

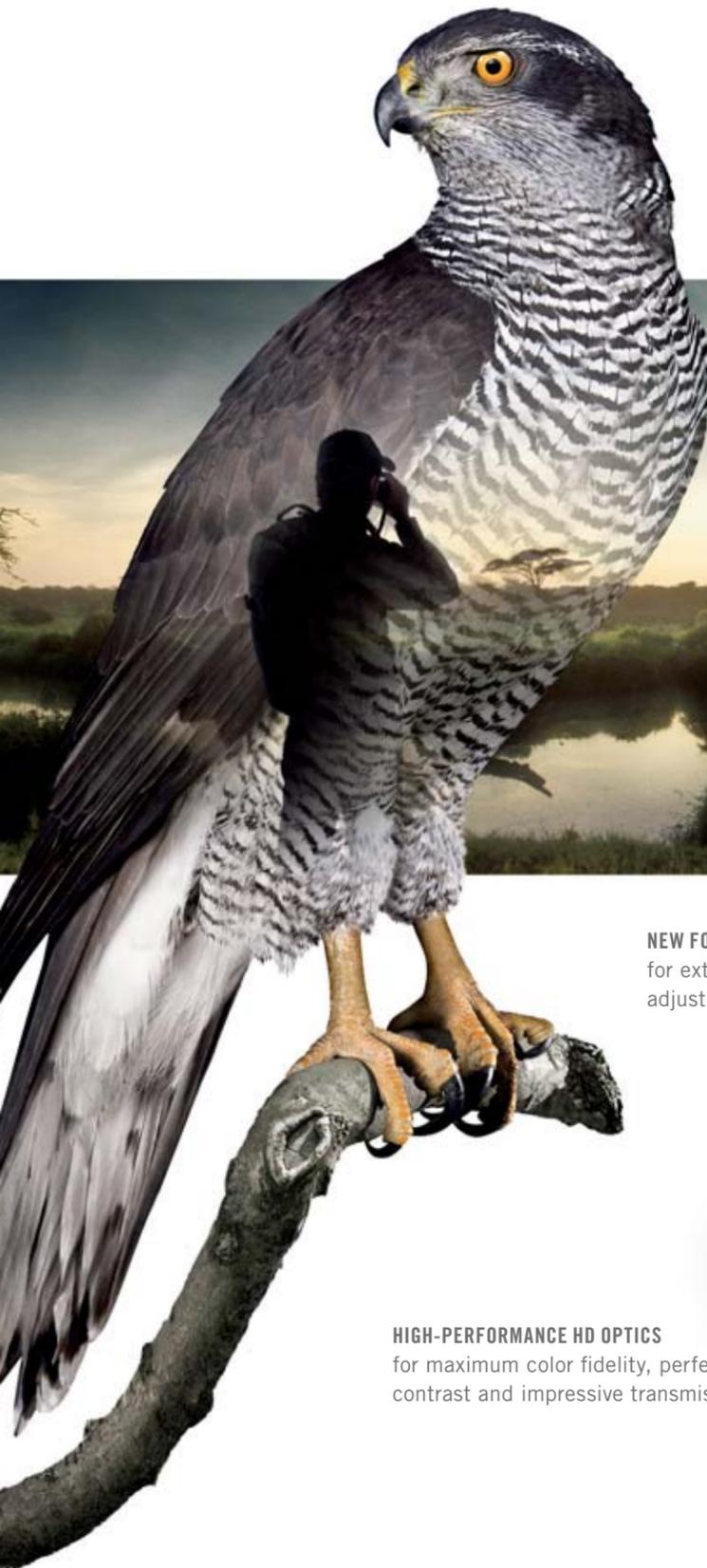
# LIVING BIRD

Cornell Lab of Ornithology

SUMMER 2010



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# LIVING BIRD

Summer 2010 Volume 29 / Number 3

The **Cornell Lab**  
of Ornithology 

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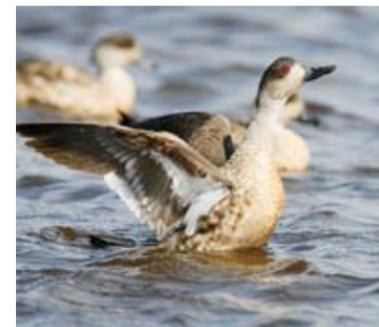


*Cover:* A young Laysan Albatross on Midway Atoll. See article on page 18. Photograph by Cliff Beittel.

*Back cover:* A Magellanic Penguin on the Falkland Islands. See article on page 34. Photograph by Gary Kramer.

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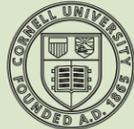
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## Letters

### Overkill?

I read with dismay the article by Hugh Powell chronicling the adventures of four young ornithologists surveying the Peruvian wilderness (“Stretching the Canvas,” Spring 2010). What started out as the story of the commendable efforts of youth to inventory the birdlife of a remote mountain range soon turned into an apology for collecting birds in the field. Although the exuberance of discovering a potential new species perhaps justifies the collecting of the type specimen, there is no excuse for collecting another seven. What measures were taken to assure that “the barbets were numerous here”? We are not told. What is more likely is that the enthusiasts collected every bird they could find.

After acknowledging that “cameras can now capture plumage details by the megapixel, and PCR machines can assay DNA from just a flake of tissue,” Powell postulates that “it is only by making specimens that scientists gain a full record of an animal or plant for the future.” What about the present? The students could not possibly have determined the status of the barbet in just three weeks. What they did was follow the maxim of their institutional predecessors of the last century: a bird in the hand is worth two in the bush.

The “full record” of birds collected in the past is nowhere near as complete as today’s living records of birds’ behavior captured by video and audio in the field. The loss to the ecosystem in killing birds for taxonomic use is far greater than the benefits gained by an institution that maintains a skin collection.

We live in times when tropical and subtropical forests are everywhere endangered and their inhabitants threatened with extinction. At the same time, conservationists and birders increasingly are engaged in the celebration of living birds. We need fewer “evolutionary biologists” who are unable to establish the place of the new barbet “in the tree of life” without

a specimen. This is truly the statement of the taxonomist at play. (“Scientists learn the boundaries that define a species as well as the way the species varies from one individual to another.”) It simply is not important at this stage of the world to place a newly discovered species in the proper phylogenetic sequence using this approach. Nor do we need to learn that barbets “eat largely fruit” by examining the contents of their stomachs; we already know it from the most casual observation.

Perhaps it is time to examine the commonality of interests between biologists, birders, and conservationists. Too often birders assume that there is a unity of goals. Yet atavism runs deep. Apparently there is yet an institutionalized philosophy of collecting among the biologist community that harkens back to the expeditions of old, the glory days of natural history museums. Those of us who are not steeped in so hoary a tradition can make protest by refraining from funding programs that harbor such perspectives and urging nations and conservation land managers to deny access to institutional researchers until they are willing to commit to a set of lay-developed guidelines defining truly responsible, noninvasive field techniques.

It is unfortunate that the considerable accomplishments of the Peruvian expedition are overshadowed by the eulogy to a practice whose times has passed, but that is indeed the slant the author chose to impart. A modest proposal here: the Lab should consider arming the host of field workers who search in vain for the Ivory-billed Woodpecker—funded by the contributions of many who desire in vain to revive an extinct species—with 20-gauge shotguns in case perchance the Lord God Bird should be resurrected before them. Would science not be served in taking the specimen, albeit the last individual? For then, we all could learn its place in the tree of (past) life.

TERRY D. MORGAN  
 DALLAS, TEXAS

*Terry Morgan articulates the view of many nature enthusiasts who question the utility and morality of collecting bird specimens.*

*No responsible scientist would condone collecting an Ivory-billed Woodpecker today, for any reason whatsoever. The most important principle followed by all modern scientists who collect birds for study is to sacrifice no more than a few individuals of any one species, and only when doing so has no chance of jeopardizing a local population of that species. Numerous studies confirm that removal of a few individuals from a healthy bird population has no lasting impact on population size. Even adult territory holders are quickly replaced by juveniles or non-breeding “floaters,” just as they are routinely replaced after being taken by a predator. Scientific collecting of birds by trained professionals and students produces absolutely no net “loss to the ecosystem,” while yielding extremely useful information about the biology of the species under study.*

*Although the total population size of the new barbet was not estimated in detail, it could reasonably be assumed to number in the thousands. Barbets of the genus Capito are territorial and distributed more or less continuously across the forest canopy in appropriate habitat. The students did ascertain that the forest occupied by this species on this mountain ridge extended unbroken for many miles north and south of their campsites, and that the barbets were numerous. They surmised that eight specimens would be sufficient to provide some understanding of individual, sexual, morphological, and genetic variation, while having no lasting effect on local population size. They did study a number of other individuals in life.*

*Morgan questions the importance of learning the evolutionary relationships of a new species, but this is only one of myriad questions that can be investigated using well-documented specimens. For thousands*

### From the Editor

**W**hen I heard about the oil leak gushing from the seafloor in the Gulf of Mexico, it seemed like déjà vu, bringing back haunting memories of an oil spill I witnessed two decades ago in California. An oil tanker had ripped a hole in its hull, and more than 400,000 gallons of Alaska crude escaped into the sensitive waters just off Bolsa Chica Ecological Reserve—my favorite place to go birding.

Nothing could have prepared me for the grim nightmare world I walked through the next day. Vast swaths of beach sand were covered in oil, and the whole place reeked of petroleum. Birds were already dying, washing up on the shore, covered in oil and gasping for air.

I volunteered as a bird cleaner, helping to wash the stricken birds in hot, soapy water until every last vestige of oil was gone. We did release a large number of cleaned birds, though it’s difficult to say how many ultimately survived or how much damage was done to the habitat.

Of course, the ecological effects of the 1990 Bolsa Chica oil spill pale in comparison with the Deepwater Horizon leak, which is unprecedented in size and scope. The Lab of Ornithology has a team in place documenting the effects of the oil and has also begun deploying underwater recorders to determine how marine animals are responding to the leak. And eBird participants are submitting Gulf Coast bird-sighting reports, providing important data. To learn more about these efforts, see page 8.

