

# Saving Species and Wild Spaces

## 10 Extraordinary Places Saved by the Endangered Species Act

By Jamie Pang and Brett Hartl  
Center for Biological Diversity  
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## Introduction

For 43 years the Endangered Species Act has served as our nation's most successful environmental law. It has prevented the extinction of 99 percent of the plant and animal species it protects, including the black-footed ferret, the Āwikiwiki plant and the Bay checkerspot butterfly. It has also played a major role in recovering some of our most iconic species, from the bald eagle and gray whale to the American alligator and peregrine falcon.

Just as importantly, by addressing the root causes of decline of imperiled species, the Act's protective measures help heal and preserve the places where they live, including some of the world's most extraordinary forests, plains, deserts and oceans. From land acquisition and the creation of wildlife refuges to better management of public lands and waters to pollution control, the Act provides a comprehensive framework to recover endangered species. Those same highly effective conservation tools help to restore and revive ecosystems that have become degraded after decades of abuse. All across the United States, the conservation benefits of endangered species protection spread far beyond individual protected species to entire ecological communities key to the long-term health of thousands of species, including humans. And this is precisely what Congress intended. As described in the opening section of the Endangered Species Act, the law's purpose is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."

Since the passage of the Act, hundreds of millions of acres of land and water have benefited from conservation actions for imperiled species. Entire ecological communities have rebounded coast to coast. Rivers and lakes have been cleansed of toxic pollution. The unsustainable extraction of limited resources like timber, minerals and water have been curtailed. Landowners, nongovernmental organizations and federal agencies have joined forces to care for the habitats of endangered species. More than 100 national wildlife refuges have been established specifically to conserve more than 380 different endangered species, and these refuges in turn provide homes to thousands more species of plants and animals. The landscapes, seascapes and waterways we cherish and depend on are healthier and more vibrant as a direct result of the proven conservation tools provided by the Endangered Species Act.

Every year millions of people in the United States and around the world celebrate Endangered Species Day as a way to recognize our nation's efforts to conserve and protect our precious wildlife and natural heritage. As events occur all over the world, from the United States to Australia, this is a time to step back and acknowledge the hundreds of species and wild places saved by the Endangered Species Act. From desert ecosystems in Arizona to the lush, green, kelp forests along the Pacific coasts and places in between, this report showcases successful stories about how the protection of our nation's most imperiled plants and animals has led to the restoration of these amazing and unique places. If not for the Endangered Species Act, Americans would no longer have the opportunity to watch wildlife, go hiking or kayaking, or simply revel in the stunning natural wonder of these irreplaceable landscapes. Simply put, the Act is not only saving animals; it's saving some of our country's most precious places for generations to come.

For this report, we highlight 10 spectacular places saved by the Endangered Species Act:



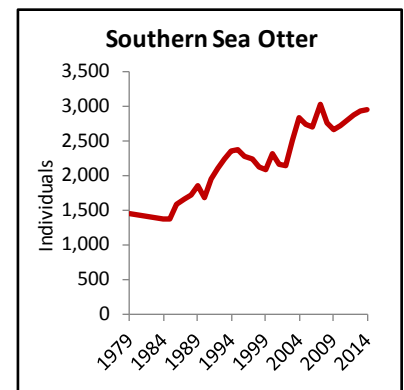


Pacific kelp forest photo courtesy NOAA

## 1. PACIFIC KELP FORESTS

Prized for their thick, dense fur, sea otters were severely exploited by fur traders for more than 100 years. By the time the southern populations along the Pacific coast, from California to Oregon, were protected as threatened under the Endangered Species Act in 1977, they had fallen to as few as 1,000 individuals.<sup>1</sup> The loss of sea otters had devastating effects on near-shore ecosystems. Without the otters to keep sea urchin populations under control, urchin populations exploded. The urchins overgrazed the underwater kelp forests, which are the key component of a biological community of more than 20 species of fishes, urchins, marine mammals such as sea lions, whales, sea otters and invertebrates like sea snails. The kelp forests also play a critical role in preventing shoreline erosion, absorbing greenhouse gases, and providing ecotourism and recreational opportunities.

