



*Delights and dilemmas of*  
**rare species  
recovery**







The rare species conservation successes summarized in this report are due to the work and determination of many landowners, individuals, groups, public and private organizations and partnerships. Due to space limitations, we are unable to mention champions for all six species here. We thank all who have played a role in the recovery of rare species and continue to restore the habitat our nation's wildlife depend upon. We are grateful for the significant public benefits their commitment provides for us.

### About Sand County Foundation

Sand County Foundation is a non-profit organization dedicated to working with private landowners across North America on voluntary, ethical and scientifically-sound land management practices that benefit the environment. [www.sandcounty.net](http://www.sandcounty.net)

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## America has a long and rich heritage of wildlife conservation.

But in order to address the 21st Century challenges of biodiversity loss, habitat fragmentation and more frequent and intense weather events, our commitment to conservation must be informed by experience, science, and practical, affordable models that work for people and nature.

The varied history of species management spans the ages: from restrictive game laws and Theodore Roosevelt's public land conservation, to modern ecosystem management and the resilience movement. In the 1930's, when Aldo Leopold articulated a vision of land as a community that includes animals, plants, soils, water and people, he poignantly framed the wildlife conservation challenge as "How shall we conserve wildlife without evicting ourselves?"

There is no doubt people possess the power to determine the fate of species and the habitats upon which they depend.

Americans take pride in wildlife recovery stories such as white-tailed deer, elk, Wild Turkeys, American bison, Canada Geese, trumpeter swans, egrets, herons, Peregrine Falcons, the American alligator and our national bird – the Bald Eagle. Once rare, these species have all become common in many parts of the United States due to extensive efforts to conserve them.

At the same time, one need not look far to find examples of stupefying failures such as the astounding extinction of the Passenger Pigeon – once North America's most abundant bird, or the collapse of Atlantic cod stocks.

The Endangered Species Act (ESA), enacted in 1973, was a reaction to the growing awareness that our wildlife heritage was at risk. It was designed initially to be an emergency room for wildlife in crisis. In total about 600 species and species' populations have gone extinct in the

U.S. over the last 200 years, but just ten of the more than 2,000 species now listed under the ESA have gone extinct.

The goal of conservation is to keep a species from declining to the point of becoming endangered. In fact, a decision not to list a species (a non-listing) could be perceived as an indication that the ESA is working—since the prospect of a listing is a powerful incentive for governments and private landowners to collaborate to both restore species to a point where they are secure and turn them around well before they need protection. The nation is now approaching 100 plant and animal recoveries or avoided listings.

Americans have shown themselves to be adept at protecting and recovering species by working proactively and often creatively to maintain species' populations so they don't require the protections of the ESA. Success can be especially pronounced when communities, businesses, private landowners and other interests have a clear stake in the conservation of species and become committed to their recovery.

This report highlights some of the important players and factors that have led to wildlife conservation successes in the U.S. These stories explore how collaboratively, and sometimes individually, conservation actions result in the removal of a species from the Endangered Species list or the elimination of a need to be listed in the first place.

As our nation's policy makers consider the future of the ESA, we must focus on fostering these keys to success. Understanding why some species recovery efforts succeed where others fail illuminates the lessons that can guide the way as we address thousands of declining species in years to come.

**“There are some who can live without wild things, and some who cannot. These essays are the delights and dilemmas of one who cannot.”**

Aldo Leopold,  
A Sand County Almanac,  
Foreword, 1949



# Swift recovery on the plains

**Blackfeet Nation welcomes  
a cultural icon back home**



The swift fox was once described by Meriwether Lewis as “the most beautiful fox that I ever beheld.” A captivating canid to those fortunate enough to catch a glimpse, it is a house cat-sized predator of mice and ground squirrels whose endearing manner of hunting, monogamous mating and group bonding has captured the imagination of humans for millennia. Important not just for its positive ecological role, this “little brother” of the wolf is the basis of sacred stories of several Native American bands. Indeed, some established customs forbid the killing of any swift fox.

Once common on the North America Great Plains, swift fox populations declined considerably in the early 1900s. Fragmentation, habitat loss and incidental killing from coyote trapping and poisoning hit the species so hard that they became absent from Montana’s landscape by the 1950s. In response to the fox’s dire situation, the U.S. Fish and Wildlife Service (USFWS) considered listing the fox under the Endangered Species Act in 1995.

The impressive and quick recovery of the swift fox began with a major landowner community, the Blackfeet Nation (Niitsitapi), which resolved to bring “Senopah”, the swift fox, back to their lands. In the late 1990s they partnered with Defenders of Wildlife and the Cochrane Ecological Institute to reintroduce the swift fox and manage for a “self-sustaining” population. As a result of steady population growth, the USFWS removed the species from candidate status in 2001.