*of years humans have been accumulating knowledge about how the natural world is constituted, and how it got that way. We think these are still worthwhile endeavors, and today’s many threats to global biodiversity make understanding details of the natural world all the more crucial. Videos, photographs, and sound recordings are indeed valuable for many kinds of analyses, but they cannot replace actual specimens as treasure troves of additional information about real organisms and the diversity of life on earth.*

*Ethical questions outside the context of effects on the population are beyond the scope of this response, but certainly a case can be made that gaining knowledge about a new species represents an ethically defensible trade-off for sacrificing the lives of several of its individuals at no cost to its population.*

*My response had to be brief here, but*

*readers interested in a more in-depth discussion should read the articles listed below.*

*John Fitzpatrick  
 Louis Agassiz Fuertes Director  
 Cornell Lab of Ornithology*

Remsen, J.V. 1995. The importance of continued collecting of bird specimens to ornithology and bird conservation. *Bird Conservation International* 5:145-180.

Remsen, J.V. 1997. Museum specimens: science, conservation, and morality. *Bird Conservation International* 7:363-366.

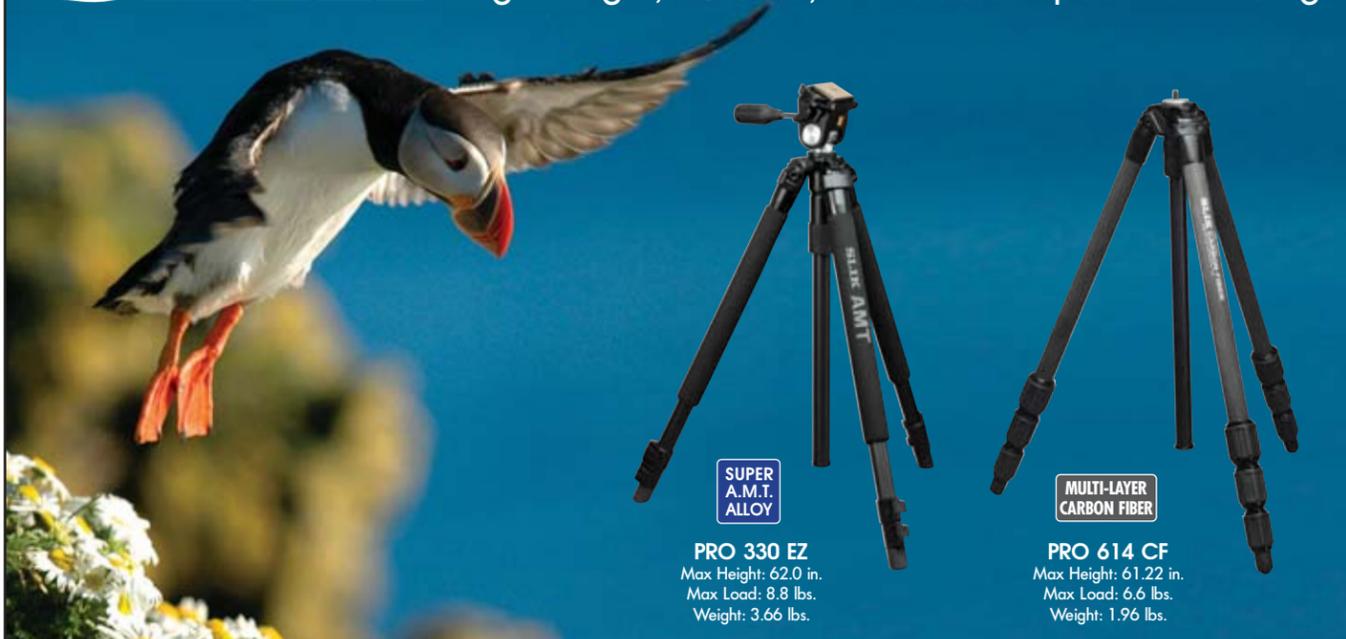
Bekoff, M., and A. Elzanowski. 1997. Collecting birds: the importance of moral debate. *Bird Conservation International* 7:357-361.

Winker, K. et al. 1991. The importance of avian collections and the need for continued collecting. *The Loon* 63:238-246.

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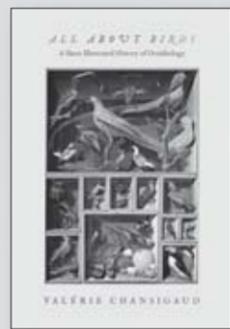
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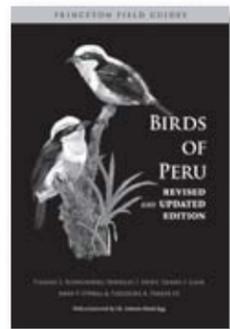
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## Gulf Coast Wildlife Needs Our Help

The oil gushing into the Gulf of Mexico from the Deepwater Horizon well is an ecological catastrophe of unprecedented magnitude for all of the birds, fish, marine mammals, and other wildlife in the area and the habitats they need to survive.

The Cornell Lab of Ornithology has been working to document the effects of the massive leak and assess the damage to the Gulf's sensitive ecosystem. Birders who participate in eBird have been especially helpful, providing more than 175,000 bird observations from Gulf Coast states, including data on at least 11 species that were seen with oiled feathers. These data will help greatly with the recovery effort as researchers and government agencies set priorities for spill containment and clean-up efforts.

In addition, the Cornell Lab's Multimedia program sent a video crew to the



*A Brown Pelican mired in oil on Grand Terre, Louisiana, on June 5, 2010. This is becoming an all-too-common sight as oil fouls sensitive shorelines along the Gulf. Ben Clock, a member of the Lab's video crew, took this graphic image while documenting the effects of the oil leak. The bird was subsequently rescued by wildlife rehabilitators.*

Gulf to document the effects of the oil spill on birds for researchers, policy makers, and the public. They were there at Louisiana's Barataria Bay on June 8 as oil washed past the booms and into the sensitive marshes. They videotaped 14 species with oiled plumage, including Brown Pelicans (see photo above), Roseate Spoonbills, Sanderlings, Black-necked Stilts, and more.

Something that has received less attention than the oil spill's harm to birds is its potential effect on marine mammals and fish. One of the tragedies of the Gulf spill is that so little comprehensive baseline data exists about the marine life in the Gulf, which could make it difficult to assess how seriously these animals are being affected by the spill. One dead sperm whale and a number of porpoises have washed up since the spill, although the cause of their

deaths is still to be determined. The Cornell Lab's Bioacoustics Research Program, which has extensive experience in monitoring whales, has already begun deploying autonomous underwater recorders to pick up the sounds of sperm whales, Bryde's whales, and other underwater life in the Gulf—both in areas already affected and in areas so far unaffected by the oil—to see if they can detect changes in the numbers and movements of these animals as the oil spill spreads.

Lab of Ornithology members and other concerned citizens have been contacting us since the start of the oil spill to see how they can help. Birders can make a vital contribution by submitting Gulf Coast bird sightings to eBird at [www.ebird.org](http://www.ebird.org) or by making a donation to help with the Lab's conservation work, either on our website [www.birds.cornell.edu/helpbirds](http://www.birds.cornell.edu/helpbirds) or by calling (866) 989-BIRD (2473). To get the latest news from the field, visit our Round Robin blog at <http://redesign.birds.cornell.edu>.

—Tim Gallagher



*Researchers from the Cornell Lab of Ornithology are placing underwater autonomous recorders into the Gulf of Mexico to record the sounds of sperm whales, Bryde's whales, porpoises, fish, and other marine wildlife. Photograph by James Hall.*

## The View from Sapsucker Woods

On April 20, 2010, the worst environmental calamity in U.S. history exploded in the Gulf of Mexico. As its scale became apparent, the Cornell Lab dispatched a video crew and several science journalists to Louisiana. Their mission is to document the full, behind-the-scenes stories involving the rich biological diversity along the Gulf shores and what a huge oil-drilling accident reveals about longer-term threats to this unique ecosystem. We expect to be covering this story for months, well after it becomes too old and familiar for the evening news.

As oil continues to spew and spread through the Gulf of Mexico, the Lab is being called on for both facts and opinions relating to the disaster. At this writing, the most unnerving feature continues to be that we cannot yet estimate how far-reaching its biological effects will be, let alone the scale of its economic impacts. Essential facts are emerging daily. How much oil will eventually be released into the high seas? How far away will coastlines and biological systems be affected? We already know that oil has damaged oyster beds, sperm whale pods, bluefin tuna spawning beds, sea turtle beaches, migratory shorebirds, and waterbird colonies, but at what scale, and over how many generations? Can we ever measure accurately the accumulated effects of this disaster?

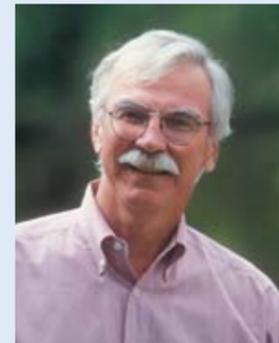
Amid these uncertainties, some essential facts are important to bear in mind. The Gulf of Mexico teems with life all year. During spring, hundreds of millions of birds migrate northward across it, and many of them stop to replenish themselves at the very shorelines now blackened by oil. News reports feature hopelessly oiled birds being rushed to soapy

“rescues,” but let's not fool ourselves. The biology of birds tarred at sea by crude oil is well known—a few are found on shore and given a reprieve by well-meaning rescuers, but most will die, horribly and anonymously, outside our reach. Birds are tough creatures when it comes to facing natural hazards—after all, those that could not survive storms, droughts, floods, and fires through the millenia long since died out without leaving descendants. But birds were never built to handle environmental onslaughts

of the scale we humans have thrown at them. In the 1800s we exploited many to extinction. In the 1900s we ransacked their habitats with wholesale conversion and industrial pollutants. Now, in the 21st century, we confront birds with burgeoning oil spews of unprecedented scale unleashed at the peak of nesting season, and dead center in the pathway of an enormous annual migration. Pelicans, skimmers, terns, gulls, and shorebirds are paying the most visibly obvious price.

Everyone needs to acknowledge, however, that doomed birds laden with oil are not, themselves, the story. Rather, they play the familiar role of canaries in this coal mine. Blackened pelicans and oil-soaked plovers are messengers for a much larger story that is far more difficult to see or comprehend, much less measure. Birds have always been effective communicators to humans, and today is no exception. Oiled birds represent the headlines for myriad untold catastrophes currently already unfolding at burgeoning scale: mass deaths, reproductive failures,

population crashes, and food-web collapses affecting thousands of species within the Gulf ecosystem. Events like this can have ecological effects that may last decades, or perhaps much longer. More than 20 years after the Exxon Valdez oil spill, we are still learning about how populations and ecosystems respond to such unnatural disasters. Even as we decry this calamity and call for caution against new ones, we need to avoid empty hand wringing. Our chief priority must be to mobilize the process of learning from the reality now upon us.