Following their listing as a threatened species in 1977, the population increased slowly to around 2,900 otters in 2013, slightly below the recovery goal of 3,090 otters averaged over three years. As the southern sea otter began to rebound, urchin populations returned to normal abundances, and kelp forests began to recover. In fact, sea otters are one of the first “keystone species” that scientists ever identified. With the decline of a keystone species, ecosystems can quickly unravel. Protecting the areas where the sea otter lives has therefore been critical in protecting the ecologically beautiful and important kelp forests. Today people from Santa Barbara north to Monterey can often see sea otters amid kelp forest day beds floating just offshore.



**Southern sea otter**  
Photo courtesy Neil Fisher / NOAA



## 2. HAKALAU FOREST NATIONAL WILDLIFE REFUGE IN HAWAII

The islands of Hawaii are among the most biodiverse regions of the United States. Unfortunately Hawaii is also one of the extinction capitals of the world — home to nearly one-third of our nation’s endangered species. Hawaii’s lowland habitats have been degraded by both the deliberate and accidental introduction by Europeans of rats, cats, cane toads, mongooses, goats and pigs and a menagerie of other non-native plants and animals. The plant and animal species that evolved in the Hawaiian islands simply had no defenses against this invasive onslaught. New diseases like avian malaria quickly spread throughout the islands, wiping out native bird communities. Together with the growing threat of climate change, the remaining native ecosystems on Hawaii are under siege.

Hakalau Forest National Wildlife Refuge on Hawaii’s big island was specifically established in 1985 to protect endangered forest birds and their rain-forest habitats along the windward side of Mauna Kea mountain.<sup>2</sup> This 33,000-acre refuge was expanded in 1997 when the U.S. Fish and Wildlife Service purchased approximately 5,300 acres of land to protect the lush, green Kona Forest Unit. Conservation efforts have been initiated to eliminate non-native plants and animals and to re-vegetate the area. This forest unit is now completely fenced off to allow for the elimination of feral pigs and other invasive species and to serve as the future introduction site for the extinct-in-



**'Akiapōlā'au**  
Photo courtesy USFWS

the-wild `alalā, or Hawaiian crow. The `alalā, an important symbol in Hawaiian mythology, is said to lead souls to their final resting place after death. Today the refuge is home to many endangered species, including the Hawaii `akepa, Hawaii creeper, `akiapōlā`au, the `io or Hawaiian hawk, the ōpe`ape`a or Hawaiian hoary bat, and several endangered plants and insects.

When the `io was listed as endangered in 1967, as few as 100 Hawaiian hawks were thought to remain.

By 1985, the population had grown to 1,950 hawks and in 2009 the population was estimated at 3,000. By the time the `akiapōlā`au was protected in 1967, it had been reduced to a few isolated subpopulations on the island of Hawaii. After places like Hakalau were established, the population of the `akiapōlā`au grew to over 1,900 birds by 2009.

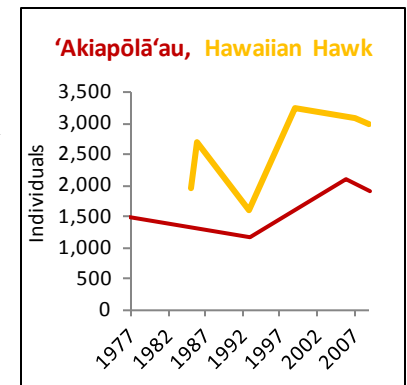
Today, the Hakalau refuge now provides thousands of visitors annually the opportunity to birdwatch and photograph nature. Thanks to conservation efforts, other endangered species found on the refuge have either stabilized or seen increasing populations.



