BACK FROM THE BRINK

Ten Success Stories Celebrating

THE ENDANGERED SPECIES ACT AT 40

ENDANGERED SPECIES COALITION

INTRODUCTION

***Success.* We are constantly bombarded with messages about the importance of success and how to achieve it. Search for a book about success on Amazon, and you'll get not only the *Seven Habits of Highly Effective People*, but also more than 170,000 other books on how to be successful at work, in friendships and relationships, and way more. Clearly, we place an incredible value on success.**

But when it comes to protecting wildlife and wild lands, how do we define success? To some of us, the answer is obvious. But in our highly charged political atmosphere, wildlife opponents seek to narrow the definition of success in a concerted effort to weaken wildlife protections. Their thinking goes that, if they can convince us that our conservation efforts have not been successful, we will support getting rid of existing protections.

Don't be fooled. The definition of success that wildlife opponents have is a dangerously odd one.

Does the return of a fragile, tiny Californian butterfly from 500 individuals to well over 100,000 get counted in the success column? Not in their eyes. How about a 5,500 percent population increase in endangered otters? Nope. And a sea turtle that increased its nesting female count from fifty to more than 10,000 on a single 20-mile stretch of beach—does that qualify? Absolutely not. When it comes to imperiled wildlife, our opponents measure success by pointing only to species that have been completely removed from the endangered list.

By any rational definition, the stories of the butterfly and the otter and the sea turtle are stories of remarkable successes. And thanks to the Endangered Species Act, stories like these can be found in every state across the country as imperiled animals, plants, birds, and fish are stabilizing and rebuilding healthy populations. Indeed, most endangered species are on track with established recovery plans, and some are even reaching population goals ahead of their targeted schedules. In this report, you will find ten success stories that are among the most compelling in the nation.

On the 40th anniversary of the Act, it is time to celebrate our journey as we have brought one species after another back from the brink of extinction. Passing this moral and noble law was the first step along a new path for the United States. We were once a nation that believed that rivers were meant to be dammed, forests to be completely clear cut, and that predators were to be "managed"—with guns, traps, and poisons.

Now, looking at the innovative safeguards we have chosen to take over the last forty years, we are no longer the exclusive purveyors of dams, clearcuts, and traps. While we still act in too many harmful ways, today we are also the caretakers who rear hatchlings until they are ready to be released back into the wild. We are the gardeners who eradicate invasive plants and restore habitats. We are the buyers who purchase lands and set them aside for conservation. And we are the guardians who patrol beaches to keep nests safe.

As a nation, we have already made incredible strides in being the change we wish to see, as Gandhi so eloquently put it. And the ten stories we're sharing with you will give you hope for our future. We invite you to grab a glass, pour something sparkling, and rejoice with us over the Endangered Species Act, one of our country's greatest achievements.

Leda Huta
ENDANGERED SPECIES COALITION

Kierán Suckling
CENTER FOR BIOLOGICAL DIVERSITY

Kathryn Kennedy
CENTER FOR PLANT CONSERVATION

Al Cecere
AMERICAN EAGLE FOUNDATION

Marjorie Ziegler
CONSERVATION COUNCIL FOR HAWAI'I

Jamie Rappaport Clark
DEFENDERS OF WILDLIFE

Cynthia Sarthou
GULF RESTORATION

David Godfrey
SEA TURTLE CONSERVANCY

CREDITS
front cover: DougLloyd *following page: USDA NRCS*

ACKNOWLEDGEMENTS

Endangered Species Coalition member groups from across the country nominated species whose stories celebrate the many successes of the Endangered Species Act. Our thanks go out to each individual who contributed to this year's nominations, and to these organizations whose ten stories of triumph are included in our report:

American Eagle Foundation: Al Louis Cecere, Bob Hatcher, and Carolyn Stalcup
Center for Biological Diversity: Tierra Curry and Andy Parker
Center for Plant Conservation: Kathryn Kennedy and Travis Mowers
Conservation Council for Hawai'i : Marjorie Ziegler
Defenders of Wildlife: Laurie Macdonald, Elizabeth Fleming, and Haley McKey
Gulf Restoration Network: Cynthia Sarthou and Raleigh Hoke
Sea Turtle Conservancy: David Godfrey

We extend our deepest appreciation, once again, to our board member, Dr. Jan Randall, Professor Emeritus of Biology at San Francisco State University, for organizing the judging by our Scientific Advisory Panel (SAC). Our judges brought wisdom and broad knowledge to bear as they supported our efforts this year. In addition to Jan, the other members of our SAC who participated in judging the report this year include Richard Buchholz, Ph.D., Associate Professor of Biology, University of Mississippi; Gregory S. Butcher, Ph.D., Coordinator of Wings Across the Americas for the U.S. Forest Service International Programs; Sylvia Fallon, Ph.D., Director of the Wildlife Conservation Project, Natural Resources Defense Council; David Inouye, Professor, Department of Biology, University of Maryland; Gary Meffe, Ph.D., Adjunct Professor, Department of Wildlife Ecology and Conservation, University of Florida; Camille Parmesan, Ph.D., National Marine Aquarium Chair in the Marine Institute, Plymouth University (UK) and Professor of Integrative Biology, University of Texas at Austin; and Peter Raven, Ph.D., President Emeritus, Missouri Botanical Garden. We would also like to thank our guest judge Noah Greenwald, Endangered Species Director, Center for Biological Diversity.

The Endangered Species Coalition staff dedicated time and energy to showcasing this year's top ten species. We're particularly grateful to Nancy Welch for writing the entire report and tracking down all of the photographs and other details that went into making the report complete. Derek Goldman, Mitch Merry, Mark Rockwell, and Tara Thornton also dedicated time and energy to help us find just the right species.

Finally, we would like to thank Janet Leydon, our talented designer, for organizing all of our details into an easy-to-read and stunning report.

CONTENTS

NĒNĒ GOOSE

Branta sandvicensis

The nēnē, which is native to only the Hawaiian Islands, is the rarest goose in the world. Once found throughout the Hawaiian chain, the nēnē now lives in the wild on only four islands: Maui, Hawai'i, Kaua'i, and Moloka'i. With its elegant feathering in shades of gray and black, and distinctively soft call from which it gets its name, the nēnē is the official state bird of Hawai'i. It is also the only extant native goose in the state.

A medium-sized bird, the nēnē stands about 16 inches tall and weighs in at 4 to 6 pounds. Though considered a waterfowl, this goose spends much of its time on land, and unlike most other waterfowl, the nēnē also mates on land. Its breeding season—from August through April—is longer than that of any other goose. While newly-hatched goslings are able to feed on their own, they typically remain with their parents until breeding season of the following year.

Nēnē may have numbered as many as 20,000 when the Hawaiian Islands were first populated some 1,500 years ago. Over time, however, their numbers declined dramatically. Game shooters significantly reduced the population until hunting nēnē geese was outlawed in the 1920s. Other factors in the nēnē's decline include habitat degradation due to residential and agricultural development, and predation by several species of rodents, and feral cats, dogs, and pigs. And over time, the geese were pushed from their preferred, broad range that included coastal dunes, to isolated regions at much higher elevations. *By 1944, there were only thirty to forty nēnē geese left in the wild.*

THE ROAD TO RECOVERY

In 1967, the nēnē was listed as endangered under the Endangered Species Preservation Act; its status carried over to the 1973 Endangered Species Act. Now with full protection under the Act, the nēnē is making a clear comeback, and its success story is one of strong cooperation. The Hawai'i Department of Land and Natural Resources and the U.S. Fish and Wildlife Service partnered with private landowners and a number of organizations—including the American Bird Conservancy, the Zoological Society of San Diego, Friends of Haleakalä, and the National Park Service—to establish refuges and implement a recovery program for the nēnē.