The Deepwater Horizon gusher was generated by 21st-century technology, but it symbolizes the 19th-century ethics we continue to apply when environmental protection contradicts energy exploitation. Although we cannot yet know the eventual scale of its biological and economic costs, we should for once agree that we must assemble, and never again forget, all the fundamental lessons of this disaster. The unthinkable is possible, and must be planned for in advance. As we assess risks versus rewards, as we fully audit the true costs of energy exploration and extraction, we need to incorporate and properly mitigate the enormous risks and costs of disasters like Deepwater Horizon. With just one planet to steward and only one chance at this game, all of us should ponder whether some natural systems are just too complex and valuable to risk losing, regardless of what temporary energy boost lies beneath them.

*John Fitzpatrick  
Louis Agassiz Fuertes Director*

JON REIS

## Harlequin Ducks and Oil Spills

Probably the only good thing to come out of an oil spill is the chance to learn about how to prevent, or at least to lessen the damage of, the next one. That was certainly the hope after the *Exxon Valdez* ran aground in 1989, causing what was until this summer our nation's largest oil spill.

Though most people had all but forgotten that sad day in Alaska by this April, when the Deepwater Horizon disaster began, scientists have been studying the effects of the oil continuously. But the lessons that have emerged have not been reassuring.

Before the *Exxon Valdez*, oil spills were thought to be acute disasters: oil coats wildlife, mires vegetation, and kills fish during a spill, but soon after the oil dissipates and ecosystems rebound. So scientists were surprised when a 10-year re-assessment showed that many species in Prince William Sound had not recovered, and some, such as Pigeon Guillemots and herring, were still getting worse. Shoreline surveys discovered that an estimated 21,000 gallons of unweathered crude still remain under the sand and rocks of Prince William Sound.

Twenty years after the spill, work on Harlequin Ducks shows not just that oil remains, but that it is still toxic and still being ingested by wildlife. Dan Esler, of Simon Fraser University in British Columbia, Canada, and a host of colleagues used molecular analysis to detect the level of the exposure. On annual visits to Prince William Sound from 2005 to 2009, Esler found the small, charming ducks before they departed the coastline for breeding territories on mountain streams. Esler caught them, and a vet on his team took a tiny sample of liver tissue.

In the lab, the researchers analyzed the tissue for an enzyme made by a gene called CYP1A. Many vertebrates, including birds, make this enzyme only in response to toxins contained in oil: polycyclic aromatic hydrocarbons, PCBs, and dioxins. There are few natural sources of these compounds, especially in otherwise largely unpolluted Prince William Sound, so finding the enzyme indicates that the ducks have recently ingested some toxic oil.

In the late 1990s, researchers used this technique to pinpoint oil exposure in fish, river otters, Harlequin Ducks, Pigeon Guillemots, and Barrow's Goldeneyes. They discovered that oil was buried in shallow, intertidal areas where it was sheltered from weathering or decay. But bottom-dwelling or burrowing invertebrates remained in contact with the oil, and storms periodically stirred the oil back into the water.

"Harlequin Ducks have a whole series of strikes against them here," Esler says. "They're so tightly linked to intertidal zones, where the oil is, and the fact they eat invertebrates instead of vertebrates."



MARIE READ

Twenty years later, the Harlequin Ducks in Alaska's Prince William Sound had still not fully recovered from the effects of the Exxon Valdez oil spill.

Birds such as mergansers live in the same areas but eat fish, which can detoxify and rid themselves of oil toxins. Harlequin Ducks eat mussels, which store the toxins without processing them. And Harlequin Ducks are much smaller, so they're less resilient in Alaska's cold climate than other sea ducks.

In the 2010 study, Harlequin Ducks in oiled areas had up to four times as much toxin-fighting enzyme activity as ducks from clean comparison areas—a clear signal they were still being exposed to toxins on a day-to-day basis. Fortunately, the level of exposure seems not to be toxic, and although Harlequin Ducks have yet to fully recover from the oil spill (when 7 percent of the Prince William Sound population died outright), their numbers are increasing.

—Hugh Powell

Esler, D., et al. 2010. Cytochrome P4501A biomarker indication of oil exposure in Harlequin Ducks up to 20 years after the *Exxon Valdez* oil spill. *Environmental Toxicology and Chemistry* 29:1138–1145.

*Exxon Valdez* Oil Spill Trustee Council. 2009. Annual status report for 2009. Go to [www.evostc.state.ak.us/Publications/AnnualStatus.cfm](http://www.evostc.state.ak.us/Publications/AnnualStatus.cfm) for a PDF.



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# A Family of One

by David S. Wilcove

## The rarely seen Plains-wanderer of Australia

I have never aspired to see every species of bird in the world. The amount of time and money needed to track down every last white-eye, babbler, and rail is staggering, not to mention the fact that some species are so rare or elusive as to be virtually impossible to find. But I do hope to see every of birds, and that goal eventually brought me, as it has so many other bird watchers, to the little town of Deniliquin in New South Wales, Australia. Deniliquin is the home of Philip Maher—one of only a handful of people who knows where to find the Plains-wanderer.

A small, ground-dwelling bird, the Plains-wanderer has puzzled ornithologists for well over a century. Taxonomists have placed it next to the buttonquails in the , among the diverse waterbirds in the , and, most recently, in its own family of one—the —within the shorebird order . Restricted to arid grasslands in southeastern Australia, it has always been considered rare and elusive. Unlike most species of birds, Plains-wanderer males are smaller and drabber than females and do most of the incubating of the eggs and rearing of the chicks.

Philip Maher's involvement with the Plains-wanderer began 30 years ago, in

*The female Plains-wanderer (standing) is larger and more strikingly marked than her mate. Illustration by Johannes Gerardus Keulemans, courtesy Division of Rare and Manuscript Collections, Cornell University.*

August 1980, when he and some friends were driving across a sheep paddock en route to a neighboring property. Two little birds scurried out of the way of their vehicle and paused in the grass. Maher took a closer look and recognized them as Plains-wanderers, then virtually unknown in the wild. Subsequent unsuccessful searches for Plains-wanderers by day led him to guess that these shy birds might be easier

to find at night, when they are resting. And, indeed, when he started spotlighting the grasslands at night, he regularly found them.

As word of Maher's success in finding Plains-wanderers spread, bird watchers from around the world began trekking to Deniliquin. He now estimates he has guided more than 6,000 bird watchers in pursuit of this species.

My own pilgrimage to Deniliquin took place this past February. Philip met me in the morning, and we spent the day watching birds in the woodlands, farmlands, and wetlands around Deniliquin. As the sun began to set, we drove to the middle of a large pasture, where we were joined by John and Robert, two of the landowners on whose property we were bird watching. Off in the distance, towering thunderheads and flashes of lightning suggested an approaching storm. Philip, John, and Robert were delighted. Deniliquin has been locked in a drought for the past decade, much to the dismay of the region's farmers and ranchers. In addition, Philip



believes the drought has caused steep declines in populations of many birds around Deniliquin.

Once it was dark, we split into three trucks and headed off in different directions. Each vehicle moved slowly through the pasture. With headlights and spotlights, we scanned the ground in search of birds. The bright beams of light sweeping across the flat grassland, in combination with distant flashes of lightning, made for an oddly sinister scene—something from a Coen brothers movie. To my untrained eyes, the habitat seemed ordinary and unexceptional, a run-of-the-mill pasture with low grass and scattered patches of bare ground. I had difficulty believing it could be the home of such a rare and unusual bird.

After about 30 minutes of searching, Philip stopped the truck and quietly said, “Look over there.” In the spotlight stood a pair of Plains-wanderers. They were surprisingly small birds—barely larger than Semipalmated Plovers—and oddly shaped, too, with small rounded heads, long necks, plump bodies, and long legs. They did not seem particularly bothered by us or the spotlight, which Philip took care not to shine directly on them. Soon, the female began bobbing her head up and down while staring intently at the male. She then crouched down and ran toward him, calling softly. After a few minutes, we lost sight of them in the ankle-high grass.

Because the birds proved to be so approachable at night, Philip, the landowners, and Australian ecologist Graham Harrington decided to try to band them. Over the course of a dozen years, they managed to capture and band about 1,000 Plains-wanderers in the grasslands around Deniliquin. According to Philip, the recapture rate was quite low: 10 percent within a year of banding, and only 2 percent after that. Yet of the birds they did recapture, virtually all were found within a half-kilometer of where they had been banded. Their results suggest to me either a high mortality of birds, coupled with strong site fidelity, or an odd mix of short- and long-range dispersal behavior within the

population.

Due to these and other studies, ornithologists now have a fairly precise understanding of the habitat requirements of the Plains-wanderer. The birds prefer areas containing a mixture of roughly 50 percent bare ground and 50 percent grass, with the grass occurring in two strata: a lower layer of short grass and a sparser upper layer of tall grass. This combination of features provides the birds with adequate

*They are surprisingly small—barely larger than Semipalmated Plovers—and oddly shaped, too, with small rounded heads, long necks, plump bodies, and long legs.*

foraging sites, nest sites, and concealment from raptors. What seemed like an “ordinary” pasture to me was actually a very special habitat.

Unfortunately, due to overgrazing by livestock and the conversion of natural grasslands into croplands and cultivated pastures, little high-quality habitat for Plains-wanderers remains. An aerial survey of more than 7,500 square kilometers of promising terrain revealed that only about 1 percent was in suitable condition for the bird. Not surprisingly, therefore, the Plains-wanderer is considered endangered. Researchers estimate that its global population ranges from fewer than 2,500 individuals during drought years to as many as 8,000 during years of good rainfall.

Notwithstanding its current dire situation, there is reason to be cautiously optimistic about the future of the Plains-wanderer. I believe that, like most grassland birds, it can thrive in areas with limited amounts of livestock grazing. The key is to prevent the grasslands from being overgrazed or turned into croplands. Philip,

for example, shares the revenue from his bird-guiding business with the landowners on whose property the Plains-wanderers live, thereby giving the farmers a financial stake in the welfare of the bird. And at both the state and federal levels, Australia has a number of programs that pay landowners to manage their property in ways conducive to wildlife conservation; these could readily be tailored to meet the needs of the Plains-wanderer. In addition, some areas of suitable habitat have been added to Australia's network of protected areas, although grasslands as a whole remain a notably under-protected ecosystem.