Hakalau photo courtesy USFWS



**Hawaiian hawk**





### 3. SAN BERNARDINO NATIONAL WILDLIFE REFUGE IN ARIZONA

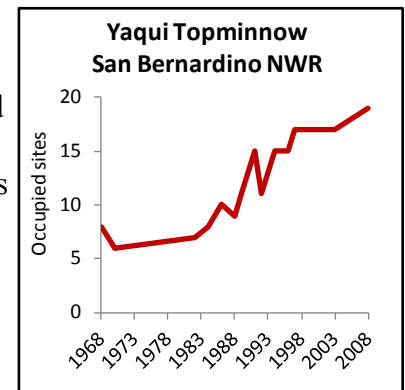
The Rio Yaqui is one of the major rivers of Mexico's Sonora province, but the headwaters where it starts its 250-mile journey to the Sea of Cortez are found in the San Bernardino National Wildlife Refuge in Cochise County, Ariz. This 2,300-acre refuge was established in 1982 to protect four endangered fish species that are endemic to the Rio Yaqui: the Yaqui topminnow, Yaqui chub, Yaqui beautiful shiner and Yaqui catfish. The refuge also protects what remains of the San Bernardino ciénega — a large, freshwater marsh that serves as a migratory corridor for species on their way from their wintering homes in Latin America to their breeding grounds further north in the mountains of Arizona and New Mexico.<sup>3</sup> Without this vital freshwater marsh, many imperiled species of fishes, birds, mammals, bees, butterflies and amphibians would not be able to survive the harsh and arid Southwest desert environment.



San Bernardino National Wildlife Refuge photo courtesy USFWS

Since the refuge was established, more than 20 wetland impoundments have been added as suitable habitat for the fish, native tree species such as cottonwood and willow have been planted and prescribed burning has been used to remove the woody plants that invade the grasslands. Additionally, partnership agreements with landowners on both the U.S. and Mexico sides of the border have helped restore the surrounding areas.

Due to habitat protection, control of invasive species and intensive translocation efforts, the number of occupied locations on the San Bernardino Refuge where the Yaqui Topminnow can be found has increased from just eight in 1968 to 19 in



2008. These conservation and restoration measures have benefited many other species, including the threatened

Chiricahua leopard frog, threatened Mexican garter snake and endangered lesser long-nosed bat.<sup>4</sup> Because of the improved health of the Rio Yaqui, visitors are drawn to the refuge for its wealth of wildlife watching, hiking and photography opportunities.



**Yaqui topminnow**

Photo courtesy Bill Radke / USFWS





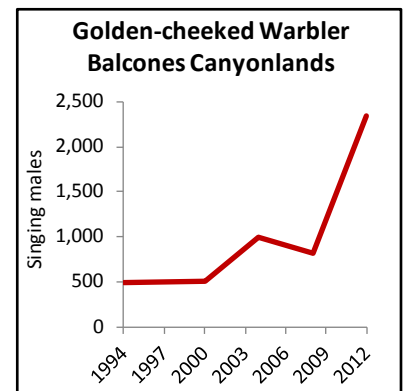
Balcones Canyonlands photo courtesy USFWS

#### 4. BALCONES CANYONLANDS NATIONAL WILDLIFE REFUGE IN TEXAS

Overlooking the city of Austin on the Edwards Plateau, Balcones Canyonlands National Wildlife Refuge protects some of the last remaining Ashe juniper and oak woodlands in Texas. The refuge was created in 1992 to protect two endangered songbirds, the golden-cheeked warbler and black-capped vireo. It now provides the surrounding communities with recreational and tourism opportunities, wildlife and bird watching, and additional protection for the area, which recharges the Edwards Aquifer.

Beneath the refuge’s surface lies a labyrinth of limestone caves fed by the Brazos and Colorado rivers. As water drains through this limestone geology, it recharges the Edwards Aquifer, which provides clean drinking water for more than 2 million people and is home to fascinating underground endangered species including salamanders, beetles and crustaceans. Due to its unique geology and freshwater resources, the refuge is home to a rich diversity of wildlife, including spiders, insects, shrubs and Ashe juniper trees. Over a third of the state’s threatened and endangered species live in, or migrate through, this refuge and surrounding areas.

The habitat restoration of Balcones has led to significant increases for both bird species. Prescribed fire for the vireo’s benefit has helped eliminate invasive plant species, restoring the oak shinnery shrublands and grasslands it depends on. The removal of cattle grazing on the refuge helped to preserve the remaining mature, Ashe juniper trees, the bark of which the warbler uses to make its nest. Following the creation of the refuge, the warbler’s population rose from 3,526 in 1994 to 11,920 in 2012. Likewise, the vireo’s population on the refuge increased from 153 singing males in 1987 to 11,392 in 2013.