And another unlikely partner—England's Wildfowl & Wetlands Trust Slimbridge Wetland Centre—has also contributed significantly to the nēnē's recovery. Through a captive breeding program, the Centre built a sturdy nēnē population in Great Britain during the 1950s and 60s. Geese from this stock have been successfully reintroduced to the nēnē's wild Hawaiian habitat, and are also thriving at two private ranches on Maui.

Today, habitat protections and management, in combination with on-going captive breeding programs, have successfully rebuilt the nēnē population from the brink of extinction in the mid-1900s to some 1,300 individuals in 2013. This still-rare bird remains endangered, but under the Endangered Species Act, the nēnē goose will remain protected by an ambitious, long-term, collaborative program that is carefully structured to bring this unique and beloved bird to full recovery.

STATUS

Endangered

RANGE

Four of the eight major Hawaiian Islands: Maui, Hawai'i, Kaua'i, and Moloka'i

HABITAT

Primarily terrestrial from sea level to 8,000 feet: coastal dunes; mid-elevation native and non-native grasslands, shrublands, and woodlands; high-elevation lava flows

DIET

Leaves, seeds, and flowers of herbaceous composites and shrubs, including both native and non-native species

POPULATION

Estimated at 1,300 individuals in 2013

Conservation Council for Hawai'i

AMERICAN PEREGRINE FALCON

Falco peregrinus anatum

Imagine standing in the middle of Times Square, looking up, and seeing a peregrine falcon plummeting towards you at 240 mph. This falcon, the fastest animal on earth, knows exactly which bird—one of those small gray doves perched on a wire over your head—is going to be dinner.

Falcons comfortably at home in New York City? Absolutely. The American peregrine falcon, once a rarity in our skies, is an extraordinarily adaptive species, and has proven itself to be completely comfortable among New York's skyscrapers. Indeed, forty peregrine falcons—twenty nesting pairs, which mate for life—now call the Big Apple their home. New York's towering structures mimic the peregrine's wilder nesting grounds—high buttes, cliffs, and rock ledges in boreal forests—and the city's vast array of perching birds and small waterfowl provide all the resources necessary for the peregrine falcon to thrive. New York's nesting pairs perform their courtship duets on ledges high above the city, preening each other, nibbling at each other's bills and feet—and then launch together in exquisite aerial acrobatics, soaring, swooping, and falling in rolling, tandem dives. These same rituals take place in at least thirty-nine states within the continental United States, as peregrine falcons nest from Alaska's tundra to the Southwest's deserts, raising new generations of fledglings to fly the skies.

But just decades ago, the American peregrine falcon population was in dire need of assistance—assistance that could only come from humans. During the 1950s and 60s, these birds of prey were heavily exposed to the insecticide DDT through their food chain, and their eggs' shells were thinned to the point that nesting was almost impossible. The U.S. population of peregrine falcons dropped from an estimated 3,900 in the mid-1940s to just 324 individuals in 1975, and the falcon was considered locally extinct in the eastern United States.

THE ROAD TO RECOVERY

The American peregrine falcon was first listed as endangered in 1970 under the Endangered Species Preservation Act, and this listing carried over when the Endangered Species Act became law three years later. In a step that would prove to be definitive, the United States banned DDT in 1972. Initial—and successful—efforts to reintroduce fledglings drew on a variety of wild stocks that were privately owned by falconers. These early reintroductions led to partial-captive breeding programs implementing hand-feeding techniques called hacking, which relies on puppets or feeding bags to prevent the young falcons from bonding with humans. Through hacking programs, more than 6,000 falcons were released in the United States.

The Endangered Species Act's initial recovery goal called for 456 breeding pairs of peregrine falcons. By 1999, the peregrine falcon had reached and even exceeded this goal. Declaring a stunning victory for the Act, the U.S. Fish and Wildlife Service delisted the American peregrine falcon in that same year. Their comeback has been truly remarkable—today, there are approximately 3,500 nesting pairs. That the peregrine falcon could come back so resoundingly from the brink of extinction is a significant demonstration of the Act's profound ability to make a moral judgment, to implement a plan, and to save a species.

STATUS

Fully delisted in 1999

RANGE

Breeds in North and Central America; is found from the subarctic northern forests of Alaska and Canada south to Mexico

HABITAT

Cliffs and bluffs in northern forests, coastal cliffs and islands, cliffs and buttes in southwestern deserts, and urban skyscrapers, bridges, and other tall structures

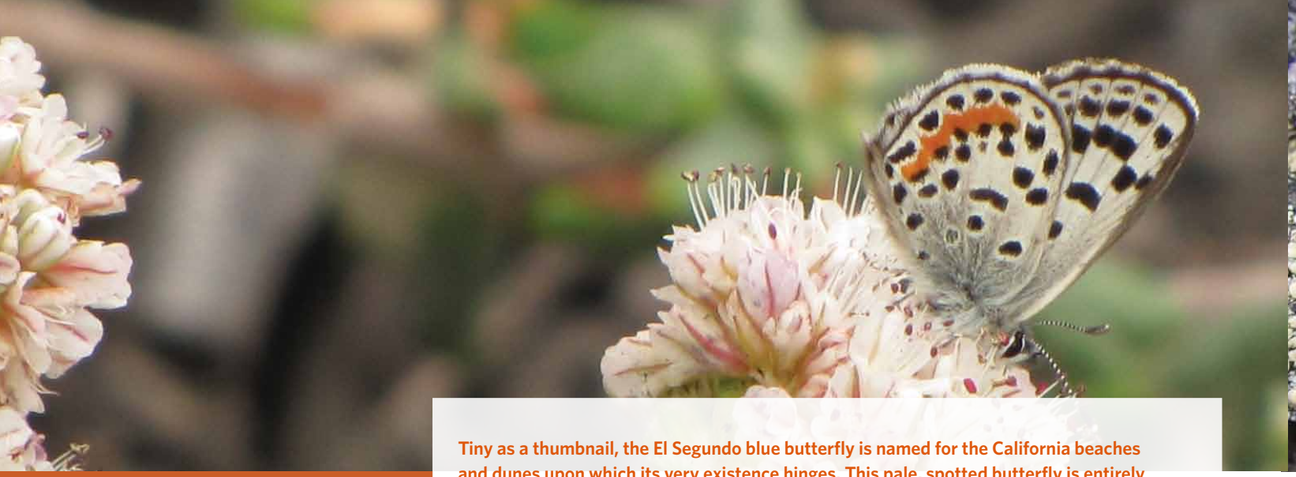
DIET

Small perching birds to mid-sized waterfowl

POPULATION

Estimated to be 3,005

CENTER for BIOLOGICAL DIVERSITY



EL SEGUNDO BLUE BUTTERFLY

Euphilotes battoides allyni

Tiny as a thumbnail, the El Segundo blue butterfly is named for the California beaches and dunes upon which its very existence hinges. This pale, spotted butterfly is entirely dependent on a single host plant—dune buckwheat—that grows along the southeastern shores of Santa Monica Bay. Adults emerge in perfect timing with the buckwheat's flowering, then feed, breed, and die, all within a few days. When the dune buckwheat flowers again the following summer, El Segundo blue butterflies repeat their life cycle, just as they have done for thousands of years.

