualified collaborators in a project called the Full Cycle Phenology Project. They collect feather samples across the breeding range for genetic analysis, and put transmitters on birds to find out where populations go for the winter.

With new information, the team hopes to solve the mystery and identify conservation actions—*before* American Kestrels are endangered.

photos by Neil Paprocki

North America's smallest falcon hasn't escaped The Peregrine Fund's notice, and neither has the world's largest falcon. Making its home on the Arctic tundra year-round, the **Gyrfalcon** endures one of the harshest environments on earth. This tough but precious landscape is under threat as changes in climate may be occurring faster than the species can adapt.

The Peregrine Fund's biologists in Alaska (like Michael Henderson, facing page) are identifying primary food sources and the habitat required to sustain these true Arctic specialists while monitoring changes as the climate warms. Their fieldwork, using motion-activated cameras at Gyrfalcon nests on the Seward Peninsula, has yielded surprising findings: for example, Gyrfalcons adapt their diet when their preferred prey, ptarmigan, decrease in numbers.

The study will guide conservationists responding to change in the Gyrfalcon's world.

Acting on sound science, The Peregrine Fund and its partners are poised to make the difference, if needed, between survival and extinction.

Kilii Yuyan

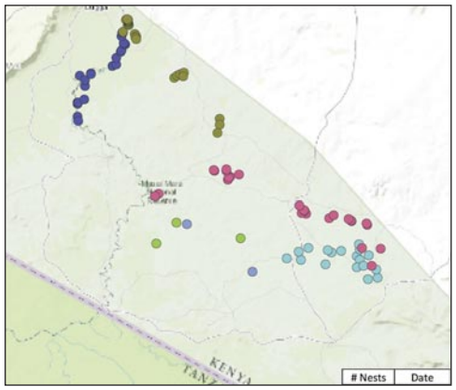
One threat facing many raptor species is a lack of knowledge. Basic research takes the guesswork out of conservation.

From 1988–1996, The Peregrine Fund conducted a groundbreaking project characterizing a raptor community of 20 species at Tikal National Park, Guatemala, and the surrounding area. The result is the definitive book *Neotropical Birds of Prey: biology and ecology of a forest raptor community*. Dubbed the **Maya Project,** this effort enabled valuable research on species that were not well studied at the time.

The project also trained 13 local Guatemalan research technicians who went on to work for other conservation agencies in the region, 115 Latin Americans (local and from other countries) who assisted in field research, and provided higher education to nine American and three Guatemalan students. The Maya Project laid the foundation for The Peregrine Fund's goal of establishing a raptor biologist in every country.

Our studies have shown that more than half the world's raptor species are declining, and nearly one in five are threatened with extinction.

Lack of information and the threat it poses to numerous species is the impetus for The Peregrine Fund's **Global Raptor Impact Network (GRIN).**