**Golden-cheeked warbler**  
Photo courtesy SteveMaslowski / USFWS

## 5. SAUTA CAVE NATIONAL WILDLIFE REFUGE IN ALABAMA

Cave ecosystems are not only some of the planet's most fragile ecosystems, but contain some of its most unusual and remarkable species. Sauta Cave National Wildlife Refuge is one of four refuges established to protect cave-dwelling species. This 264-acre refuge, found in the hardwood forest of northeastern Alabama, was specifically purchased in 1978 to protect the endangered Indiana bat and gray bat.<sup>5</sup> Historically, the cave was mined by the Cherokee people in the 1800s for saltpeter, an ingredient for gunpowder, and was the largest operating saltpeter mine during the Civil War. Although evidence of human activity still remains in the cave's tunnels, Sauta Cave today provides a summer roosting site for 200,000 to 400,000 gray bats and critical winter hibernacula, or hibernation chambers, for both species.

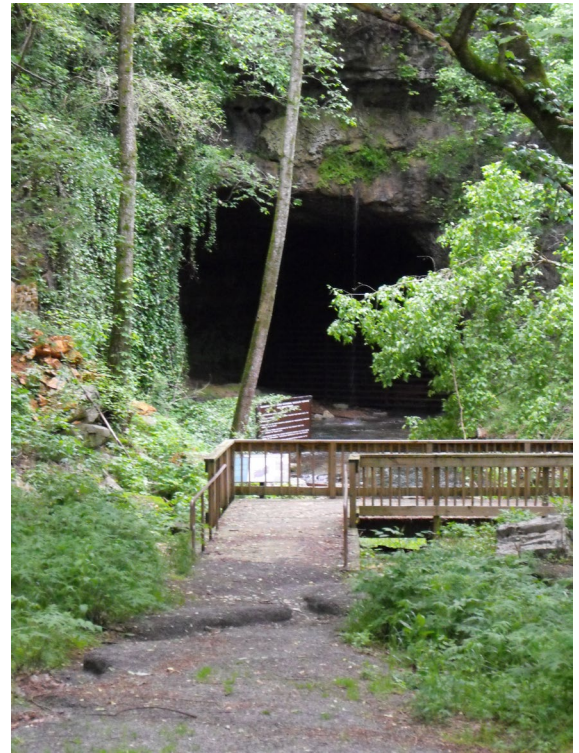
Gray bats declined dramatically in the 20th century due to mining, cave disturbance, vandalism, persecution, flooding, deforestation and possibly pesticides. By the time of their endangered listing in 1977, they had declined to 2.2 million. Since protection under the Act, the population rapidly increased to 3.4 million in 2006. The protection of maternity and hibernacula caves in places such as Sauta Cave National Wildlife Refuge have been critical to its recovery.

Unfortunately in 2010 some gray bat populations were documented to be infected with white nose syndrome, a fungal disease that has killed more than 6 million American bats since it was accidentally introduced from Europe in about 2006. The

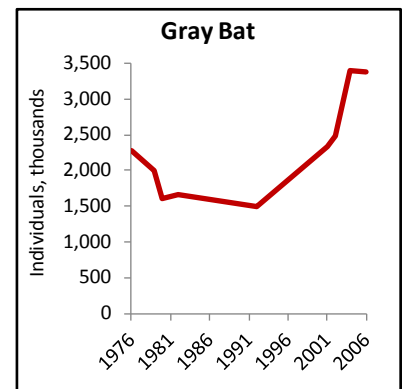
fungus found its way to Sauta Cave in 2015. To date, however, gray bats have not suffered catastrophic declines, suggesting the species may be one the few American bat species able

to withstand the fungus. There is also some evidence that unique, extreme microclimates in caves such as Sauta may reduce the fungus's impact.

Although Sauta Cave's two entrances are now gated off from the public to protect the bats, thousands of visitors still come to the refuge every summer to watch the bats fly out of the cave at dusk to feed. Bats also provide an invaluable ecological service by eating millions of mosquitoes and insects per year. Besides providing a safe haven for these two endangered species, the refuge is home to 250 federally endangered Price's potato-bean plants, the imperiled Tennessee cave salamander, a candidate species, and the Rafinesque's big-eared bat.