But this cycle has not always been assured. The shores that are home to the butterfly's habitat have been invaded by both humans and vegetation for decades; over time, burgeoning industrial development and invasive plant species drastically altered the El Segundo and Santa Monica dunes. By the late 1970s, the butterfly's population had plummeted from 230,000 to only about 1,000 individuals that existed in a fragmented population. The El Segundo blue butterfly was listed as endangered in 1976, but its population continued to decline, largely due to insufficient habitat restoration efforts. By 1984, only about 500 of these butterflies remained.

STATUS

Listed as endangered throughout its habitat in 1976; no recovery date has been established

RANGE

Coast of central and southern California, primarily from Santa Cruz south to Pismo Beach

HABITAT

Coastal dunes where dune buckwheat is found

DIET

Feeds and lays its eggs solely on dune buckwheat

POPULATION

In excess of 123,000

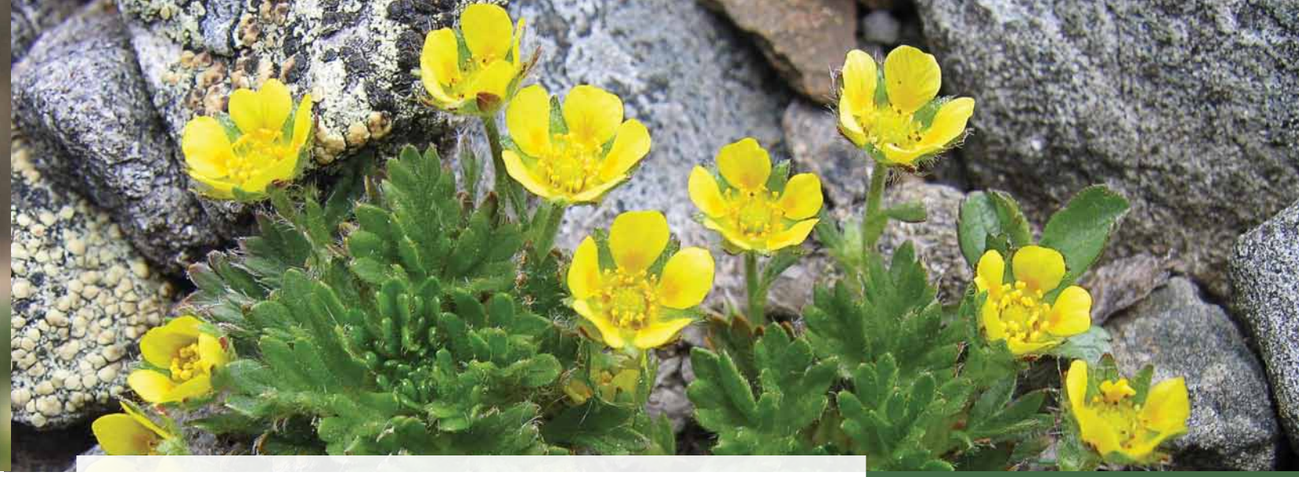
THE ROAD TO RECOVERY

The El Segundo blue butterfly is still protected by the Endangered Species Act, and, because its recovery remains fragile, it has not yet been down-listed from endangered to threatened. Still, its endurance is impressive. The butterfly has rebounded significantly—with an astonishing 20,000 percent comeback recorded in 2012. The largest population is thriving in a coastal dune habitat adjacent to the Los Angeles International Airport; in 2012, this population was estimated at about 123,000. Smaller populations are building their numbers at the Chevron gas refinery in El Segundo and at Malaga Cove in Torrance. In 2007, El Segundo blues discovered two restored sites in more distant dunes at Torrance and Redondo Beach and recolonized both locations, quickly dispersing to form thriving, if small, populations. This came as a surprise—scientists doubted that these tiny butterflies could fly more than about a quarter-mile.

The resurgence of the El Segundo blue butterfly is an inspiring story of the effectiveness of the Endangered Species Act, for without the Act's protection, the butterfly's entire habitat would certainly have been lost to development. In a tremendous collaborative effort, numerous groups and individuals have joined forces to restore and ensure protection of the El Segundo blue's home sites. The Beach Bluffs Restoration Project was formed by a local, Ann Dalkey, who was joined by the Santa Monica Bay Restoration Commission, the Urban Wildlands Group, and the Los Angeles Conservation Corps' Science, Education and Adventure Lab. Their collaborative efforts to save the butterfly have largely focused on eradicating invasive plant species and replanting dune buckwheat.

Efforts to protect these habitats must be on-going, though, as invasives continue to threaten the dune buckwheat. Nevertheless, such success gives us great hope that, with continuing protection under the Endangered Species Act and on-going habitat-preservation efforts, the El Segundo blue butterfly—and the coastal dune buckwheat on which it depends—will thrive for generations to come.

CENTER for BIOLOGICAL DIVERSITY



ROBBINS' CINQUEFOIL

Potentilla robbinsiana

In 1819, Ethan Crawford cleared a crude bridle path high on the rugged, wind-torn, alpine slopes of New Hampshire's White Mountains. As he pressed on toward the summit of Mount Washington, Ethan crossed an unusual habitat—one encompassing just a single acre—that in 1819 was home to 95 percent of all Robbins' cinquefoil plants in the world.

Wild populations of this dwarf perennial member of the rose family—a mature, 25-year-old specimen is no larger than a quarter—naturally exist at only two known small sites above the timberline in the White Mountains. The main population of Robbins' cinquefoil still clings to that single acre that Ethan Crawford traversed—one of the harshest sites on Mount Washington. The second location is about eighteen miles west, in Franconia.

This plant's bright yellow flowers and extreme rarity attracted a great deal of attention from collectors, and in the 150 years following construction of the Crawford Path, some 850 specimens of Robbins' cinquefoil were poached from the Mount Washington population. As the popularity of backpacking exploded in the 1970s, hikers on the trail trampled much of the remaining colony; within two decades, the cinquefoil was precipitously close to extinction. In 1980, the U.S. Fish and Wildlife Service (USFWS) began intensive monitoring of the two native populations, and in 1996, Robbins' cinquefoil was officially declared endangered.

THE ROAD TO RECOVERY

Establishing physical protections was an early and critical element of the recovery plan for Robbins' cinquefoil. Workers constructed a scree wall surrounding the primary Mount Washington colony, and the site was closed to the public. A strong partnership between the staff of the White Mountain National Forest and the Appalachian Mountain Club initiated stewardship and enforcement programs, still in place today, to educate visitors and reinforce physical protection of the cinquefoil's colonies. New protocols to monitor the plant populations were implemented, and the cinquefoil's habitat was intensely studied so that potential transplant sites could be identified. The New England Wild Flower Society, with partial technical and financial support from the Center for Plant Conservation, developed effective seed-banking, propagation, and transplanting techniques. After facing near-extinction, Robbins' cinquefoil was finally granted a reprieve.