As unique as the Plains-wanderer is, it is hardly the only grassland bird in decline. Indeed, around the world, grassland birds are feeling the squeeze from agriculture, overgrazing, and desertification. In the United States, for example, the 2009 report released by the Department of the Interior concluded that nearly half of the nation's grassland-breeding birds are in trouble. Meadowlarks, Bobolinks, Short-eared Owls, and Northern Bobwhites have experienced population declines of 38 to 77 percent since 1968. The Northern Aplomado Falcon, Florida Grasshopper Sparrow, and Attwater's Greater Prairie-Chicken are on the federal endangered species list; the Mountain Plover belongs there as well.

As prices for crops have climbed (driven in part by ill-conceived federal mandates and subsidies for corn-based ethanol), farmers have been converting native grasslands into croplands, much to the detriment of grassland birds. Bird watchers won't be flocking to Iowa or Illinois to catch a glimpse of a meadowlark or a Bobolink anytime soon, but the time to worry about these species is long before they have become rare enough to attract such attention. ◆

Steve C. Taylor. Southeastern Australian temperate lowland native grasslands: protection levels and conservation. *Parks* 8(3):21-26 (October 1998).

Also, visit Philip Maher's Australian Ornithological Services website at [www.philipmaher.com](http://www.philipmaher.com).



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# ALBATROSS ISLAND

*Text and photographs by Cliff Beittel*

IN THE VAST NORTH PACIFIC,  
HALFWAY BETWEEN  
SAN FRANCISCO AND JAPAN,  
MIDWAY ATOLL BOASTS  
THE LARGEST ALBATROSS  
COLONY IN THE WORLD



*I* am on my belly in the warm sand, with the sun setting and the sea breeze now cool. Twenty feet in front of me, and displayed in my camera's viewfinder, an albatross chick rests in the sand, waiting for a parent to bring back some food from the sea. Behind the chick, the sky is gold. As sunset turns to twilight, the sky turns orange, pink, and finally magenta. Crawling a few feet left or right amid the beach shrubs, I put new birds in front of the changing sky. After the chick comes an adult albatross, black and white, formal as a penguin. Then a displaying pair of chocolate-brown albatrosses, more animated than their black-and-white cousins. Last, a pair of the black-and-white birds sitting bill-to-bill in dim twilight.

When the light dies, I haul myself to my feet, dusting sand from my clothes. The water off the sandy shelf where I stand is dark now, not the familiar turquoise of a coral lagoon.

Wait a minute. Warm sand, turquoise coral lagoons, and albatrosses?

If those three things seem wrong together, blame Samuel Taylor Coleridge. His great poem, *The Rime of the Ancient Mariner*, has given many people the idea that albatrosses live only on the stormy Southern Ocean surrounding Antarctica:

And now there came both mist and snow,  
And it grew wondrous cold:  
And ice, mast-high, came floating by,  
As green as emerald. . . .  
At length did cross an Albatross . . .

In fairness to Coleridge, who never visited the Southern Ocean or saw an albatross, the Southern Ocean *is* home to most of the world's albatrosses. Three of the four genera—the great albatrosses, mollymawks, and sooty albatrosses—live there.

But there are four *other* species, the North Pacific albatrosses—the gooney birds—now usually placed in the genus *Phoebastria*. Most familiar may be the Waved Albatross of the Galápagos Islands. Less known are the three truly North Pacific species. Pick



up your Sibley guide, and there they are: the Laysan Albatross, with its white body, black upper wings, and dark eye smudge; the Black-footed Albatross, chocolate brown save for its lighter face; and the larger, rarer Short-tailed Albatross, the “golden gooney,” with a white body, black wingtips, and a golden head and nape.

All three can be seen at times off the west coast of North America, but both Laysan and Black-footed albatrosses nest primarily in the Northwestern Hawaiian Islands, where I've come to see and photograph them.

I'm at Midway Atoll, one of the most isolated spots on earth, *midway* between San Francisco and Japan. Even those who know Midway as the site of one of the greatest naval battles in history (June 4-7, 1942) probably don't know that it is one of the 10 Northwestern Hawaiian Islands (or Leeward Islands) stretching 1,300 miles west-northwest of the eight main Hawaiian islands. The chain's other islets and atolls, such as French Frigate Shoals, Gardner Pinnacles, Laysan Island, and Kure Atoll, are virtually unknown. These mere specks once *were* the Hawaiian Islands, formed over the same volcanic hotspot that created the big islands of today. Some were as large as the big islands before erosion and subsidence took their toll. They are remnants, too, in terms of wildlife, a reminder that abundant, unwary wildlife characterized not just the Galápagos Islands but the whole Pacific Ocean before the arrival of humans and introduced predators. The Leewards are America's Galápagos, its great ocean park.

Midway is the largest of the Leewards, the only one with permanent human residents, and the only one that's open to the public. Like the others, it was once a volcano, perhaps 3,000 feet in elevation. Now just three low, sandy islands—Sand, Eastern, and Spit—remain, surrounded by a coral reef five miles in diameter growing on the shoulders of the submerged peak. Eventually it will sink beneath the waves, as other Hawaiian Ridge seamounts have before it.

Visitors arrive after a four-and-a-half-hour, 1,200-mile flight from Honolulu on a chartered Gulfstream I. This older turboprop model, introduced in 1958, is used in part because propellers are less vulnerable to bird strikes than jet engines. With three million birds residing on just 2.4 square miles of land, potential collisions are also the reason flights arrive and depart at night, when fewer birds are flying.

Even in the dark, Midway's mix of military history, wildlife, and isolation is palpable. “Naval Air Facility Midway Island” reads the sign on the big, rusty hanger, though the U.S. Fish and Wildlife Service took charge in 1996. Cries of nocturnal seabirds—there are 900,000 Bonin Petrels—fill the subtropical night as we climb into electric golf carts that, along with bicycles

*On the previous spread, a Black-footed Albatross pair performs a courtship dance at twilight on Midway Atoll. At left, a nesting colony of Laysan Albatrosses on the interior of Sand Island. The young birds sport brown, wooly-looking down. On the facing page, two young Laysan Albatrosses sit at their nests in front of a World War II artillery piece on Eastern Island.*



*M*idway's mix of military history, wildlife, and isolation is palpable. “Naval Air Facility Midway Island” reads the sign on the big, rusty hanger, though the U.S. Fish and Wildlife Service took charge in 1996.

and walking shoes, have mostly displaced cars and trucks. Albatrosses don't nest on pavement, but once we leave the tarmac, birds engulf us—albatross chicks and adults, asleep and awake, crowding the edges of the narrow gravel road, petrels and shearwaters overhead.

The drive to Charlie Barracks, where visitors stay, is a slalom around birds. Albatrosses surround the barracks, as they do every island structure. Only a low fence, the kind used to edge flower gardens, keeps the birds outside.

In addition to staggering bird numbers, Midway's trees and vegetation are a surprise, even more apparent in the morning. Sand Island, Midway's inhabited island, *was* sand in 1903, when the U.S. Marines ejected feather hunters and the Commercial Pacific Cable Company came to build a cable station. But between 1906 and 1930, the company imported 8,100 tons of top-

soil from Honolulu, beach grasses from San Francisco, evergreen ironwood trees from Australia, as well as various palms and flowering plants, converting Sand Island to a garden.

By bike or golf cart, it's no more than 15 minutes from the barracks to anyplace on the island. To the south are Midway's tree-lined residential streets, with handsome officers' houses from the 1940s; beyond town, the active 7,900-foot runway parallels the south shore. To the north, it's a short walk through a sea of albatrosses to the elegant, tropical-style Clipper House restaurant in a stand of ironwood trees on a dune overlooking North Beach. The last 50 yards up the dune is on a boardwalk often shared with albatrosses. Named for the Pan Am Clipper seaplanes that made weekly stops at Midway on trans-Pacific flights before World War II, the restaurant is one of the few modern buildings on Midway.

## MAGNIFICENT MARINERS

Looking north from the Clipper House porch, you see albatrosses in constant motion over the green naupaka beach shrubs, white sand, and turquoise water, some coming and going from the blue water beyond the spray that marks the reef. Albatrosses come to isolated spots like Midway not for food, but because they need remote places free of rats and other predators on which to nest. When not breeding, they live entirely at sea, flying up to 90 percent of the time, even sleeping in flight, covering perhaps 3.5 million miles in a lifetime. They are the world's greatest long-distance flyers. Powered almost entirely by gravity and wind rather than muscle, albatrosses use nearly as little energy flying as they do sitting on the water.

A Laysan Albatross can make foraging flights of up to 7,500 miles—flying north much of the way to the Aleutians, west as much as 1,000 miles—sometimes spending days or even weeks away before returning to feed its single, hungry chick. The birds are remarkable navigators, able to fly directly back to their chicks from anywhere in the North Pacific. Both parents must perform such feats repeatedly if the chick is to survive. Once the chick can maintain its body temperature, both parents forage almost continually, seeing little to nothing of one another. This may explain the need for the extended courtship and bonding albatrosses do before pairing off and mating.

Midway's Laysan colony is the largest albatross colony in the world, with an estimated 1.5 million birds accounting for 70 percent of the species' population. Laying begins in mid-November, with chicks hatching from late January to mid-February. Adults feed the young an oil of regurgitated squid and flying fish eggs

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*A Hawaiian green turtle (below) swims in the turquoise water of Midway's inner harbor. Like the albatrosses, these turtles are threatened by plastic and other marine debris. At right, an endangered Black-footed Albatross heads to sea off Sand Island.*



that can look surprisingly palatable, resembling the Omega-3 fish oil supplements sold in health food stores. Fledging takes place in midsummer, when so many birds attempt first flights that tiger sharks congregate in the lagoon to feed on unlucky birds that land on the water but lack the strength to lift off.

The Black-footed Albatross colony is much smaller, about 72,000 individuals, roughly a third of the world population of the species. They prefer more open nesting sites with less vegetation, nearly always beside beaches, and their colonies are far less dense. Unlike Laysan Albatrosses, which walk erect, Black-footed Albatrosses hunch forward, head down, in what researchers decades ago humorously labeled "the Nixon walk."

Usually only two or three Short-tailed Albatrosses are present at Midway. Essentially the entire world population breeds on a single volcanic island, Torishima, off Japan. After feather hunters killed five million of them, a 1939 eruption on Torishima reduced the population to just 10 breeding pairs. Hedging the Short-tailed Albatross's huge bet on Torishima, efforts are underway to encourage breeding on Midway Atoll, using decoys of the birds and recorded calls.