Sauta Cave photo courtesy USFWS



Gray Bat

Photo courtesy Ann Froschauer / USFWS



## 6. PENOBSCOT RIVER IN MAINE

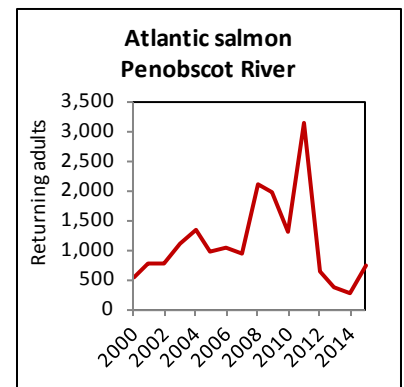
The Penobscot River is the longest river in Maine, and the site of one of the largest river restoration projects in U.S. history. Its headwaters originate near the Canadian border, and it flows into the Atlantic Ocean at the beautiful Penobscot Bay. The watershed's landscape includes Maine's tallest mountain — Mount Katahdin — gorgeous rolling hills, marshes and swamps. The Penobscot ecosystem is home to birds, mammals, and 11 fish species, three of which are protected under the Endangered Species Act: the Atlantic salmon, the shortnose sturgeon and the Atlantic sturgeon. The river is also a popular spot to fish for brook trout, landlocked salmon and smallmouth bass.



Unfortunately dams were built in several places during the 19th century, profoundly altering the river's ecosystems and decimating its fish populations. Prior to dam construction, fisheries in the river were bountiful. From 75,000 to 100,000 Atlantic salmon migrated through annually, and 3 million to 5 million American shad swam the river's currents. Without fish-ladders or bypasses around the dams, many species drastically declined.

In 2012 the Great Works dam was removed, an event that was widely celebrated as a milestone in the river's restoration. After that, the river's largest dam, the 830-foot-long Veazie Dam, was removed in 2013 after standing as a barrier to fish migration for 100 years.<sup>6</sup> The dam removals were largely driven by the needs of endangered fish whose routes to and from the ocean were blocked. The two sites are now owned by the Penobscot River Trust, which is currently constructing a fish bypass to benefit all 11 species of native migratory fish by adding 1,000 miles of habitat.

With the river finally free, it became possible for federally endangered Atlantic salmon and all migratory fish bound for the ocean to pass the site where the dam once stood and swim upstream to spawn. Atlantic salmon are still in the process of recovery and there have been wild fluctuations in the population of wild and hatchery fish. But the Penobscot River remains the only U.S. river that has a sizeable Atlantic salmon run, and the dam removals should foster an increase in the wild population in years to come.<sup>7</sup> In 2015 the endangered shortnose sturgeon was also discovered upriver from the dam remnants for the first time since the Veazie dam had been erected.<sup>8</sup> Even while



restoration is still in progress, the Penobscot River serves as a shining example of what can be achieved when a river is allowed to revive its natural cycles to create a healthier ecosystem for native and imperiled wildlife.



**Atlantic salmon**

Photo by Daniel Mennerich / Creative Commons BY-NC-ND



## 7. LONGLEAF PINE ECOSYSTEM IN THE SOUTHEAST

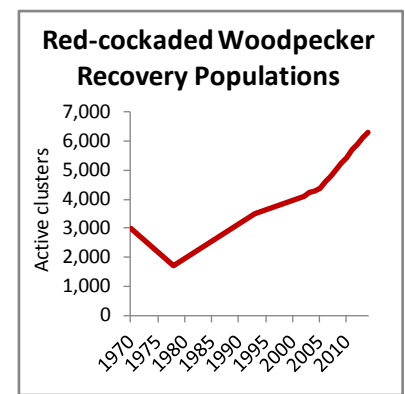
The longleaf pine ecosystem is a beautiful and diverse conifer forest that once covered around 90 million acres in the southeastern United States.<sup>9</sup> Longleaf pine trees can grow up to 100 feet tall, with pine needles that grow up to 18 inches long. The forests were one of the most extensive forest ecosystems in North America, reaching from the Gulf across the Atlantic Coastal plains, from Virginia to Texas, to Florida, Alabama and Georgia. The ecosystem has been heavily fragmented, due to logging and land conversion to agricultural and residential use — with less than 4 percent (3.4 million acres) remaining today. Because longleaf pine ecosystems are also the product of frequent fires facilitated by fallen, dry pine needles, the alteration of fire regimes has also greatly reduced their range.