Today, the original Robbins' cinquefoil population along Ethan Crawford's bridle path numbers about 14,000 plants, with 1,500 to 2,000 flowering individuals. A new population introduced at the Franconia Notch site currently has over 300 plants, and this colony appears to be naturally expanding. With the law on their side, a determined consortium of the USFWS, White Mountain National Forest, Appalachian Mountain Club, and New England Wild Flower Society saved the Robbins' cinquefoil from near-certain extinction. In a remarkable win for the Endangered Species Act, Robbins' cinquefoil—this extraordinarily rare and treasured plant—was officially delisted in 2002.

STATUS

Delisted in 2002

RANGE

In the wild, two small sites in the White Mountains of New Hampshire; four additional transplant colonies

HABITAT

Rugged and rocky exposed sites above the timberline

POPULATION

In the wild, approximately 14,000 plants with 1,500 to 2,000 flowering individuals on Mount Washington; over 300 plants at Franconia Notch

Center for PLANT Conservation

BALD EAGLE

Haliaeetus Leucocephalus

STATUS

Delisted in 2007

RANGE

Canada, Alaska, the lower 48 states, northern Mexico

HABITAT

Nests in large, old-growth trees near broad expanses of water and occasionally on the ground in the absence of terrestrial predators; nests are reused and added to year after year, with average lifespan of a nest between five and 10 years; nests can weigh as much as two tons

DIET

Primarily fish, but also other birds, mammals, carrion, and food scavenged from picnic and camping areas, and dumps

POPULATION

Estimated over 13,000 breeding pairs in the lower 48 states in 2012

A sharp chill is in the late-winter air, the kind that makes your breath visible. Against a clear blue sky, two majestic birds move as one in a spectacularly choreographed dance—talons locked, turning cartwheels in free fall, their enormous wings flared. Just before hitting ground, the birds release and fly upwards, maybe for a rapid chase, or perhaps to perform more dramatic aerial acrobatics. This is the intricate courtship ritual of bald eagles that is performed across the skies of America every year. It is a dance as old as any witnessed on Earth.

The bald eagle, which is found only in North America, was adopted as the iconic symbol of the United States by the Continental Congress of 1782. This impressive predator is also America's national bird and national animal; it is difficult to think of another image that holds so much power and presence for Americans. And beyond being a fundamental hallmark of our heritage, the bald eagle also represents one of the most stunning success stories of the Endangered Species Act. Indeed, the bald eagle's rapid decline provided strong motivation for Congress to pass the Act—and without protections of the Act, our national symbol would likely have gone extinct in the lower 48 states well before the turn of the 21st century.

When the Continental Congress voted in our national symbol, upwards of a half-million bald eagles flew the skies of North America from Alaska to northern Mexico. By the early 1960s, however, the count of nesting pairs had plummeted to only about 480 in the lower 48 states. Illegal shooting, oil and lead poisoning, and widespread habitat destruction were all factors in their decline. It was DDT, however, that was primarily destroying the eagles. Introduced to combat malaria and typhus during World War II, this powerful insecticide was widely and indiscriminately used throughout the country. DDT didn't outright poison adult eagles; instead, it interfered with their ability to metabolize calcium. Many females were rendered sterile, and those that could still lay produced thin-shelled eggs that crushed under the weight of nesting adults. Generations upon generations of potential fledglings were lost.

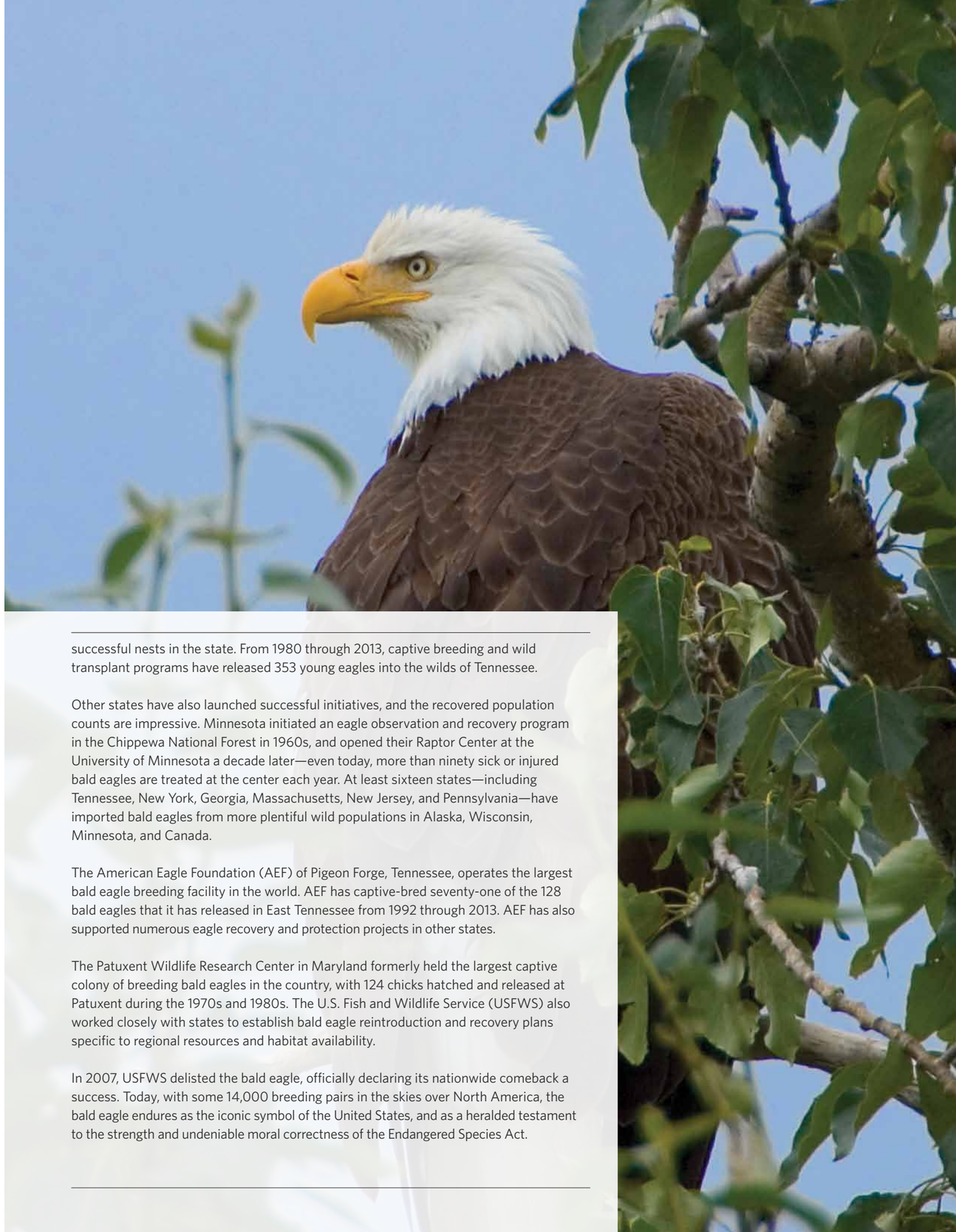
THE ROAD TO RECOVERY

In 1972—and significantly in response to Rachel Carson's book, *Silent Spring*—the Environmental Protection Agency (EPA) banned the use of DDT throughout the United States. This controversial and bold move by the EPA proved to be the most significant early step on the road to recovery for the bald eagle. Eagles were already protected by a number of laws including the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940, but only when DDT was no longer in their food chain could the birds begin to rebuild populations. And with passage of the Endangered Species Act in 1973, protections for the eagle were carved in stone. By 1978, the bald eagle had been classified as either endangered or threatened throughout its range in the United States, and habitat protections and hunting restrictions were firmly in place.