## OTHER SPECIES OF INTEREST

White Terns, sometimes called "Fairy Terns," have brilliant white plumage and dewy black eyes. Whether flitting through the shady ironwoods or hovering overhead against a blue sky with sunlight streaming through their translucent feathers, they seem like fairy spirits. They build no nest, but balance their egg on a tree limb, rock, windowsill, or roof. Photographing a chick, I saw what appeared to be a stainless steel fishhook embedded in the bark beside the chick's foot. But it turned out that it *was* the chick's foot. White Terns are born with long, sharp claws, which enable them to remain on the precarious perches where they hatch.

In the same ironwood forests where White Terns place their eggs on limbs, Red-tailed Tropicbirds often nest on the ground beside tree trunks. They seem out of place there, scattered silently about the forest floor like giant white mushrooms. They act like real seabirds, however, in their raucous courtship flights, flying up, back, and forward again in vertical circles, with their 22-inch central red retrices on full display.

Before humans arrived in Hawaii, Laysan Ducks were widespread, but by 1860, they survived only on Laysan Island. After rabbits were released on Laysan around 1900 and stripped the island of vegetation, only six ducks remained.

Eventually, after the island gained refuge status, the Laysan Duck population recovered to several hundred, but the species re-

*When not breeding, albatrosses live entirely at sea, flying up to 90 percent of the time, even sleeping in flight, covering perhaps 3.5 million miles in a lifetime. Powered almost entirely by gravity and wind, albatrosses use nearly as little energy flying as they do sitting on the water.*



mained endangered because of its tiny range and vulnerability to hurricanes and disease. To reduce the potential impact of those risks, some Laysan Ducks were transplanted to Midway in 2004 and 2005.

We saw Laysan Ducks often, but kept our distance because of their endangered status. Ironically, I took my best photographs of them at the Midway Mall (which was the base store and theater in the 1940s), where the Ship's Store is open from 5:00 to 5:30 on weekday afternoons. I went there for a bottle of wine, but ended up sitting in the middle of Midway's main street—completely sober—photographing Laysan Ducks.

Midway's residential areas are good places to see introduced residents such as Island Canary and Common Myna and for wintering shorebirds such as Pacific Golden-Plovers and Ruddy Turnstones, still present during our early April visit but soon to begin their flight north to Alaska. The shorebirds forage among

the albatrosses in front yards. Bristle-thighed Curlews, on the other hand, I saw mostly in flocks of six or eight on shrubby abandoned runways, where you can drive right past them in a golf cart. The curlews leave Midway in early May and fly at least 2,400 miles nonstop to their breeding grounds. Curlews wintering *south* of the Hawaiian Ridge are said to overfly Hawaii on their way north, making a nonstop flight of at least 3,600 miles, one of the longest of any bird.

Green turtles are easy to see at Turtle Beach, on the northeastern corner of Sand Island, where they haul out. My best view, though, was at Midway's inner harbor, where a turtle poked along, seemingly investigating the seawall. Leaning out over the corrugated steel, I photographed the turtle and some endemic Hawaiian flagtail fish that were with it.

Highly endangered Hawaiian monk seals (so named because the folds on the animal's neck resemble a monk's cowl) are more

The adults sometimes mistake plastic for prey. They return to their nests and unwittingly regurgitate the plastic to their chicks, some of which die of starvation, their stomachs full of refuse. It takes only two ounces of plastic to kill an albatross chick.



difficult to see closely. They are wary loners, easily disturbed, and most of Midway's beaches, except North Beach, are closed to protect them. I had an accidental encounter with one at the west end of North Beach. I was photographing a Black Noddy perched on riprap, when suddenly a dark head surfaced just offshore. Though I backed up to give the seal room to come ashore, it turned and swam away.

### THE PLASTICIZED PACIFIC

Although the slaughter of albatrosses at their nesting islands has ended, many threats remain. A tsunami could wipe out a generation of chicks and many adults (a tsunami alert after the February 2010 Chilean earthquake briefly sent everyone on Midway scrambling to the third floor of Charlie Barracks). Long-line commercial fishing, using up to 80 miles of hooks baited with squid—a favorite albatross prey item—may drown tens of thousands of albatrosses each year. On Midway, golden crownbeard, an exotic plant, can grow six feet high, ruining nesting habitat.

But a more insidious threat exists. While I focused on the beauty of the albatrosses, my wife Susan took a picture with possibly far greater impact. It shows a partly decomposed albatross chick, its abdomen full of plastic cigarette lighters, bottle caps, a dental floss holder, and other microtrash. And we saw other dead chicks like that. Midway's interior is littered with plastic.

Albatrosses capture their prey, mostly squid and flying fish eggs, far from land, in the middle of the North Pacific, where plastic garbage circulates in two huge gyres. Sometimes the birds no doubt mistake the plastic for prey—speed is critical in capturing prey like squid that surface only at night. Other times, plastic might be encrusted with flying-fish eggs. The adults return to their nests and unwittingly regurgitate the plastic to their chicks,

some of which die of starvation, their stomachs full of refuse. It takes only two ounces of plastic to kill an albatross chick. Researchers believe that 99 percent of the albatross chicks on Midway have plastic in their stomachs. And plastic may also be a problem for humans. It soaks up chemical pollutants, such as PCBs and DDT, which become concentrated in the plastic. And it does not biodegrade but gets ground into ever smaller pieces, which are consumed by ever smaller species and passed up the food chain, finally reaching your local seafood market.

We had heard about the Pacific garbage patch, of course, but seeing it kill birds at such a remote and wonderful place as Midway Atoll had a huge emotional impact on us. We now want to reduce our use of plastic—not merely to recycle it as we have done for decades. Since returning home from Midway, we have begun taking canvas totes to the store with us when we shop, and have replaced bottled water with a stainless steel gravity-flow water filter on the kitchen counter from which we fill stainless steel bottles (healthier than plastic anyway) for use when we're exercising or in the car. And we now use a similar but smaller water filter whenever we travel. Small steps—clearly much more must be done—but it's a start. We can save our magnificent seabirds, or we can continue to live stupidly, poisoning both the birds and ourselves. As Coleridge wrote near the end of *The Rime of the Ancient Mariner*:

He prayeth well, who loveth well  
Both man and bird and beast.  
He prayeth best, who loveth best  
All things both great and small.

*Cliff Beittel is a freelance photographer and writer based in York, Pennsylvania. For more information on the Northwestern Hawaiian Islands, he highly recommends two books: Isles of Refuge by Mark J. Razoun, and Eye of the Albatross by Carl Safina.*

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# FLAMINGOS *of the* ALTIPLANO

ON A HIGH, LONELY PLATEAU IN THE ANDES, A LITTLE-KNOWN POPULATION OF VOLCANO FLAMINGOS STRUGGLES TO SURVIVE IN A CHANGING WORLD

*Text and photographs by  
Marita Davison and Jennifer Moslemi*

*A cold and salty lake of blood-red water, hidden between volcanic peaks beyond 16,000-foot Andean passes—could this be the home of a flamingo?*

—William Conway

**T**he striking yet little-known volcano flamingos of the Andes have long eluded hunters and scientists alike. They are concealed by their rugged habitat in the high, arid terrain of South America's Altiplano, a landscape that evokes the work of surrealist painter Salvador Dali. A plateau surpassed in area and altitude only by that of Tibet, the Altiplano's treacherous mountain passes, saline water sources, volcanic stirrings, and inhospitable climate have protected its flamingos from predators for millions of years. That is, until recently.

So effective has been the Altiplano's veil that one species of volcano flamingo, the James's (or Puna) Flamingo, was presumed extinct for decades. It was first scientifically described in 1850, and skins were collected for museum specimens until the bird seemingly disappeared in 1909. In 1956, R. P. Allan wrote, "We cannot but wonder if James's Flamingo still survives. At the moment this would seem to be one of the outstanding mysteries of the avian world." One year later, an expedition to Laguna Colorado—a volcano-ringed lake in Bolivia stained red by its aquatic life—made a dramatic discovery: at an elevation of 14,035 feet and beyond "salty slime of uncertain depth" through which the intrepid explorers "had to stumble and flounder with great physical effort" was an unlikely nesting



*For many years, the James's Flamingo (above) was assumed to be extinct, until a 1950s expedition found thousands of the birds in the remote Altiplano.*

colony of thousands of flamingos. Within this colony they found all three species of volcano flamingo—the Chilean, Andean, and, what they had hoped still existed, the elusive James’s. These first explorers would be followed by an expedition led by William Conway in 1960. Conway described the terrain surrounding the flamingo colony: “The bottom was riddled with apparently bottomless holes where subterranean geysers pour into the lake. We found it important to stay close so we might drag each other out of these holes. Progress became a series of short struggles punctuated with rest periods while we stood covered from head to foot with mud and gasped at each other.”

It became clear: these flamingos know how to elude predators. Any nonflying predator would not only need to withstand the harsh conditions of the Altiplano, but also defy seemingly bottomless saline mud to get to an egg or a tasty chick. A flying predator would face thin air and intense, relentless wind. No easy task.



The advent of human technology, however, has lifted the heavy veil of the Andes, and the volcano flamingos are no longer protected from potential threats. What was once a forgotten landscape is now a destination for mining companies, developers, and tourists, bringing unknown consequences for these once-isolated birds. A closer look at the three species of volcano flamingos, the new threats they face today, and recent scientific research sheds light on these hardy yet vulnerable creatures that call the unforgiving Altiplano their home.

## THE VOLCANO FLAMINGOS

Flamingos are perhaps the most easily recognized of all birds, partly because of their prominence as inanimate plastic adornments on well-groomed lawns. But living versions reside in some of the most inhospitable pockets of our planet’s tropical and subtropical belt. The world’s six flamingo species inhabit regions as disparate as the African Rift Valley, the Galápagos Islands, and the high Andean plateaus, but they are unified by their fondness for extremes. The birds’ preferred habitats include hypersaline lakes, caustic water lagoons, and alkaline volcanic lakes. They thrive in places where few other birds can, a feat epitomized by the legions of flamingos covering some of Africa’s soda lakes in an almost perpetual pink shroud.

Despite being visually unmistakable, flamingos have been surprisingly difficult to classify taxonomically. Once they were considered most closely related to storks, herons, and ibises. Other classifications through the years have pointed to ducks, shorebirds, and—most recently and perhaps most convincingly—grebes as their closest cousins. Determining the phylogenetic position of flamingos has been so complex that in *The Origin and Evolution of Birds* (1996), Alan Feduccia wrote that flamingo classification has been “one of the most perplexing problems in avian systematics.”