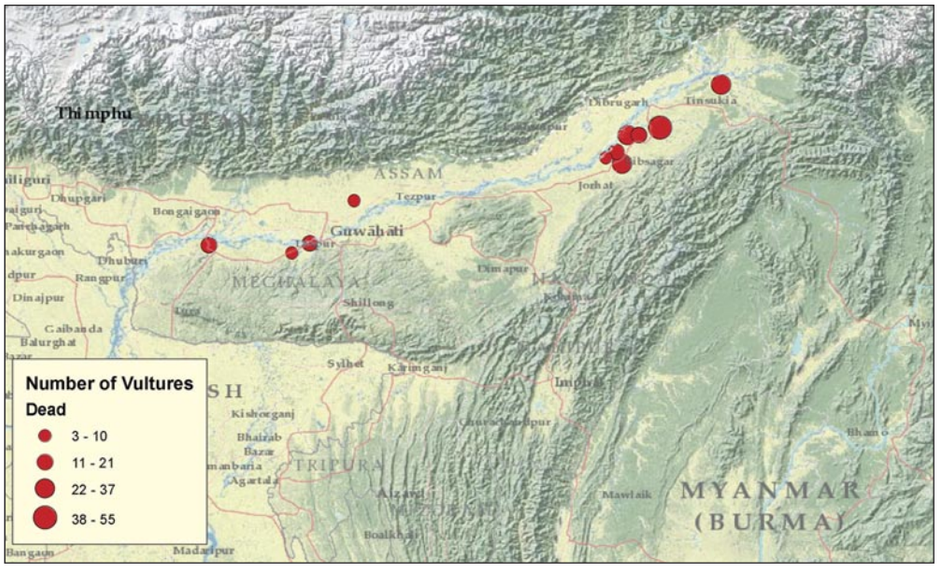
Munir Virani

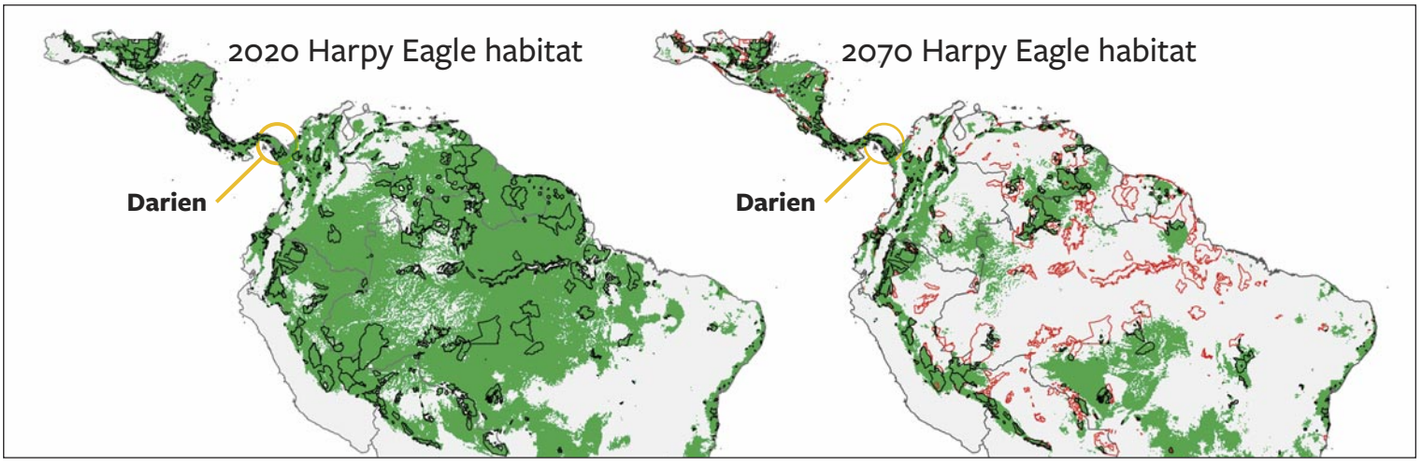
Andre Botha

GRIN was created by expanding the African Raptor DataBank (ARDB) to global scale and combining it with the existing Global Raptor Information Network. Its value was indisputable when data collected through the ARDB (like the vulture nest sites, above left) provided scientists with evidence to gain worldwide recognition of the vulture crisis across Africa.

Citizen scientists (like people in the Maasai community, above) can participate in raptor science and conservation using the GRIN smartphone app. At the same time, GRIN gives researchers tools to conduct their own studies and contribute to a global knowledge base. Our multi-partnered study of Wahlberg's Eagles, for example (photo and map above), identifies a migratory route that could help decision makers responsibly site wind farms, power lines, and other infrastructure.

Scientists using GRIN will be able to determine, in real-time, the threats facing raptors and identify populations in danger of crashing. The data will reveal declines as they occur and predict trouble spots (as in India, right); it can also be used to identify high-value areas, as in the map below depicting a Harpy Eagle stronghold 50 years from now in Darien, Panama, when other suitable habitat is likely to be gone. GRIN will prioritize conservation actions on behalf of formerly little-known or completely unrecognized species, including island species unacknowledged because of lack of information.





Although it was founded to save a single species, The Peregrine Fund's mission has evolved to ensure *all* species of raptors thrive. GRIN is essential to preventing extinction, protecting areas of high conservation value, and addressing landscape-level threats that impact many species. By providing and facilitating this tool for raptor researchers and enthusiasts everywhere, The Peregrine Fund is catalyzing a worldwide raptor conservation movement.

GRIN's cutting-edge technology will play a critical role in the next chapter of conserving birds of prey worldwide.