Even with protections under the Act, bald eagles faced a long and rough road toward full recovery. In the mid-1980s, there was a single nesting pair of bald eagles high above the Potomac River in Maryland. In the species' typical pattern, these eagles used their nest year after year and became legendary—but they were one of only about fifty pairs identified in the state of Maryland during that entire decade. And just a few miles downriver, in Washington, D.C., bald eagles had been extinct since 1946. Only through an ambitious reintroduction program have they slowly returned to nest in our nation's capital.

Captive breeding programs—including hacking programs, through which chicks are hand-raised—have been highly successful at reintroducing bald eagles into the wild. The principle behind hacking is that fledging eagles typically return to the region of their maiden flights to nest when they're about five years old, thus adding to that area's population.

Following New York's pioneering bald eagle hacking in 1976, the Tennessee Wildlife Resources Agency and its partners launched a major recovery initiative in 1980. Tennessee recorded no successful nestings from 1961 until 1983. In 2012, however, there were more than 123 successful nests in the state. From 1980 through 2013, captive breeding and wild transplant programs have released 353 young eagles into the wilds of Tennessee.

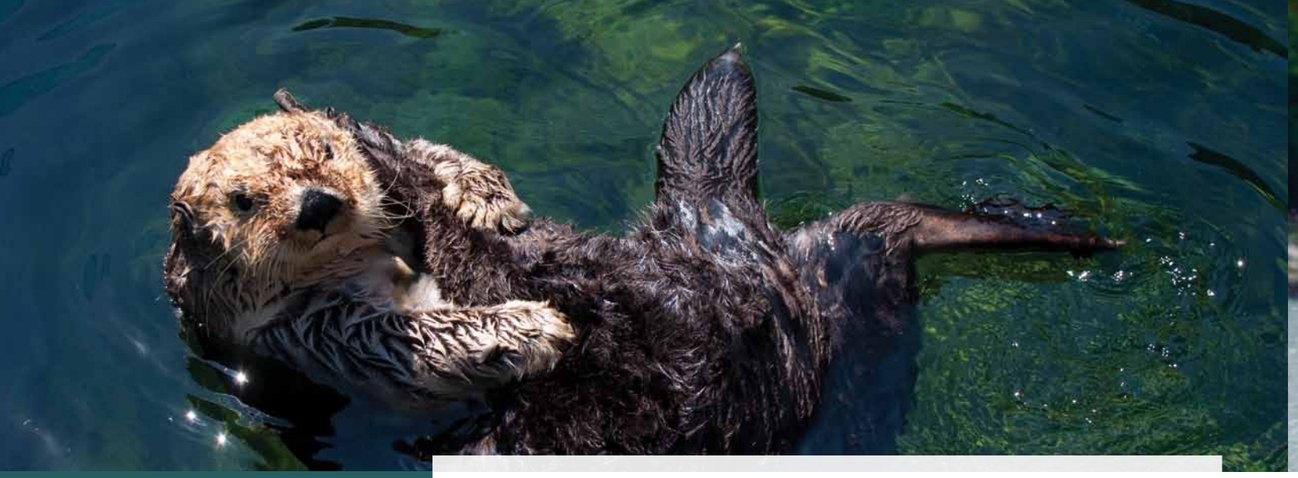


Other states have also launched successful initiatives, and the recovered population counts are impressive. Minnesota initiated an eagle observation and recovery program in the Chippewa National Forest in 1960s, and opened their Raptor Center at the University of Minnesota a decade later—even today, more than ninety sick or injured bald eagles are treated at the center each year. At least sixteen states—including Tennessee, New York, Georgia, Massachusetts, New Jersey, and Pennsylvania—have imported bald eagles from more plentiful wild populations in Alaska, Wisconsin, Minnesota, and Canada.

The American Eagle Foundation (AEF) of Pigeon Forge, Tennessee, operates the largest bald eagle breeding facility in the world. AEF has captive-bred seventy-one of the 128 bald eagles that it has released in East Tennessee from 1992 through 2013. AEF has also supported numerous eagle recovery and protection projects in other states.

The Patuxent Wildlife Research Center in Maryland formerly held the largest captive colony of breeding bald eagles in the country, with 124 chicks hatched and released at Patuxent during the 1970s and 1980s. The U.S. Fish and Wildlife Service (USFWS) also worked closely with states to establish bald eagle reintroduction and recovery plans specific to regional resources and habitat availability.

In 2007, USFWS delisted the bald eagle, officially declaring its nationwide comeback a success. Today, with some 14,000 breeding pairs in the skies over North America, the bald eagle endures as the iconic symbol of the United States, and as a heralded testament to the strength and undeniable moral correctness of the Endangered Species Act.



SOUTHERN SEA OTTER

Enhydra lutris nereis

STATUS

Threatened

RANGE

Along the coast of central and southern California, primarily from Santa Cruz south to Pismo Beach

HABITAT

Shallow sea water within about a mile of shore; rarely do they come on land

DIET

Shellfish, including mollusks, sea urchins, and crabs

POPULATION

Currently estimated at 2,800

Charismatic and enchanting, southern sea otters are a joy to behold as they slide and roll through the shallow waters they call home. For as carefree as they may look, these mammals have unusual characteristics that allow them to survive in ocean waters that are not always so friendly. Otters, which are the largest members of the weasel family but one of the smallest marine mammals, have no blubber to keep them warm. They compensate with a very high metabolism—two to three times that of a similarly sized land mammal—which, in turn, requires them to eat up to 25 percent of their body weight every day.

They use rocks to crush the shells of the mollusks, crabs, abalone, and sea urchins that are the staples of their diet, and, as they hunt, they tuck their catch in folds of skin under their armpits. Their lung capacity is about two and a half times that of a comparably sized terrestrial mammal; with one enormous inhale, an otter can hunt for up to five minutes on a single dive. Sea otters' long whiskers give them a rakishly charming appearance and are also highly functional, allowing them to sense vibrations in the water that may signal an approaching predator.

Sea otters' coats, though, are their most remarkable claim to fame. With up to one million hairs per square inch, these double-layered coats are the densest of any mammal on Earth. The outer layer of long, waterproof guard hairs keeps the shorter underfur so dry that water virtually never touches an otter's skin. The underfur traps air, which makes otters quite buoyant; this is especially true for otter pups, whose coats are so air-filled that they can't even dive. When mothers leave their pups to hunt, they wrap them in kelp, and the pups bob on the surface like little kelp-colored buoys.