There is no doubt, however, that flamingos remain a poignant example of elegance in nature. Seeing all six species in their natural habitats has become a paramount ambition for many avid birders. To some people, the species restricted to the Altiplano—Andean Flamingo (*Phoenicopterus andinus*) and James’s Flamingo (*Phoenicopterus jamesi*)—are the most beautiful of all. Distinguished from each other easily by size and coloration—the James’s Flamingo is notably smaller, and the Andean is the only flamingo to sport yellow legs—both species subsist on microscopic algae by filtering individual algal cells through their highly adapted bills. Flamingo



bills are the most complex in the avian world, lined with rows of horny “teeth” (lamellae) that resemble the filtering apparatus of baleen whales. Those of Andean and James’s flamingos are neatly separated in width, allowing each species to specialize on food particles of different sizes. The Chilean Flamingo (*Phoenicopterus chilensis*), a more transient resident of Altiplano lakes, also strains food items through its bill, though the broader width of its comb of “teeth” allows it to capture larger prey, such as brine shrimp, copepods, and other invertebrates. Thus, a sight seen nowhere else in the world, three flamingo species foraging side by side, can be explained by these nuanced differences in bill morphology.

The size of volcano flamingo flocks can reach thousands of birds. Total population estimates are 34,000 for the Andean Flamingo, 100,000 for the James’s Flamingo, and 200,000 for the Chilean Flamingo. In a world where remnant populations of charismatic species often teeter at hundreds to a few thousand in the wild, these estimates may at first seem encouraging. However, the International Union for Conservation of Nature classifies volcano flamingos as “Near Threatened” (Andean and Chilean) and “Vulnerable” (James’s) on its Red List.

This distinction is due in part to flamingo reproductive behavior. The three species of volcano flamingos nest in common breeding colonies established in only a select number of lakes. Like all flamingos, they lay a single egg atop a mud mound nest. Even a slight disruption to a nesting colony can spell catastrophe for a breeding population. Once abandoned, years may pass before the birds revisit disturbed colonies, if they return at all.

*Stained red by microorganisms, Laguna Colorada in Bolivia is the world’s most important breeding site for the James’s Flamingo. At left, Bolivian student Mery Villalobos carries a sample of algae as part of an experiment measuring the role of flamingos in Andean lakes.*

It’s no wonder, then, that current population estimates for each of the three species are cause for concern. Populations maintain themselves only through successful reproduction; with perilously few active nesting colonies, which are easily disturbed, stable population estimates mask worrisome population trends. Given, for example, that nearly one-third of the entire population of James’s Flamingo breeds at Laguna Colorada alone, the stakes are high. It is, so to speak, putting all of the flamingo eggs in dangerously few baskets. With a future full of new disturbances, the “boom or bust” reproductive cycle of volcano flamingos may lead them toward reproductive extinction.

## AN ALTIPLANO WITHOUT FLAMINGOS

Flamingos are inextricably woven into the lives of the people of the Altiplano. Traditional uses include harvesting eggs for food, rubbing flamingo fat onto sprained joints, and using feathers in folkloric headdresses. To the people of the Altiplano, flamingos are the ultimate symbols of elegance and physical beauty, figuring prominently in art (pre-Inca to the present) and as proud emblems of cultural identity. The loss of the volcano flamingos



would be culturally devastating. But what would the ecological consequences be?

Part of our research has been rooted in answering this question. We began our study of the volcano flamingos in southwestern Bolivia, where the Altiplano is most expansive. A network of lake oases—favored by flamingos and a myriad of other organisms—became the setting for our natural laboratory. We asked a simple question: What might the Altiplano lakes look like if flamingos disappeared? Unfortunately, this question presents an all-too-conceivable reality.

An experiment we conducted that excluded flamingos from portions of an Altiplano lake for more than a year is beginning to offer clues. In the areas where we prevented flamingo activity, an almost instant boom in algae took place, and was sustained for months. In contrast, areas where flamingos foraged maintained a constant state of low algal densities but high productivity, suggesting that flamingos indirectly drive the most fundamental

process in nearly all ecosystems: photosynthesis. Our experiment showed that when flamingos disappear, rates of photosynthesis slump, leaving behind an accumulation of algae of poor nutritional value. With impacts this large and sustained at the base of the food web, the disappearance of flamingos could have far-reaching effects on the entire aquatic ecosystem.

### MOVING TARGETS

The challenge still remains: How can we preserve these culturally and ecologically valuable birds? One obvious place to start is by protecting important flamingo habitat, which is not as easy as it sounds. Flamingos are moving targets across a vast landscape dotted with saline lakes, each with its own microcosm of biological diversity. Flamingos congregate densely in some lakes, sparsely in others, and in some lakes, not at all. Flocks can assemble unexpectedly by the thousands and just as easily disappear without

warning. Disentangling the movement patterns of volcano flamingos will help us understand and protect these species that, until recently, have been virtually impossible to study. Identifying lake attributes that flamingos seek out is an important first step. What makes one lake so attractive to flamingos and others so unappealing? This knowledge is essential for developing an effective conservation strategy for the birds.

In a landscape as harsh and vast as the Altiplano, long-term, continuous monitoring of anything is difficult. Enter the power of technology. We are using remote photography to create a cadre of digital witnesses in places inhospitable to humans. Cameras set to synchronously capture images at “flamingo” and “no flamingo” lakes will observe the arrival, persistence, and departure of flamingo flocks. They will enable us to make direct estimates of flamingo numbers and locations. We can then correlate these data with lake characteristics such as algal density and salinity. The information being collected by our digital observers will help us to unlock some of the tightly held secrets of the Altiplano’s pink-feathered inhabitants—and not a moment too soon.

### THREATS

Today, the Altiplano is a different place than the one Conway and others explored in hope of glimpsing a presumed-extinct flamingo. As is often the case with formerly remote corners of the planet, human proliferation coupled with technology have made accessible what was once the realm of only the hardest of societies. As human presence increases, so do threats. Egg gathering and hunting for local use have given way to mining and geothermal operations that extract dangerously meager water supplies in one of the driest places on the planet. Lithium reserves in Bolivia’s prime flamingo areas are reportedly large enough to become the nexus of raw materials for electric car battery production. A booming and unregulated adventure tourism industry further increases pressure on these notoriously sensitive birds. Annual tourist visits have increased from fewer than 5,000 to more than 70,000 during the last 13 years. After millennia in near isolation from humans, will the volcano flamingos be loved to death?

Yet it may be that the activities of others far removed from the Altiplano will strike the final blow. Climate change is a particularly insidious threat to a high-altitude desert. Year after year, flamingos perform an evolutionary dance with water levels. They must find nesting grounds with just the right amount of water. Too much, and nests are drowned. Too little, and food sources desiccate in the oppressive desert sun. The hypersaline water

is not only the life source for flamingos but also a formidable defense against predators. Without water—and the bottomless mud pits that it creates—there is no defensive moat to provide protection against terrestrial predators, and the birds’ eggs will fall prey to the foxes roaming the perimeter of the lakes. Climate change is likely to disrupt the delicate balance that flamingos must strike with water levels to fledge their chicks. If the glacial retreat that has recently occurred in the Andes continues, this balance may evaporate altogether.

The drama of the volcano flamingos plays out in the context of starkly impoverished indigenous communities. Rather than reconcile ourselves to the sadly common outcome when poor



*James's and Andean flamingo fledglings (on facing page and above) are measured, weighed, and banded at Laguna Colorada. The information gathered is used by researchers to track movement patterns and population trends of these threatened birds.*

local communities are in conflict with conservationists, there is an opportunity for responsible and informed ecotourism, which could provide a tantalizing win-win solution of increased income and conservation awareness. But informed ecotourism requires information, and the ecology of volcano flamingos is slow to yield its secrets. Fortunately this is changing. International teams of scientists have formed the High Andes Conservation Group (Grupo de Conservación de Flamencos Altoandinos) and converged on the task of managing the world’s most remote flamingos. The information generated will aid efforts to forge a more sustainable relationship among local communities, tourists, and flamingos. Only time will tell how this partnership will play out, but the clock is ticking. Flamingos have their famed beauty on their side. As Sir Peter Scott, one of the founders of the World Wildlife Fund, puts it: “Man has always found something magical about flamingos.” ♦

*Marita Davison and Jennifer Moslemi are graduate students in the Department of Ecology and Evolutionary Biology at Cornell University. They continue to study flamingos in the Altiplano lakes with their Bolivian colleagues.*

# EXPLORING *the* FALKLAND ISLANDS



*Charles Darwin dropped in on these remote islands in 1833, during his epic voyage of discovery. Now, more than 175 years later, they are still a spectacular place to watch wildlife*

*Text and photographs by Gary Kramer*

To some people, the Falkland Islands are just a faraway place in the South Atlantic where Britain and Argentina fought a war in 1982. But long before those tragic events, the archipelago's abundant wildlife was seen by Charles Darwin on his epic voyage on the HMS *Beagle*. During his visit in March 1833, the wildlife was abundant and exceedingly tame, yet he found the landscape somewhat drab and depressing. On my recent December visit, the wildlife was still approachable and abundant, and the scenery was spectacular.

The number of bird species recorded in the Falklands increases every year with vagrants—mostly migrants blown in from the South American mainland. Currently, about 230 species have been recorded—70 breeding birds, 20 regular migrants, and more than 130 vagrants. The islands have two endemic species—the Falkland Steamerduck and the Cobb's Wren.

You can visit the Falklands two ways—as a stopover point on a cruise ship bound for Antarctica or on a land-based trip. For birders and photographers, I highly recommend the land-based approach. All land tours begin and end with the once-a-week flight from Punta Arenas, Chile, to the Mt. Pleasant Airport near Stanley, the colorful capital of the islands. Each Saturday, a flight arrives dropping off passengers for a minimum one-week stay and taking others back to the mainland.

Upon arriving, I was met by Terrence McPhee, a fourth-generation islander and the owner of Kingsford Valley Farm in San Carlos. Although there are more than 400 treeless, windswept

*Crested Ducks (at left) are a South American species, common on the Falkland Islands. They feed mostly on aquatic invertebrates.*

*It wasn't until we reached San Carlos Bay that our sightings kicked into high gear. A walk along the shoreline brought us face-to-face with one of the islands' endemic birds—the unique Falkland Steamerduck.*

islands in the Falklands, the major islands are East and West Falklands. San Carlos is on East Falklands, along with Stanley and several essential points of interest.