Longleaf pine forest photo by JR P / Creative Commons BY-NC

The longleaf pine is one of our country's most ecologically important tree species, with the forests currently providing habitat for approximately 100 bird, 36 mammal and 170 reptile and amphibian species.<sup>10</sup> The U.S. Fish and Wildlife Service has extended Endangered Species Act protections to 29 species that depend on longleaf pine forests.

Of the species supported by the longleaf pine ecosystem, the endangered red cockaded woodpecker and gopher tortoise are keystone species that are essential to the survival of dozens of other species. The woodpecker requires old-growth pine trees for roosting and nesting. They peck into the trees to keep sticky sap flowing to protect their nest cavities from rat snakes and other predators. The cavities they excavate also provide habitats for dozens of other species including birds, mammals, amphibians and reptiles. Likewise, the imperiled gopher tortoise, named for the burrows it digs, also provides critical shelter for many animals, including the endangered indigo snake and the beleaguered eastern diamondback rattlesnake, North America's largest native snake. Gopher tortoises also spread the seeds of many plants in their droppings, thus maintaining floral diversity.



As one example of the restoration of the long-leaf pine forests, the U.S. Forest Service has committed to restoring and replanting the Osceola National Forest in Florida as part of its Collaborative Forest Landscape Restoration Project.<sup>11</sup> After the trees mature, they may provide new homes for the red-cockaded woodpecker and benefit numerous other plants and animals that make up the rich natural history of the Southeast. Due to this intensive forest restoration, prescribed fires, woodpecker translocations and limitations on logging, the species increased from 3,000 active clusters within the 39 designated recovery populations in 1970 to 6,303 in 2014.

### Red-cockaded woodpecker

Photo courtesy Martjan Lammertink / USDA





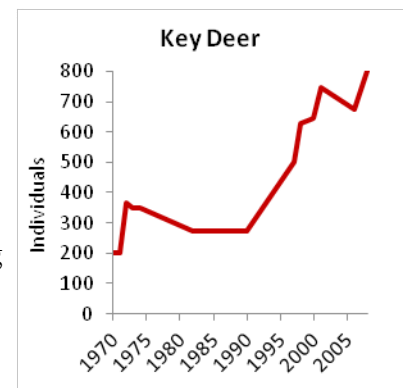
Key Deer at Key Deer National Wildlife Refuge. Photo courtesy USFWS

## 8. KEY DEER NATIONAL WILDLIFE REFUGE IN THE FLORIDA KEYS

The National Key Deer Refuge was established in 1957 in the lower Florida Keys to protect and conserve the endangered Key deer and other wildlife.<sup>12</sup> The diminutive Key deer — just 24 to 32 inches tall — is found nowhere else except the Florida Keys. It was nicknamed the “toy deer” and was once abundant from Big Pine Key to Key West, but declined catastrophically due to hunting, poaching and habitat destruction. Just 50 remained by the 1920s. When the species was first protected in 1967, only a few dozen remained. Protection, along with the creation of the National Key Deer Refuge, a hunting ban and improved enforcement, helped the deer population rebound to several hundred. Beginning in the 1970s, the key deer population turned the corner and has since increased relatively steadily under the protection of the Act to 646 in 2001 and at least 800 by 2011.

The refuge currently consists of 9,200 acres that includes pine rockland forests, tropical hardwood hammocks, freshwater wetlands, salt marsh wetlands and mangrove forests that provide habitat for more than a dozen endangered and threatened species, more than 250 resident and migratory birds, and 40 different types of reptiles. Surrounded by saltwater, the island oasis also provides refuge for numerous freshwater species.

As a result of the ample wildlife viewing opportunities now available at National Key Deer Refuge, thousands of visitors come each year to go hiking, birdwatching, fishing, kayaking and photographing wildlife. In addition to seeing Key deer, visitors may also find the endangered Bartram’s hairstreak butterfly within the pine rockland habitats, and the endangered Lower Keys marsh rabbit, which makes its home within the tall grasses of the freshwater wetlands.







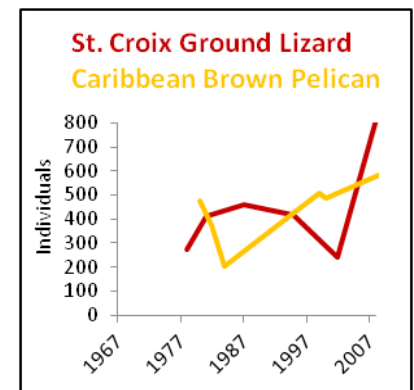
Satellite photo of Green Cay National Wildlife Refuge courtesy of Google

## 9. GREEN CAY NATIONAL WILDLIFE REFUGE IN THE VIRGIN ISLANDS

Even though it is just 14 acres in size, Green Cay National Wildlife Refuge is an island gem in the Caribbean. This uninhabited island just north of St. Croix was simultaneously designated as a wildlife refuge and declared to be critical habitat for the St. Croix ground lizard when the lizard was declared endangered in 1977.<sup>13</sup> The small island encompassing the refuge consists of dry, forested areas with cactus scrub and small rocky beaches that also serve as a nesting ground for a the now-recovered brown pelican, endangered hawksbill and green sea turtles, egrets, herons, migratory shorebirds such as plovers, and seabirds such as the endangered least tern.

Although uninhabited now, 33,000 conch shells buried under the volcanic rock indicate that the island was occupied more than 1,000 years ago. Now tourists can set out on a kayaking adventure from St. Croix Island with the hope of catching a glimpse of the St. Croix ground lizard, or just to snorkel or enjoy the beach.

The refuge's principle management objective is to maintain the existing population of the St. Croix ground lizard and provide lizards for additional reintroduction sites, and restoring the island's ecosystem, which has been ravaged by invasive rats, negligent human activities and deforestation due to storms and hurricanes. It currently houses one of the only two naturally



remaining populations of the lizard in the world, and the largest. Since Green Cay was protected, its population increased from 275 lizards in 1978 to 818 in 2008. Another species that benefitted from Green Cay's protection was the Caribbean brown pelican. Nesting on U.S. islands increased from 350 in the 1980s to 590 breeding pairs in 2009, when it was declared recovered and removed from the list of species protected under the Endangered Species Act.



**St. Croix ground lizard**

Photo by Auratus Nicole / Creative Commons BY-SA



## 10. LAKE ERIE, GREAT LAKES

Lake Erie is the fourth-largest of the five Great Lakes in North America, touching the borders of Ontario, Canada, Ohio, Pennsylvania, New York and Michigan. About one-third of the total population of the Great Lakes basin is in the Lake Erie watershed, and the 241-mile-long lake is responsible for providing 11 million people with clean drinking water.<sup>14</sup> Due to the high population of people and the large number of developments in the Lake Erie watershed, the Lake Erie ecosystem is unique in that it is comprised of both urban and wild environments.

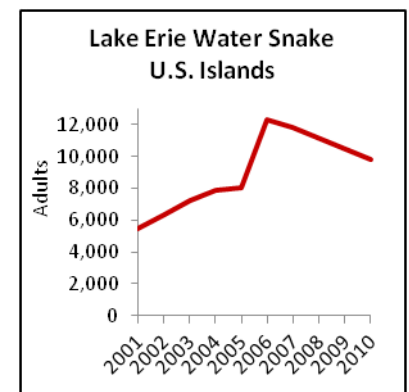
The lake's most famous resident, the Lake Erie water snake, is a nonvenomous, freshwater snake that is endemic to small islands in the lake, where many people also live. The species was listed as threatened under the Endangered Species Act in 1999 after unregulated killing and habitat loss drastically reduced its populations.<sup>15</sup>

As part of its 2003 recovery plan under the Act, a public education program was implemented to discourage landowners from killing the snakes, partnerships with landowners were implemented to help preserve the snakes' habitat and easements and habitat restoration guidelines were developed. After gaining federal protection its population increased from 5,130 in 2001 to 9,800 in 2010. It was declared recovered in 2011 having surpassed its recovery goal of 5,555 animals.



Lake Erie photo by Land's End / Creative Commons BY

As a result of its Endangered Species Act protections, more than 300 acres of inland habitat and 11 miles of shoreline from Lake Erie's 34 islands were protected and restored to benefit the snake.<sup>16</sup> Recent studies also indicate the snake has improved the Lake Erie ecosystem by eating the invasive round Gobi fish, which has decimated the lake's native bottom-dwelling and game fish species.<sup>17</sup>



**Lake Erie water snake**

Photo by Benny Mazur / Creative Commons BY



## Endnotes

- <sup>1</sup> USFWS, Determination that the Southern Sea Otter is a Threatened Species, 42 Fed. Reg. 2965-2968 (Jan. 14, 1977)
- <sup>2</sup> USFWS, Hakaiau Forest NWR Final Comprehensive Conservation Plan at 3 (Sept. 30, 2010).
- <sup>3</sup> William Kepner, San Bernardino National Wildlife Refuge: A case Study of Acid Rain in the Southwest, USFWS Phoenix Field Office (Sept. 1988).
- <sup>4</sup> For a full list of species of concern that occur at the San Bernadino NWR, see [https://www.fws.gov/refuge/San\\_Bernardino/Wildlife/Endangered.html](https://www.fws.gov/refuge/San_Bernardino/Wildlife/Endangered.html).
- <sup>5</sup> [Tennessee Valley Authority, Sauta Cave \(Blowing Wind Cave\) Habitat Enhancement Project Environmental Assessment at 4, Project Number 2014-44](#) (July 2014).
- <sup>6</sup> See information from Penobscot River Restoration Trust, available at [http://www.penobscotriver.org/assets/VZ\\_Fact\\_Sheet\\_longerversion7-20-13.pdf](http://www.penobscotriver.org/assets/VZ_Fact_Sheet_longerversion7-20-13.pdf).
- <sup>7</sup> Kevin Miller, Two years after dams' removal, Penobscot River flourishes, Portland Press Herald (Sept. 27, 2015), available at <http://www.pressherald.com/2015/09/27/a-river-revived-the-penobscot-river-two-years-after-dams-removal/>.
- <sup>8</sup> See information from Penobscot River Restoration Trust, available at <http://www.penobscotriver.org/>.
- <sup>9</sup> Dale Brockway, et. al, Restoration of Longleaf Pine Ecosystems, U.S. Dept. of Agriculture, Gen. Tech. Rep. SRS-83 (July 2005) available at <http://www.srs.fs.usda.gov/pubs/20672>.
- <sup>10</sup> American Forests Magazine, The Long Road to Recovery for the Longleaf Pine (Fall 2013), available at <https://www.americanforests.org/magazine/article/the-long-road-to-recovery-for-the-longleaf-pine/>.
- <sup>11</sup> U.S. Dept. of Agriculture (Forest Service) Accelerating Longleaf Pine: CFLRP Annual Report (2014), available at <http://www.fs.fed.us/restoration/documents/cflrp/2014AnnualReports/AcceleratingLongleaf.pdf>.
- <sup>12</sup> Pub. Law 85-164 (Aug. 22, 1957).
- <sup>13</sup> USFWS, Final Determination of Endangered Status and Critical Habitat for St. Criox Ground Lizard, 42 Fed. Reg. 28543-28545 (June 3, 1977)
- <sup>14</sup> See information from U.S. Environmental Protection Agency, available at <https://www.epa.gov/greatlakes/lake-erie>.
- <sup>15</sup> USFWS, Threatened Status for Lake Erie Watersnake, 64 Fed. Reg. 47126- 47134 (Aug. 30, 1999).
- <sup>16</sup> U.S. Dept. of Interior Press Release, Salazar Announces Successful Recovery of the Lake Erie Watersnake (Aug. 15, 2011), available at <https://www.doi.gov/news/pressreleases/Salazar-Announces-Successful-Recovery-of-Lake-Erie-Watersnake>.
- <sup>17</sup> University of Cincinnati, Tracking Lake Erie water snake in fight against invasive fish, ScienceDaily (March 19 2012), available at [www.sciencedaily.com/releases/2012/03/120319111825.htm](http://www.sciencedaily.com/releases/2012/03/120319111825.htm).