THE ROAD TO RECOVERY

Their magnificent pelts also led otters to the brink of extinction. Historically, their populations numbered in the hundreds of thousands, and they had a very broad range. Starting in the mid-1700s, however, they became a staple of the fur trade. By 1914, their numbers had been reduced to just fifty identified individuals in a highly fragmented population. The Fur Seal Treaty of 1911 initially protected the handful of remaining southern sea otters, and in 1977, they were listed under the Endangered Species Act. Between 2005 and 2010, their population rebounded to about 2,800 individuals—an amazing increase of 5,500 percent—and has remained stable at this level.

No longer trapped for their pelts, sea otters face different threats today—and still at the hand of humankind. They become entangled in fishing gear, and their food sources are disappearing due to climate change's acidification of the ocean. Oil spills, shooting, and shark attacks threaten their numbers. In spite of these challenges, and though they are still listed as threatened, sea otters have made remarkable progress in the last forty years. Their recovery plan is still in place, and with protections of the Act, sea otters will recover—and continue to charm and enchant us for many generations to come.

HUMPBACK WHALE

Megaptera novaeangliae

STATUS

Endangered

RANGE

All major oceans from the equator to sub-polar latitudes, with the longest seasonal migration—up to 5,000 miles—of any mammal

HABITAT

In waters off the United States: Gulf of Maine and West Atlantic Ocean, North Pacific Basin

DIET

Plankton, small fish, krill, and other tiny crustaceans

POPULATION

Estimates are 22,000 in the North Pacific Basin, and about half that in the Gulf of Maine/West Atlantic Ocean

The sight of a breaching whale is a sight not soon forgotten. Imagine fifty feet of dark, massive body and enormous weight—potentially as much as forty tons—vertically breaking the ocean's surface in an astonishing display, then twisting and falling with an enormous, crashing splash as it falls back into the sea. Though hypotheses abound, no one knows why whales breach; it may be an effort to clean parasites from their skin, or it may be to signal dominance and claim territory. It may be a form of play, or an expression of sheer joy. Humpbacks breach more than any other species of whale, and they often breach repeatedly. The current record for successive breaches is a mind-boggling 130 leaps in ninety minutes.

And humpback whales sing—the males more often than the females. Even though they lack vocal chords, their songs—full of whistles, moans, and wails—are among the most complex found in the animal kingdom. A single song includes a specific sequence of sounds that are repeated over and over, sometimes for hours. Humpback males often converge and join in these sound patterns, each keeping up with subtle changes as the song progresses. Are these songs about social order, or part of a ritualistic breeding drama? We speculate, but we don't know.

The story of the humpback's decline is like that of so many other endangered species: humans have hunted them to near-extinction. And even though they are an ocean-dwelling species, we have dramatically altered their habitat through demands and habits that make our own lives more comfortable. The whaling industry depleted humpback populations from a high in excess of 125,000 to small, fragmented populations; by the mid-1960s, only 1,200 individuals swam in the North Pacific. Today, curious sightseers often harass whales. Humpbacks frequently become entangled in fishing nets and sometimes die, still ensnared. They are also threatened by military sonar, which interferes with their communication. And the direst factor of all is habitat degradation due to climate change.

Oceans now are more acidic than at any other time in the past 300 million years, almost entirely due to absorption of carbon dioxide from burned fossil fuels. This increased acidity is changing virtually every aspect of the planet's oceans, and is directly impacting the main food source of the humpback whale—the small, shrimp-like plankton known as krill. While a single whale requires upwards of two to three hundred pounds of krill-based nourishment daily, increasingly acidic waters dissolve the fragile shells of these small sea creatures, making their survival, let alone reproductive capabilities, close to impossible.

THE ROAD TO RECOVERY

Humpback whales are now heavily protected throughout their range. While they are still listed as endangered under the Endangered Species Act, they are making a significant comeback. That tiny population of humpbacks in the North Pacific—just 1,200 in the 1960s—has swelled to more than 22,000 members today. Indeed, their rebound is so strong that this specific population is now being studied for delisting.

And what of all of our questions about why whales breach—and what their long, redundant, and converging songs mean? Thanks to strong, cooperative efforts by NOAA, the U.S. Fish and Wildlife Service, and international regulatory organizations, we'll be able to study humpback whales for decades to come, searching for the keys to unlock these mysteries, and more.

AMERICAN ALLIGATOR

Alligator mississippiensis

Descended from the Crocodylia order of wildlife that evolved 200 million years ago, alligators give us a glimpse into the faraway world of dinosaurs. And these powerful reptiles have held on to their prehistoric image—indeed, they are the largest reptiles in the United States. A full-grown adult male can be upwards of fourteen feet long and weigh in at about a thousand pounds.

For all of that weight, alligators can be fairly swift on land, belly-running at about 10 mph—but only for short distances. They occasionally hunt on land but are far more agile in water, mostly scouting in shallow marshes and taking prey that is either swimming or feeding at the water's edge. Carnivorous apex predators—right at the top of their food chain—alligators are a keystone species whose presence is critical to the ecological balance in their habitat.

Alligators can be noisy, particularly during mating season. Males declare their territory and call for females with loud bellowing—a rumbling, rattling growl so deep it can be felt as well as heard. For as much as they're known for their bellowing, males also attract females using infrasound—tones that are well below the threshold of human hearing.

The alligator's reputation is a mixed bag; celebrated as the official state reptile in Florida, Louisiana and Mississippi, they are also feared, farmed, and wrestled for sport. Large-scale, unregulated, commercial alligator hunting began in the early 1800s, and by the 1950s they had been hunted and traded to near-extinction—think alligator shoes and handbags.

THE ROAD TO RECOVERY

Alligators were first listed as endangered in 1967 under the Endangered Species Protection Act, and this status carried over to the 1973 Endangered Species Act. In 1975, the Convention on International Trade in Endangered Species (CITES) also listed the American alligator, thus curtailing unregulated and unsustainable international trade—the CITES listing is also affirmed within the Endangered Species Act. With broad national and international protections in place, alligator populations began a steady comeback, and in 1979—just four years after the Act became law—the alligator was down-listed from endangered to threatened. Because the alligator may be confused with the much rarer crocodile, it remains listed under the Act as "threatened due to similarity of appearance." Florida, however, is the only place where alligators and crocodiles can both be found.

While wetlands loss and degradation, development, and water-management issues are still significant threats, strict enforcement of hunting laws, international trade regulations, and habitat protections have been central to the alligator's resurgence. Captive breeding programs initiated in the 1980s also enhanced the species' comeback. Alligators now number around 5 million from North Carolina through Texas, with the largest populations in Louisiana and Florida.

So successful is the alligator's rebound that seasonally-controlled, sustainable harvesting has been sanctioned for more than two decades in four states: Louisiana, Florida, Texas, and South Carolina. These programs are founded on the premise that the value derived from harvested alligators can, in turn, provide economic incentives to conserve alligators and their wetland homes. Continuing habitat management and restoration, and conservation practices focusing on wetlands and water quality and availability, ensure the sustained presence and abundance of the American alligator—a true "poster species" success story of the Endangered Species Act.