Even before reaching San Carlos, we sighted some of the species I had traveled more than 7,000 miles from my home in California to observe. Upland (or Magellan) Geese were literally everywhere. After driving only a few miles from the airport, we saw a pair of Yellow-billed Teal in a roadside ditch and also glimpsed some Falkland Austral Thrushes and a spectacular red-breasted bird, the Long-tailed Meadowlark.

But it wasn't until we reached San Carlos Bay that our sightings really kicked into high gear. A walk along the shoreline brought us face-to-face with one of the islands' endemic birds—the unique Falkland Steamerduck. Although these large diving ducks cannot fly, they flap their wings to help propel themselves across the surface of the water to escape danger or expel intruders from their territory. The splashing action reminded early observers of a paddle-wheel boat “steaming” across the water, hence their name.

Not far from the steamerducks, we saw a pair of Kelp Geese. The male is all white, and the female is a barred brown and gray. Crested Ducks were feeding in the intertidal waters and Magellanic Oystercatchers foraged among the rocks. Later we traveled to the far side of San Carlos Bay and added Ruddy-headed Geese and both Magellan and Imperial cormorants to our species lists. Every bird was new and interesting.

One of the highlights of any visit to the Falklands is a trip to Volunteer Beach, a three-hour drive from Stanley or San Carlos over heath-covered landscape dominated by sheep farms. The road is part gravel, part dirt, and part bumpy jeep trail ending at a long sandy beach. Along the way, keep an eye out for small birds—Black-chinned Siskins, Dark-faced Ground-Tyrants, and White-bridled Finches.

Volunteer Point is home to the most northern colony of King Penguins in the world. Currently estimated at 500 pairs and increasing, the nesting colony is easily accessible. The noise of the penguins and the pungent aroma of guano nearly overwhelm



*A Falkland Steamerduck watches over her ducklings on East Falklands. There are four species of steamerducks, all found in South America. Only one of them, the Flying Steamerduck (which also occurs in the Falklands), is capable of flight.*

your senses. King Penguins can be found in their rookeries year-round, so birds are present every month of the year with chicks in various stages of development. We saw adults incubating eggs and young ready to fledge. Between the King Penguin colony and the beach are a number of Magellanic Penguins, which have a loud, braying call, remarkably similar to the sound of a donkey. Unlike King Penguins, which nest in tight colonies, Magellanic Penguins are burrow nesters.

Only a few hundred yards from the King Penguins was a colony of Gentoo Penguins, most of which were incubating or with young. We sat on the periphery of the colony and watched as adults returned from the sea. Upon arriving at their nests, mated pairs greeted one another by calling and pointing their beaks skyward. The advancing penguin would walk into position to replace its mate, careful not to step on the young chicks. Almost instantly, the chicks started begging for food. We were



*The Falklands have several species of nesting penguins, including King, Gentoo, Magellanic, and Rockhopper. Above, a Gentoo Penguin shelters its tiny chick near Stanley on East Falklands. At right, a pair of Rockhopper Penguins on Pebble Island. These birds must hop up rocky cliffs to reach their nest colonies, hence their name.*

so close we could see squid being regurgitated for the chicks.

For visitors with limited time in the Stanley area, there are two good birding sites close to town. Gypsy Cove is a 15-minute drive from Stanley and supports several hundred pairs of Magellanic Penguins, both Imperial and Magellan cormorants, and one of the few birds found in both North America and the Falklands—the Black-crowned Night-Heron. A bit farther afield, Bluff Cove Lagoon is still less than an hour's drive from Stanley. This site supports a colony of about 2,000 Gentoo Penguins and

a dozen or so King Penguins. The larger Kings look like bouncers at a nightclub, standing tall on the edge of the colony. Ruddy-headed and Upland geese graze nearby, and Dolphin Gulls and Turkey Vultures fly overhead.

A few hundred yards away is a sandy beach frequented by Southern Giant-Petrels—large, drab, brown seabirds often seen soaring over the surf line. Along the beach, look for attractive Rufous-chested Dotterels, tiny Two-banded Plovers, Magellanic Oystercatchers, and White-rumped Sandpipers, the latter migrating all the way from Canada. After visiting the penguin rookery and the beach, drop into the Sea Cabbage Cafe for hot tea or coffee and home-baked cakes and pastries.

Our next stop was Carcass Island, a 5,000-acre sheep farm that takes its name from HMS *Carcass*, a ship that visited the island in the late 1800s. Owned by Rob and Lorraine McGill for more

than 30 years, the island is free of cats and rats and therefore a haven for passerines along with waterfowl, penguins, and shorebirds. Carcass is reached by a one-hour flight from Stanley on a 10-passenger Islander aircraft operated by the Falkland Islands Government Air Service (FIGAS). Here visitors are housed in the sheep-station headquarters in comfortable double-occupancy rooms, each with a bath on a full-board basis.

Less than 100 yards from the house is a rocky beach backed by headlands. Along the beach, we found Ruddy-headed and Kelp geese with young goslings, Crested Ducks and Falkland Steamerducks with ducklings, and both Magellanic and Blackish oystercatchers with downy young. About a mile from the headquarters, a rocky pinnacle just offshore was the site of a Striated Caracara nest with three nestlings. Known locally as the “Johnny Rook,” this raptor is relatively rare, inhabiting remote parts of South America. The Falklands support about 500 breeding pairs—approximately 75 percent of the world population of the species. Tame and fearless, the adults were curious, and sometimes landed only a few yards from us.

On the way back from the caracara nest, we followed a trail through the grass-covered uplands and came upon a singing Cobb's Wren and later a Falkland Sedge Wren. Blackish Cinclodes were abundant along with Falkland

Austral Thrush, Falkland Pipit, White-bridled Finch, and a pair of South American (Magellanic) Snipe, which decided to freeze rather than fly, offering close-up photographic opportunities.

The next morning, Rob McGill drove us across the island to “The Plains”—an area of grasslands, freshwater ponds, and beaches. Southern elephant seals lay hauled out on the beach, and the ponds were filled with waterfowl, including a large molting flock of Falkland Steamerducks along with Crested Ducks, Silver Teal, and Ruddy-headed and Upland geese. On the beach was a large nesting colony of Kelp Gulls and a smaller nesting colony of crimson-legged Dolphin Gulls. Oystercatchers were abundant and Kelp Geese with young seemed to be around every bend.

After two days on Carcass Island, we boarded another FIGAS aircraft and flew to Pebble Island. Nineteen miles long and about

four miles wide, Pebble is the third-largest offshore island in the archipelago. Here visitors stay at Pebble Island Lodge, formerly the farm manager's house, now offering six comfortable rooms and daily meals.

Pebble is known for its large Rockhopper Penguin colony, a 30-minute drive from the lodge on the east end of the island. Rockhoppers are the smallest of the Falkland penguins, and to me they have the most personality. Their bright yellow brow tassels and the stripe above the eye give them a mischievous appearance. They get their name from their ability to hop up steep rocky cliffs to reach their colonial nesting sites. On Pebble Island as in other locations, the penguins often share their rookeries with Imperial Cormorants, the two species coexisting side by



*Rockhoppers are the smallest of the Falkland penguins, and to me they have the most personality.*

side. The rookery numbered several thousand birds, and there was constant activity—most Rockhopper Penguins were incubating eggs or feeding chicks. A steady stream of penguins went to and from the ocean, while the cormorants flew in with nesting material or sat on their eggs. South Polar Skuas—fierce predators and the nemesis of the rockhoppers—patrolled overhead. One morning, I watched a skua swoop into the colony and snatch a tiny penguin chick, causing a raucous commotion.

On the drive back, we passed several large freshwater ponds. Here we saw Flying Steamerducks—a close relative of the flightless species. Although the flightless birds are generally associated with salt water, the flying version is most often found in freshwater wetlands. The ponds also yielded majestic Black-necked Swans, Silver and Yellow-billed teals, and Magellan and Ruddy-headed geese. We also found a group of White-tufted Grebes and



Above, two Striated Caracaras or “Johnny Rooks” on Carcass Island. These birds are remarkably unwary and routinely allow people to approach within a few feet of them. Some 500 pairs nest on the Falklands. At right, a Two-banded Plover.

later a female grebe incubating eggs on a floating nest. It was on Pebble Island that we got our first good look at a Variable (Red-backed) Hawk—a soaring raptor, widespread in the islands.

After two days on Pebble Island, we boarded another FIGAS aircraft and flew to Sea Lion Island, a 35-minute flight from Stanley. Five miles long and a mile wide, Sea Lion is one of the smallest islands in the archipelago. But despite its compactness, the island supports more wildlife per acre than anywhere else in the Falklands. Sea Lion Island is the most southerly inhabited island in the Falklands. For most of its history, isolation and the difficulty of accessing the island contributed to the continuous abundance of wildlife. Additionally, the island has no cats or rats

and supports some of the best remaining stands of tussac grass, a large native species that is very palatable to sheep and has been overgrazed in many areas. Sea Lion Island supports nearly 50 species of breeding birds, large sea lion and elephant seal rookeries, and a pod of killer whales that are frequently sighted near shore.

Sea Lion Lodge was built in the mid-1980s by the Falklands Island Development Corporation and is the only purpose-built ecotourism lodge in the Falklands. Managed by Jenny Luxton, the lodge has 12 comfortable rooms and serves meals daily. At the lodge, we had a cup of tea in the spacious lounge while Jenny gave us a quick overview of the island, followed by a 30-minute introductory Land Rover tour.

The vehicle tour provided a quick reconnaissance of the area, but the island is actually small enough to walk almost anywhere. About 150 yards from the lodge is a Gentoo Penguin colony. The elephant seal beach is a quarter of a mile away, and

several freshwater ponds sit within sight of the lodge. Only the Rockhopper Penguin colony, about three miles from the lodge, is best reached by vehicle.

Our first stop was the Gentoo Penguin colony close to the lodge. This rookery represented only a portion of the more than 2,800 breeding pairs of Gentoos found on Sea Lion Island. Close by was a freshwater pond literally covered with Ruddy-headed Geese, some with goslings and others that had gathered there to molt. Heading east we ran into a scene reminiscent of the film, *March of the Penguins*—a long procession of Gentoos walking between their rookery and the beach. On the beach, we came upon a pair of Striated Caracaras feeding on a penguin carcass, and we eventually reached a nesting colony of Southern Giant-Petrels. On the way back to the lodge, I photographed a Cobb’s Wren and, only yards away, a White-bridled Finch. Near the lodge, a Short-eared Owl, the only one we saw on the trip, allowed us to approach closely and seemed oblivious to our presence.

The next day we hitched a ride in the Land Rover to the Rockhopper Penguin and Imperial Cormorant colony on the southwest end of the island. Here we got our best look at Snowy Sheathbills—a strange white bird with a unique bill. Sheathbills are scavengers that walk along the edge of the penguin colonies looking for scraps of food. They also have a disgusting habit of feeding on penguin droppings. Along with

the sheathbills were South Polar Skuas, Dolphin Gulls, and one or two Turkey Vultures.

We walked back to the lodge, stopping to investigate the freshwater ponds in the middle of the island. Here we saw a pair of Chiloe Wigeon with ducklings and Yellow-billed and Silver teals, and we got our best look at Silvery Grebes, diving for aquatic insects only yards from the pond’s edge. One pond held at least 30 Magellanic Penguins, frolicking in the fresh water, and the tussock uplands supported Falkland Austral Thrushes, Falkland Sedge Wrens, and Black-chinned Siskins. Along the beach, we saw sea lions, and some guests at the lodge spotted a pod of orcas. Overall, Sea Lion Island was one of the highlights of my visit to the Falklands, with wildlife around every corner.

My week in the Falklands passed quickly, and we soon found ourselves back in Stanley for the flight to Chile and eventually home. The Falkland Islands support a unique blend of avifauna unequaled anywhere in the world, offering visitors the chance to



## TRAVELING TO THE FALKLANDS

The high season for traveling to the Falklands is October to March, when migrating birds and marine mammals return to the beaches and headlands. With longer days, the austral summer months of December and January are the best time to visit. Most nesting occurs in late November and early December, and in January the chicks of most penguins and waterfowl are still young enough to be interesting.

In December and January, daytime temperatures range from 45 to 55 degrees Fahrenheit, with nights in the high 30s to low 40s. No matter when you visit, be prepared for wind—the average wind speed year long is 21 miles per hour. During my stay, the wind speed matched the average, and we only had a single calm day. The weather there can change quickly, with sun one minute and rain the next. Wear layers and be sure to bring waterproof outerwear.

When planning a trip, contact the Falkland Islands Tourist Board. Their website ([www.visitorfalklands.com](http://www.visitorfalklands.com)) has a wealth of information, and they can recommend cruise ships that stop in the Falklands and provide direct contact information for outlying islands and travel agents in Stanley. LanChile ([www.lan.com](http://www.lan.com)) operates flights from Santiago, Chile, to the Falklands via Punta Arenas once a week on Saturdays. All internal flights are on 10-passenger Falkland Islands Government Air Service aircraft ([reservations@figas.gov.fk](mailto:reservations@figas.gov.fk)). International Tours and Travel in Stanley ([www.falklandislands.travel](http://www.falklandislands.travel)) can make arrangements for international and domestic air plus ground itineraries. Most domestic flights range from \$170 to \$235 round trip in U.S. dollars, and island stays that include accommodations and meals range from \$150 to \$275 per person per day.

observe and photograph a wide assortment of wildlife in an unspoiled environment. Simply put, my trip to the Falkland Islands exceeded my expectations and remains one of my most treasured outings anywhere. ◆

*Gary Kramer is a freelance writer and nature photographer based in Willows, California, and a frequent contributor to this magazine.*

## Books for Birders

Reviews by Stephen J. Bodio

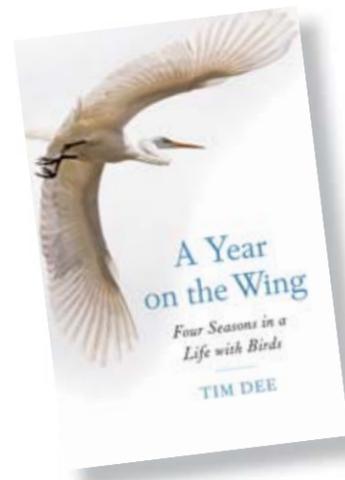
### A Year on the Wing: Four Seasons in a Life with Birds

by Tim Dee  
(Free Press)

Tim Dee has the eye of a birder and the ear of a poet; if you love birds and words you'll love this book. The novelist Martin Amis once said that if you mark the notable passages of a book in the margins, the perfect book would have lines written on every page. Dee's work comes perilously close to this standard; by "perilously" I mean it is sometimes almost too much. Here is a passage on the calls of petrels: "It is an inward and sibylline sound of swazzle notes and speaking stones. It giggles and rewinds. It clucks and purrs. It sounds like a simultaneous possession and exorcism."

When he is a little more modest, I like it even better. Speaking of a dying nightjar, he says, "Feathers fall from it like ashes from a burned-out fire.... Its plumage [is] a fabulous mix of silver, grey, orange, and brown, like the woven patterning of the underside of the world or a carpet containing everything of the earth."

Not that this book is all poetry; it is replete with astonishing scientific facts. For example, he speaks of a banded 22-year-old knot whose lifetime migration miles



totaled 435,000—the distance to the moon and back.

He acts as well as sees, and recognizes the atavistic roots of pursuits like birding. Of bird banding he writes, "Trapping birds is like being able to see inside their heads or being able to understand their speech.... Some old hunter in me is thinking of his supper, then an even older shamanic frisson stirs; we have called down these creatures from their skies and delved into the dark of their migrations."

The structure of *A Year on the Wing* is built around seasons and migrations, starting in June and ending in May. This makes arrival, departure, and migration the book's major themes and the themes of Dee's life as well. "Human adventures are what my life has been built from, yet my years throughout have been rhythmically driven by the step up into spring and the swing away into autumn and the movement of birds through them."

Dee's definition of nature writing illuminates his and all successful attempts at the practice: "If such a thing exists, [it] lives in this territory where science and poetry might meet. It must be made of both; it needs truth and beauty."

### The Private Lives of Birds: A Scientist Reveals the Intricacies of Avian Social Life

by Bridget Stutchbury  
(Walker & Company)

*The Private Lives of Birds* comes from the other side of the divide between poetry and science. It is an entertaining and informative book by a scientist, rooted in study and the evolutionary history of birds.

Early in the book, Bridget Stutchbury states, "I recently gave a public lecture in Hanover, New Hampshire, near Dartmouth College, and my host cheerfully



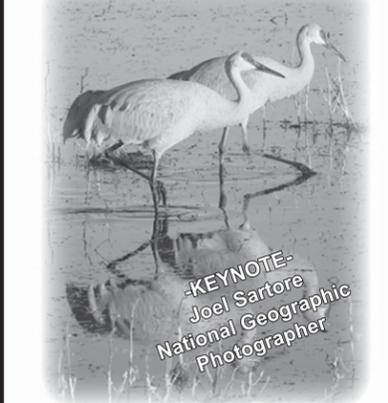
introduced me by telling the audience that 'Bridget probably knows more about sex than anybody in this room.'"

It is funny but absolutely true; she has studied the evolution of sex and society in birds for years, both in a Pennsylvania forest block and in tropical habitats such as Barro Colorado Island in Panama. Among her accomplishments are figuring out how to track Purple Martins by transmitter and satellite all the way from the United States to their wintering grounds in Brazil and back—the first time for any species.

The main themes of the book are sexual selection and mating strategies. The bright blue feet of male Blue-footed Boobies are attractive to females. Researchers painted such males with duller pigments on their feet and reported that, "Experimental males were apparently unaware of their non-sexy feet." Other strategies are sinister: in Eclectus Parrots "a female has been known to commit infanticide and kill the resident's eggs or young in order to take over a nest site, or kill another female."

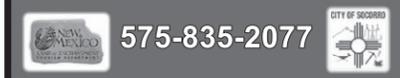
Perhaps the book's most serious theme is that humans are inevitably game changers. Efforts to promote more breeding among New Zealand Kakapos through supplemental feeding backfired when extra food made them produce mostly male offspring. Young Red-cockaded Woodpeckers must be moved to new habitats prepared for them because their natural habitat is so fragmented. On the more hopeful side, Caspian Tern colonies can be relocated to safer habitats through human ingenuity. We now must decide when to act and when to simply leave

## Festival of the Cranes

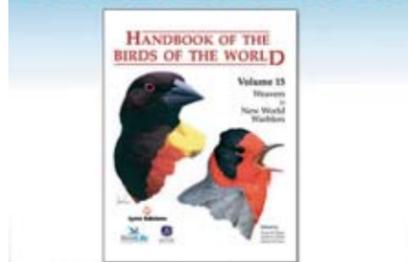


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Common Loons by Marie Read

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## *A Naturalist's Notebook*

by John Schmitt

8 June 2009

Tillie Creek Campground  
Kern County, California

### *Overworked Bushtits*

*Upon hearing vaguely familiar trilling notes coming from a coffeeberry bush, I pause to investigate. My attention is drawn to the delicate trembling and twitching of foliage, and I glimpse a small bird hopping about within. I produce a series of soft pishing sounds, which draws a Bushtit briefly into view, but it quickly resumes its energetic foraging in the tangle of foliage.*

*Satisfied that this is the source of the trilling notes, I am about to leave when a fledgling cowbird hops from the bush onto a nearby boulder, where it perches and emits the very vocalizations that had initially caught my attention. Its stubby wings and tail indicate that it fledged very recently.*



*I scarcely have time to ponder the thought of what species of bird had the misfortune of having this chick foisted upon it, when a tiny, somewhat haggard Bushtit, with a beak full of minute insects, hops down and delivers them to the begging cowbird! It is mildly alarming to watch as the Bushtit inserts its head right into the cowbird's gaping maw, placing the food well back into its mouth. It looks like the tiny Bushtit is*

*in imminent danger of being accidentally gulped down, but the cowbird politely receives the food without incident, after which, the Bushtit quickly flies off to find more food.*

*I linger to observe five more feedings and to ponder questions such as: How did the cowbird lay an egg in the Bushtit's sock-like nest? How did the tiny Bushtit cover and warm an egg weighing more than half its own weight? How did the pendant nest hold together through the stresses of a large chick shifting about within it? What was the cost in energy to the overworked foster parents, having to ceaselessly shuttle very small insects to the hulking chick? And what happened to the Bushtit's progeny? There can be little doubt that if there were any young Bushtits they perished shortly after hatching.*

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