The foxes received a warm reception from the community on the Blackfeet Reservation. In the words of Ira New Breast, director of the Blackfeet Fish and Wildlife Department, “The Senopah has great meaning for the Blackfeet people. We are excited to be restoring him to our home.” Supported by private funding, three partners—landowners, wildlife advocates and a breeding facility—began their effort to recover the spiritually significant creature. Over several years they released 123 swift foxes on tribal lands east of Glacier National Park.



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Within five years those foxes successfully bred. A follow-up scientific study in 2007 observed an upward trend in the swift fox population. Since then, more swift fox pairs have journeyed back to their former range outside the reservation. A family was found outside of Augusta,

Montana in 2005, far beyond the tribal lands and nearly 55 miles away from the closest known den at the time.

“Think of all the uproar associated with the return of another canid – the wolf,” said Minette Glaser, swift fox project leader for Defenders of Wildlife. “Here, we re-established swift foxes in a short time with no controversy, and for about \$30,000 a year. Not bad.”

The spread of foxes has inspired other Native Sovereign Nations. A deep cultural connection to the canine in at least four other tribes motivates their investment in wildlife recovery that includes goals for swift fox return. Speaking about sharing his swift fox reintroduction work with elders on the Pine Ridge Reservation in South Dakota, Robert Goodman, an Ogalala Lakota Sioux, said, “I have never been that traditional, but that was spiritual to me.”

This wildlife restoration success is a model for other rare species. Through landowner commitment and an effective set of partners, other species are suitable for recovery within parts of their historic range at a relatively low cost.



# Big industry comes to teddy bear rescue

**Timber companies invest in Louisiana black bear delisting**

A century ago, President Teddy Roosevelt spared a Louisiana black bear from his trophy collection. The story made headlines and was the inspiration for the beloved Teddy Bear toy. But as the number of teddy bears exploded and invaded children's bedrooms in the early 1900s, Louisiana black bears did not fare as well. From then until nearly the present day, Louisiana black bear habitats were imperiled.

The bear lived historically near the lower Mississippi River, where forest clearing, levee construction, fragmentation of bear dispersal corridors and unregulated hunting brought down bear numbers from thousands to just a few hundred. Population declines were so severe and breeding populations in the Delta became so badly isolated, that the Louisiana black bear was listed as a threatened species under the Endangered Species Act in 1992.

Culminating in the 1990s, concern about the future of the bear combined with worry about what landowners might do if ESA regulations were perceived to impinge on their land use decisions. In response to these concerns, the Black Bear Conservation Coalition



(BBCC) was formed to collaboratively and voluntarily lead efforts that would benefit both bears and private landowners in the region. The BBCC provided a non-hostile meeting atmosphere, which showed the value of sound research, inventory and mapping, and a commitment to landowners with objective information, incentives and respect.

Through BBCC's responsible approach and trustworthiness, private landowners generally saw no threat to their businesses. However, the key to restoring more forest habitat was the crucial leadership by private forestry and industrial timber companies – Anderson-Tully, James River and International Paper – which provided talented wildlife biologists and foresters from their staff. The public support generated by the industry with the most to lose by restrictive regulations made it easier for other groups and agencies to join in.

As forest habitat restoration plans began to take shape, owners of frequently flooded and unproductive agricultural fields were offered incentives to regrow trees. Almost overnight, landowners in the Lower Mississippi River began to see the Louisiana black bear as an asset



rather than a liability. Incentives provided by the Wetlands Reserve Program of the U.S. Department of Agriculture gave landowners financial means to bring back trees and bears.

Over the past two decades, thanks to incentives and significant cooperation, the Louisiana black bear's plight has improved. The bear is returning to restored lowland forests, and the decision was announced in May 2015 to remove this iconic bear subspecies from the threatened list.

While forestry and timber companies involved in the recovery of the bear have evolved greatly in recent years, what they made possible for the bear is a legacy on the southern U.S. landscape.

There is now much more Louisiana black bear habitat, groups of reproductive bears are more likely to connect and there is public support for continued bear conservation. These are the main reasons that the bear population has quadrupled since the 1990s. If landowners can produce even more bottomland forests, bear numbers and range will grow, too.

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**It is my sincere hope that we can replicate this type of collaboration in other parts of the country so that our nation's wildlife resources can flourish.”**

**— Theodore Roosevelt IV, great grandson of President Teddy Roosevelt.**

This growing recovery of the Louisiana black bear is a model case of industry, citizen leadership and landowner actions leading to a high impact, low cost wildlife species recovery.