STATUS

Threatened due to similarity of appearance with the crocodile

RANGE

Coastal southeastern United States from Texas through South Carolina

HABITAT

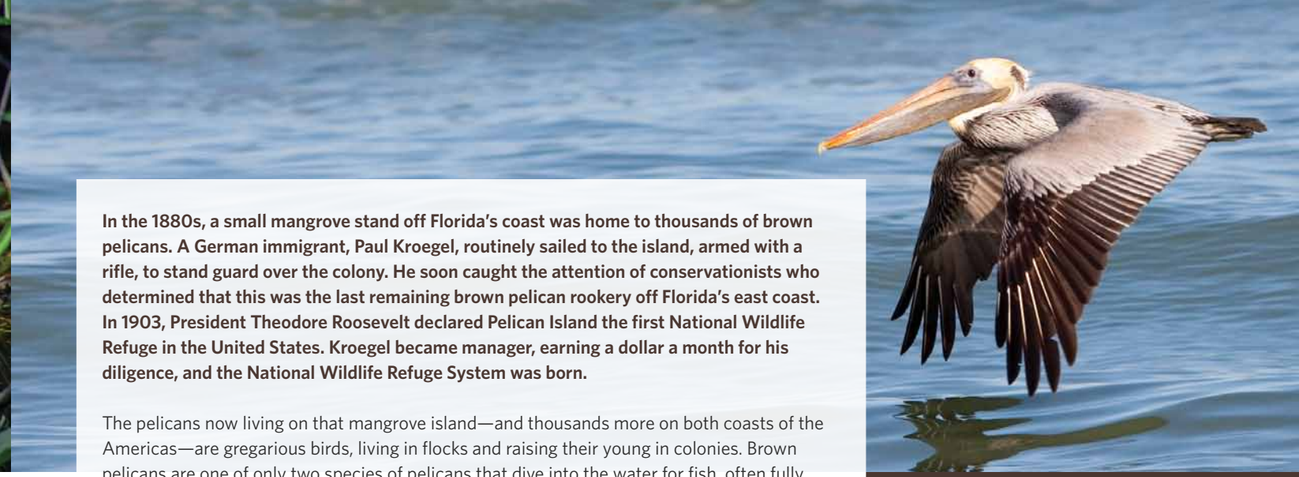
Marshes, swamps, rivers, and lakes

DIET

Fish, birds, turtles, small- to medium-sized mammals, and other reptiles

POPULATION

Estimated at 5 million throughout their range, with the largest populations in Louisiana and Florida



BROWN PELICAN

Pelicanus occidentalis

In the 1880s, a small mangrove stand off Florida's coast was home to thousands of brown pelicans. A German immigrant, Paul Kroegel, routinely sailed to the island, armed with a rifle, to stand guard over the colony. He soon caught the attention of conservationists who determined that this was the last remaining brown pelican rookery off Florida's east coast. In 1903, President Theodore Roosevelt declared Pelican Island the first National Wildlife Refuge in the United States. Kroegel became manager, earning a dollar a month for his diligence, and the National Wildlife Refuge System was born.

The pelicans now living on that mangrove island—and thousands more on both coasts of the Americas—are gregarious birds, living in flocks and raising their young in colonies. Brown pelicans are one of only two species of pelicans that dive into the water for fish, often fully submerging themselves. Impressive in flight, pelicans can be comically clumsy on dry land, and have long been a favorite of birders and tourists, alike.

For more than a century, however, brown pelicans have been vulnerable to a myriad of threats. Even as plume hunting declined at the turn of the 20th century, fishermen, seeing the birds as competitors, killed them without restraint—even though pelicans were protected under the Migratory Bird Treaty Act of 1918. The conservation community intervened, demonstrating that the pelicans were largely feeding on commercially undesirable fish. The pelicans were granted only a brief reprieve, though; by the early 1960s, booming agricultural development threatened their habitat. Once again, the conservation community aggressively campaigned, and more than 400 acres were added to the Pelican Island refuge, which became a National Historic Landmark in 1963.

But the 1950s and 60s brought yet another threat to brown pelicans: DDT. This powerful insecticide thinned their egg shells, which crushed under the weight of a nesting adult. Brown pelicans were heavily affected by DDT throughout their range; indeed, the Louisiana population disappeared entirely.

THE ROAD TO RECOVERY

Listed in 1970 under the Endangered Species Preservation Act, and then under the 1973 Endangered Species Act, the brown pelican has made a remarkable comeback. In 1972, DDT was banned in the United States, and the U.S. Fish and Wildlife Service (USFWS) established a recovery plan for the species in 1979. Thanks to broad recovery efforts, pelicans have rebounded dramatically. Louisiana implemented a 13-year reintroduction program that released 1,276 young pelicans; by 2004, there were 16,500 nesting pairs in that state, alone. Texas worked with conservation organizations to purchase nesting sites, which were then monitored to ensure that the rookeries were thriving.

While these populations were expanding, southern California's colonies remained vulnerable human intrusions, noise disturbances from local military activity, and the lingering effects of the state's extensive DDT use. The availability of sardines—the primary food for these colonies—fluctuated frequently and even dramatically, sometimes leading to hatchling starvation. Protective commercial fishing practices largely resolved this issue, and in 1986, the USFWS established an additional recovery plan addressing habitat restoration for these colonies. With protections in place, the southern California brown pelican population expanded rapidly.

The USFWS delisted the Atlantic coast population in 1985, and remaining southern and Pacific populations in November, 2009. Just five months later, however, colonies in the Gulf of Mexico were again imperiled—this time by the BP oil spill, with 664 pelican deaths directly attributed to effects of the oil. Today, while populations remain robust throughout their range, brown pelicans along Gulf shores are monitored for long-term effects of the spill, and a recovery plan remains in place for populations in Texas and Louisiana.

STATUS

Fully delisted in 2009; a recovery plan remains in place in Texas and Louisiana, due to on-going threats from the BP oil spill

RANGE

Southeastern U.S. coast, Gulf of Mexico from the United States to the West Indies, Pacific coast from British Columbia through South America

HABITAT

Coastal marine and estuarine environments; preferential nesting on islands

DIET

Small to medium-sized fish and invertebrates

POPULATION

In excess of 620,000

GREEN SEA TURTLE

Chenonia mydas

STATUS

Endangered

RANGE

Globally throughout tropical and subtropical oceans

HABITAT

Nesting beaches, deep tropical and subtropical oceans, coastal lagoons, shoals, and bays

DIET

Sea grass and lesser amounts of algae

POPULATION

Thought to be fewer than 200,000

Imagine a turtle half again as big as the biggest saucer sled you've ever seen, and you'll come close to the size of a green sea turtle, the world's largest hard-shelled turtle. Their shells often measure from four to five feet long, and a mature adult can tip the scales at 500 pounds. The turtle lives in tropical and subtropical oceans throughout the world, and is vital to both its watery habitat, and beach and dune nesting grounds. Once numbering in the millions, green turtle populations have decreased to an estimated 5 percent of their original numbers. The only predators of adult green sea turtles are sharks and humans.

The only vegetarian sea turtles, green turtles get their name from fatty tissue that's green-tinged, thanks to their diet of seagrass. Green turtles and seagrass share a symbiotic relationship; just as the turtle requires seagrass for survival, the grass depends on frequent trimming to ensure its healthy expansion into lush, underwater meadows that are home to countless species of fish, shellfish, and crustaceans.