David Bates

New tools like GRIN are most effective in the hands of people who truly care about birds of prey and their place in the world. That's where The Peregrine Fund's education programs shine. Visitors to the organization's headquarters at the **World Center for Birds of Prey** in Boise, Idaho, are greeted by a team of expert staff and more than 150 dedicated volunteers who offer a glimpse of a working conservation organization. Whether engaging nose-to-beak with one of the trained education owls or catching a breeze from the wing of a hawk during the **Fall Flights** demonstration,

guests walk away **inspired to take part** in changing the future for raptors and all wildlife.

The visitor center has grown significantly since its doors opened in 1994, hosting more than one million guests over the years, with a 50 percent increase in just the past five years. Each year, nearly 5,000 school children stream through the center's doors, excited to learn about science through the lens of raptor conservation. Their experiences open up a new world of wonder and create a lifelong passion for wildlife and conservation.

Jim Shane

To keep up with the demand for raptor encounters,

The Peregrine Fund is investing in a multi-million dollar educational expansion that will include 11 naturalistic outdoor exhibits, two new immersive learning spaces, and a state-of-the-art Welcome Center.

Hatch Design Architecture

Angela Calabrese

Tribe Creative Media

Kelsey Tatton

Suzanne Seggerman

This capital expansion will not only inspire visitors in Boise, it will also serve as a central hub for conservation education at The Peregrine Fund's projects around the world. From online curriculum for teachers beyond the visitor center campus, to long-distance learning with children on the other side of the globe,

the World Center for Birds of Prey is a world-renowned destination and the future of public engagement in conserving raptors.

In a quieter corner of the World Center for Birds of Prey, the Smithsonian-quality **Archives of Falconry** preserves the history of falconry and promotes raptor conservation. Founded by Kent Carnie in 1986, the Archives filled an international void, becoming the largest historical repository in the world for this ancient sport.

The Archives holds more than 2,000 books, hundreds of boxes of letters, personal journals, thousands of photographs, and more. Visitors can view ancient texts, original art, falconry equipment, and memorabilia. In the Sheikh Zayed Arab Falconry Heritage Wing, a gift from falconer friends in the United Arab Emirates (left), visitors interact with a unique display of traditional falconry in the Middle East.

The Archives features the solemn **Wall of Remembrance** (above) and **Book of Remembrance,** where falconers' names and deeds are recorded by family and friends. A testament to their remarkable achievements, the wall also brings together falconers from around the world for their annual Rendezvous.

Inspired by a passion for the ancient partnership of raptors and humans, falconers are prominent characters in the story of raptor conservation.

Stefan Wachs

Once a sport reserved for kings and queens,

falconry today is often practiced by biologists like Paul Jeurgens (left), a long-time researcher for The Peregrine Fund's Aplomado Falcon and Golden Eagle projects.

We're not alone.

Extraordinary as it is, The Peregrine Fund is only one entity in the vastness of partners, collaborators, and fans around the globe whose passion for birds of prey is unmatched.

peregrinefund.org/thankyou displays a growing list of our many, many friends.

Thank you.

Peregrine Falcons are known to practice their hunting skills on flocks of shorebirds or European Starlings, creating undulating ribbons or balls in the sky as in this "Evening Hunt" photo by Nick Dunlop (nickdunlop.com).

This 50th Year Commemorative Report was written by Erin Katzner and designed and edited by Amy Siedenstrang.

0 *Peregrine Falcons left east of the Mississippi in 1970* **PAGE 2**

4 *Mauritius Kestrels left in 1974* **PAGE 5**

0 *Aplomado Falcons left in the US in 1980* **PAGE 38**

22 *California Condors left in the 1980s* **PAGE 34**

99% *decline in Asian vulture populations in mid-1990s* **PAGE 28**

<300 *Ridgway's Hawks left before intervention* **PAGE 22**

~100 *Andean Condors left in Ecuador* **PAGE 19**

~400 *Philippine Eagles left in the world* **PAGE 26**

50% *decline in American Kestrel population continent-wide since the 1960s* **PAGE 40**

8 *Vulture species in Africa now endangered or critically endangered* **PAGE 30**

Puerto Rican Sharp-shinned Hawks found months after Hurricane Maria **19** **PAGE 20**

>half *of all raptor species in decline;* ***20% threatened with extinction*** **PAGE 44**