It is fitting that the President Roosevelt's great grandson, Theodore Roosevelt IV, said at the May 2015 announcement of proposed delisting, “It is clear to me that when we work cooperatively, we can achieve great things. It is my sincere hope that we can replicate this type of collaboration in other parts of the country so that our nation's wildlife resources can flourish. I particularly want to salute the local landowners who made changes in their land management practices to provide the necessary habitat for black bears.”



# Butterflies find better home among armored vehicles

Military bases enrich habitat for some species

For one coin-sized butterfly, there is perhaps no better place to live and thrive than the 60,000 acres of Fort McCoy, a U.S. Army training base in Wisconsin.

The Karner Blue butterfly, classified as endangered, was once abundant in oak woodlands and prairies from Minnesota to Maine. The butterfly and its caterpillar rely on regular light ground disturbance that helps promote a specific host plant – the wild blue lupine. Development and land use conversions have depleted Karner Blues across nearly all of their historic range.

But in one landscape in central Wisconsin near the town of Sparta, the Karner Blue butterfly is thriving. Established in 1909 as an artillery training base, Fort McCoy was carved out of nearly 100 square miles of low pastures and wooded hills in the central sands region. Over the course of the last century, the base has been distinguished from the surrounding land by the absence of plow and cow. Yet the base’s landscape is subject to frequent and repeated disturbance from detonating ordinance, tracked vehicle traffic and all manner



of military exercises. This activity, coincidentally, mimics the pre-settlement ground disturbance of grazing bison and native set or wild prairie fires.

Since the Karner Blue was listed as federally endangered in 1992, the Fort’s environmental team has been attentive in its monitoring of resident populations and increasingly active in land management that favors this and other rare species. By 2000, the Fort’s annual counts confirmed that it had more than achieved its goals.

The core population of butterflies at Fort McCoy has been bolstered and supplemented by habitat creation on private lands in other parts of the Karner Blue range. Dozens of Wisconsin landowners have benefited from advice and incentives from the U.S. Fish and Wildlife Service’s “Partners for Conservation” program to enhance habitat. These landowners have enriched seed banks, removed uneconomical pine plantations, returned prescribed fires to the landscape and replanted native wildflowers in marginal sandy croplands for habitat. Similar work is underway in New York.



The Wisconsin private-public habitat restorations were integrated with a Habitat Conservation Plan (HCP) in 1999. It marked the first statewide HCP developed in the nation and spans 260,000 acres. HCP partners benefit since future management will not be restricted if lupine acreage and Karner Blue butterfly numbers are maintained. In 1995, across much of central Wisconsin, 26 industries, local governments, energy transmission firms and owners of large tracts committed to improve monitoring and management for this endangered species.

As a result of large numbers of butterflies at Fort McCoy, commitments made under the HCP and the voluntary actions of Wisconsin landowners, the Badger state has a healthy and stable population of Karner Blues. The decision to delist the species will ultimately depend on the breadth of habitat distribution, number of butterfly populations across its range and the quality of habitat. Progress in other states has been slower and more hard fought. But Wisconsin has shown it is possible with Fort McCoy leading the way.

Installations with Greatest Number of Threatened and Endangered Species (FY 2014)		
Location	Service	# of Species
Schofield Barracks Military Reservation, Hawaii	Army	58
Makua Military Reservation, Hawaii	Army	41
Kawailoa Training Area, Hawaii	Army	33
Naval Station Pearl Harbor, Hawaii	Navy	32
Marine Corps Base Camp Pendleton, California	Marine Corps	22
Pohakuloa Training Area, Hawaii	Army	20
Homestead Air Reserve Base, Florida	Air Force	19

The Army’s achievement at Fort McCoy, home to the majority of Karner Blue populations, shows sustained leadership can create stewardship opportunities that are suitable for other rare species. We should be encouraged by Fort McCoy’s stewardship results. With more than 425 major Defense installations spanning 25 million acres across the U.S., there are clear opportunities to harbor and recover healthy populations of rare or declining species.



# Conservation coffee talk on the Big Hole River

Unexpected collaboration spawns Arctic grayling success



Ten thousand years ago, as the glaciers of the last ice age receded, remnant populations of a fish species in the salmon family, called the Arctic grayling, held on in what is now Montana and Michigan. Early explorers described this fish with a striking iridescent dorsal fin as “a kind of silvery trout.” The grayling is now abundant in Alaska and Russia, but its presence farther south hints at the much colder climate of an earlier period in Earth’s history.

With widespread habitat change in Michigan, including the harvest of vast swaths of timber in the early 20th century, rivers there could no longer support the fish. In Montana, with its more remote wilderness areas, healthy grayling populations persisted in the state’s southwestern corner until the 1980s. By this time, however, populations in The Treasure State began to suffer from water diversions for ranching and agriculture. In 1992, the species was found in just 5% of its former range in Montana, mainly in the Big Hole River Watershed.

In 1995, an unusual partnership emerged to address concerns from state wildlife officials and citizens. Potential adversaries sat down together and formed the Big Hole Watershed Committee. Funded by the National Fish and Wildlife Foundation and other organizations, wildlife staffers such as Jim Magee of the Montana Department of Fish, Wildlife, and Parks began a dialogue and then formed a committee with skeptical members of the agricultural community. According to rancher Harold Peterson, “When we started the committee, guides and outfitters were pointing their fingers at us and we were pointing our fingers at them. No one was talking.” After a while, though, “we were having coffee together or getting a beer together. We started getting along.”

Through continued “coffee talk,” participants began to overcome their differences and gain confidence in the plan laid out by Magee and others to modify water use practices and make quantifiable improvements in stream flow for the grayling. Other strategies implemented and measured through the plan included removing barriers to migration, eliminating areas that could trap the fish

and making habitat improvements. Ranchers participating in the plan later signed what is referred to as a Candidate Conservation Agreement with Assurances (CCAA) in 2006. This agreement protected them from penalties under the Endangered Species Act (ESA) that would negatively impact their livestock management if the fish were to be listed as threatened. Protections granted through the agreement required demonstrable efforts and strict monitoring for stable and increasing populations.

Together, this unlikely coalition of wildlife officials, ranchers, environmental advocates and anglers achieved a remarkable turnaround. By 2014, a decade after ESA listing discussions began, the number of effective breeding grayling adults tripled and the species abundance more than doubled. Biologists also observed the fish in a greater number of survey locations. In August 2014, the U.S. Fish and Wildlife Service decided not to list the species as threatened, specifically citing the actions of the Big Hole Watershed group and related efforts.

## Outcomes of CCAA’s Conservation Actions

- Breeding adults increased from 100 to at least 500
- Concentration per mile increased 7-fold in river mainstem
- 65% of sensitive streamside habitat improved
- Stream miles accessible to grayling increased significantly



# Seek and ye shall find

**Colorado ranch is home to  
rare Mountain Plover**



The Mountain Plover is a shorebird that, in spite of its name, prefers the flat, arid grassland of the eastern Colorado plains, where more than half of its continental breeding population lives. Historically, Mountain Plovers existed alongside bison and prairie dogs. Although they still mingle beneficially with prairie dogs, free-roaming bison have been replaced with domesticated grazing cattle and sheep.

Known as the “prairie ghost,” this inconspicuous beige and white bird blends well into the landscape among prairie dog towns, camouflaged from hungry coyotes and raptor predators. The plover’s population has steadily declined across its range mainly due to habitat loss and declining prairie dog populations, which are known to contribute to plover habitat.

In 1999, a khaki-clad plover researcher from Colorado Parks and Wildlife (CPW) unwittingly set in motion the plover’s recovery when she accidentally wandered onto a ranch owned by Russell Davis in Karval, Colorado. Cringing at the thought of a government scientist on his land, he asked what she was doing. As she spoke, his stomach sank. The U.S. Fish and Wildlife Service (USFWS) was proposing to list the

**More than  
90%  
of species listed as endangered  
or threatened under the ESA  
have at least some portion of their  
habitat range on private land.**

Mountain Plover as an endangered species, and the Wineinger-Davis Ranch was teeming with them. While many bird enthusiasts would be thrilled to host a rare species in their backyard, to ranchers it usually means regulations on their land – including grazing restrictions. He shuddered at the prospect of having to deal with expensive red tape that could effectively put his ranch out of business.

Davis reluctantly attended a meeting hosted by the Rocky Mountain

Bird Observatory, a nonprofit conservation group seeking to discuss plover conservation with landowners. His interest was piqued when he heard about paying ranchers for conservation practices. After a freak blizzard, an unfavorable livestock market swing and a drought, Davis’ ranch had taken some financial hits, so he wanted to learn more about how he might be able to stay in business while helping the bird.

At the meeting, CPW private lands program manager Ken Morgan approached Davis about his ranch. Cautious of letting another government scientist on his land, he decided to take a chance. When Morgan arrived at the ranch he was amazed. It didn’t just have Mountain Plover, but also swift fox, pronghorn and prairie dogs. “Russell, you’re running a five-star hotel here!” Morgan exclaimed.

Bewildered, Davis digested the idea that he was managing his land to the benefit of these species. His cattle grazing practices mimicked bison grazing habits, creating a veritable animal paradise.

Davis slowly began allowing research on his land. At the same time, he gave scientists a crash course on ranching costs and challenges. The efforts culminated in a conservation easement on the land to preserve

plover habitat and maintain the land as a working ranch. In exchange for not developing his ranch, Davis would be paid by CPW to maintain the five-star digs for plover.

“It was hard to fathom, to put all the pieces of the puzzle together,” Davis says of his journey from everyday rancher to cowman conservationist. Keen to share his and other stories from ranchers in Karval, Colorado, he hatched the idea to create the Karval Plover Festival in 2005. The two-day event continues to draw birders and nature-lovers alike to enjoy the rare plover, experience rural life and learn more about ranching.

The successful efforts of Davis and the other ranchers did not go unnoticed. In 2011, the USFWS withdrew its proposal to list the Mountain Plover, specifically noting that the plover actually benefited from cattle grazing. In the end, a landowner’s willingness to take a chance on a partnership-based approach to conservation paid off not just for the Mountain Plover, but also for the Wineinger-Davis family and their land.



# Flamboyant icon of the west makes a comeback

**Ranchers put skin in the game to recover Greater Sage-Grouse**



Each April in sagebrush habitat across eleven western states and two Canadian provinces, a series of burbling, popping sounds break the cool morning silence and serve as a harbinger of spring. In the early dawn light, the source of these odd noises is the Greater Sage-Grouse, a brown chicken-size bird that depends on sagebrush habitat and insects for its survival. This showy bird invites observers to pause and watch its mating display. At breeding sites ornithologists refer to as “leks,” males puff out their yellow air sacks, white chest and pointy fan-shaped tail in a frantic competition for females.

Sage-grouse currently occupy less than half of their historic range. This tremendous decline is the result of habitat change, as well as energy development, housing subdivisions and other modifications to the landscape. Bird populations in Alberta, Saskatchewan and the Dakotas are in peril and the bird no longer resides in Arizona and New Mexico. The stronghold of the sage-grouse is in the energy-rich state of Wyoming. Across their range, the Greater Sage-Grouse predicts the presence of other species such as

mule deer, pronghorn antelope and hundreds of other plants and animals that thrive in the same ecosystem.

Representatives of disparate interests, including ranchers, federal agencies, states, conservation groups, energy companies and others have been hard at work devising strategies to protect and enhance core habitat for the sage-grouse. Many of these discussions and resulting management plans have been led by the Sage Grouse Initiative (SGI), an unprecedented federal effort by the USDA Natural Resources Conservation Service (NRCS) to develop voluntary, cooperative solutions to sage-grouse population declines. SGI and partners have invested \$425 million in working lands conservation. By the end of 2018, around \$760 million will have been invested through SGI, conserving approximately 8 million acres of habitat.

Tulelake, Calif. rancher Mike Byrne has been involved in SGI through a local organization called the Clear Lake Working Group. SGI funding enabled him and other partners to remove juniper from several thousand acres on his ranch and study grouse populations in the



area. Byrne is proud of the accomplishments of this cooperative venture, estimating that juniper removal has helped to reinvigorate his ranch's sagebrush habitat for 50 to 100 years. “I think it’s a symbiotic relationship. The grass and the grouse like simple things. When the cows eat the grass, it regrows. The fresh shoots have a nice juicy, luscious flavor. Plus the bugs love it, and the birds like the bugs.”

In response to the successful, concerted conservation efforts of private landowners, businesses, government agencies and non-government conservation organizations across the range, the U.S. Fish and Wildlife Service announced in September 2015 that the Greater Sage-Grouse does not need protection under the Endangered Species Act. The decision was based on detailed conservation plans and collaborative action that provided clear evidence of improved sage-grouse habitat, stable populations, decreased surface disturbances and reduced rangeland fire threats.

The unprecedented effort centered on the Greater Sage-Grouse represents a turning point for endangered species conservation



**The U.S. Fish and Wildlife Service announced in September 2015 that the Greater Sage-Grouse does not need protection under the Endangered Species Act.**

in the United States. Never before have so many different interests pulled together to address a landscape-scale conservation challenge. Never before have the planning and financial resources been aligned in such a potent and sustained way. Addressing species conservation with an ecosystem approach, and funding it at a scale commensurate with the important resources and regional economies at stake, appears to be a new and better way of doing business. In light of this transformation, the nation may look back with fondness and gratitude at this strange strutting bird of the west.