Though laws prohibit hunting them, poaching of nesting turtles and their eggs continues today, particularly in Latin America and on island nations in the Southern Hemisphere. The turtles face many additional threats—erosion and degradation of nesting beaches due to development and recreation; acidification of the ocean by climate change; and water toxicity from heavy metals, oil spills, and chemical runoff. They are also vulnerable to fibropapillomatosis, a potentially deadly tumor-producing disease linked to poor water quality. And green turtles are unintentionally maimed and killed by the fishing industry, with hundreds injured by boat strikes—and many more thousands entangled in fishing nets and lines—every year.

THE ROAD TO RECOVERY

Safeguarded by the Endangered Species Act since 1978, green sea turtle populations along U.S. coasts are protected in the oceans by NOAA Fisheries and in their beach nesting habitats by the U.S. Fish and Wildlife Service (USFWS). Many other countries have established laws to preserve these turtles, and the species is protected globally by both the International Union for the Conservation of Nature and Natural Resources, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Indeed, the green sea turtle is one of the most defended species in the world.

Unintentional capture—particularly by the shrimp fishing industry—is one of the turtle's most significant threats. Since 1992, NOAA has partnered with the shrimping industry—both in the United States and in countries from which we import shrimp—to implement the use of turtle excluder devices (TEDs), which protect turtles from being ensnared in nets. NOAA's collaborative efforts to reduce sea turtle interactions continue through redesign of fishing gear and enforcement of regulations and permits.

The USFWS recovery programs restore the turtle's nesting grounds by limiting the impact of development, reversing beach degradation, removing invasive plant species, and reducing artificial night light cast on nesting beaches. This last measure protects hatchlings, which can easily become disoriented by artificial lights when they emerge from their nests at night. Together, the parallel efforts of NOAA and USFWS continue to strengthen protections for the green sea turtle.

By listing this turtle under the Endangered Species Act, the United States took a bold stance, and the turtles are responding. In 1990, fewer than fifty green turtles were documented nesting at the Archie Carr National Wildlife Refuge on Florida's east coast. After twenty-three years of conservation efforts by the USFWS and local partner organizations, this 20-mile stretch of beach hosted over 10,000 green turtle nests in 2013—making this one of the greatest conservation success stories of our time. And this kind of growth is taking place in other locations where green sea turtles are actively protected, which gives us good reason to be hopeful. Through collaborative efforts of organizations and governments—both here at home and throughout the world—there is bright promise that this remarkable species may make an equally remarkable comeback

SEA TURTLE CONSERVANCY
SINCE 1959

REFERENCES

NĒNĒ GOOSE

USFWS Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B00C

Shannon Peterson "Bison to Blue Whales: Protecting Endangered Species Before the Endangered Species Act of 1973" UC Davis Law School, *Environs*, Vol. 22, No. 271 Spring 1999

"Safe Harbor Agreements in Hawai'i" www.state.hi.us/dlnr/dofaw/safeharbors/

"Draft Revised Recovery Plan for the Nēnē or Hawaiian Goose (Branta sandvicensis)" USFWS, First Revision, July 2004 (Original Approval 1983)

AMERICAN PEREGRINE FALCON

U.S. Fish and Wildlife Services Species Profile: www.fws.gov/northdakotafieldoffice/endspecies/endangered_species_act_success_s.htm

NYC Environmental Protection – Peregrine Falcons in New York City: www.nyc.gov/html/dep/html/news/falcon.shtml

The National Geographic Species Profile: animals.nationalgeographic.com/animals/birds/peregrine-falcon/

EL SEGUNDO BLUE BUTTERFLY

U.S. Fish and Wildlife Service Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=I00C

"On Time, On Target: How the Endangered Species Act is Saving America's Wildlife" Center for Biological Diversity, August 13, 2013 www.esasuccess.org/report_2012.html

"Segundo Blue Butterfly Population Count Increases Eight Percent Over Previous Year" Los Angeles World Airports, 2012 www.lawa.org/newsContent.aspx?ID=15

ROBBINS' CINQUEFOIL

Brumback, William E., Weihrauch, Doug M., and Kenneth D. Kimball "Propagation and Transplanting of an Endangered Alpine Species: Robbins' Cinquefoil" *Native Plants*, Spring 2003

"Recovery of Robbins' cinquefoil—A Partnership Success" U.S. Forest Service, October, 2010 www.fs.fed.us/wildflowers/rareplants/conservation/success/potentilla_robbinsiana_recovery.shtml

U.S. Geological Survey: Status of Listed Species and Recovery Plan Development: Robbins' Cinquefoil www.npwrc.usgs.gov/resource/wildlife/recoprog/states/species/poterobb.htm

BALD EAGLE

U.S. Fish and Wildlife Service Fact Sheet: Natural History, Ecology, and History of Recovery www.fws.gov/midwest/eagle/recovery/biologue.html

"Bald Eagle Population Exceeds 11,000 Pairs in 2007" State-by-state statistics from 1967 through 2007 Center for Biological Diversity www.biologicaldiversity.org/species/birds/bald_eagle/report/

Randy Boswell "Canuck Transplants Bring Bald Eagle Back from Brink" *The Star Phoenix*, January 7, 2012 www2.canada.com/saskatoonstarphoenix/news/story.html?id=18669c13-164c-444d-af61-5c0eb3153eac

SOUTHERN SEA OTTER

U.S. Fish and Wildlife Service Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0A7

The Marine Mammal Center Sea Otter Species Profile: www.marinemammalcenter.org/education/marine-mammal-information/sea-otter.html?gclid=CPLLtOTxgroCFcZlOgod0WgANQ

"On Time, on Target: How the Endangered Species Act is Saving America's Wildlife" Center for Biological Diversity, 2012 www.esasuccess.org/report_2012.html

HUMPBACK WHALE

U.S. Fish and Wildlife Services Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A02Q

NOAA Species Profile: www.nmfs.noaa.gov/pr/species/mammals/cetaceans/humpbackwhale.htm

"Ocean Acidification Due to Carbon Emissions is at Highest for 300m Years" *The Guardian*, October 2, 2013 www.theguardian.com/environment/2013/oct/03/ocean-acidification-carbon-dioxide-emissions-levels

AMERICAN ALLIGATOR

USFWS Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C000

Terrance Houston "The American Alligator and its Importance to the Florida Everglades" *ESA EcoTone*, June, 2012 www.esa.org/esablog/ecology-in-policy/the-american-alligator-and-its-importance-to-the-florida-everglades/

National Parks Conservation Association: The American Alligator www.npca.org/protecting-our-parks/wildlife_facts/alligator.html

BROWN PELICAN

USFWS Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B02L

USFWS Pelican Island history: www.fws.gov/pelicanisland/

Bob Marshall, "Brown pelicans rebounding two years after BP oil spill" *The Times-Picayune*, April 23, 2012

GREEN SEA TURTLE

USFWS Species Profile: ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C00S

NOAA Fisheries Profile: www.nmfs.noaa.gov/pr/species/turtles/green.htm

Sea Turtle Conservancy's Species Fact Sheet: www.conserveturtles.org/seaturtleinformation.php?page=green

REPORT DEVELOPED BY:

In partnership with: