PLACES *for* Wolves

DEFENDERS OF WILDLIFE

Defenders of Wildlife is a national, nonprofit membership organization dedicated to the protection of all native animals and plants in their natural communities.

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About This Publication

In 1999, Defenders published *Places for Wolves: A Blueprint for Restoration and Long-Term Recovery in the Lower 48 States*. The publication provided an assessment of the ecological regions that could support wolves and recommendations on policies and strategies to facilitate recovery in these areas. Based on studies showing significantly more habitat suitable for wolves in the contiguous United States, we published an updated version in 2006. Now we release a third version, this time in a new format designed to keep pace with research, politics, laws and other fast-breaking developments that affect wolves and our work. This new *Places for Wolves* lays the foundation for our wolf recovery and restoration goals by setting forth the ecological, ethical, cultural and economic reasons why protecting and restoring wolves is important. Our wolf recovery vision, goals, the science behind them and specific regional restoration recommendations are covered in a companion series of fact sheets that can be updated as needed to reflect our efforts to assure the continued survival of wolves.

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COVER PHOTOS: FRONT: TOP, FALL IN THE EASTERN SIERRAS–POTENTIAL WOLF HABITAT IN NORTHERN CALIFORNIA ©HAL ENDLICH; BOTTOM, HOWLING WOLF ©SERDAR UCKUN/ISTOCK.COM
BACK: TOP, MEXICAN GRAY WOLF PUPS AT CAPTIVE-BREEDING FACILITY ©JOEL SARTORE/WWW.JOELSARTORE.COM; BOTTOM, MOUNT BALDY WILDERNESS–MEXICAN GRAY WOLF HABITAT IN NORTHEASTERN ARIZONA ©GEORGE H.H. HUEY/CORBIS

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LAMAR CANYON PACK MEMBER, YELLOWSTONE NATIONAL PARK © HANK PERRY

Foreword

As a former director of the U.S. Fish and Wildlife Service, I had some pretty unique experiences. One of the best was on a cold January day in 1998, when I had the privilege of releasing three Mexican gray wolves into the wilds of Apache National Forest in Arizona. The excitement was palpable, for me…and the wolves. Raised in captivity by biologists dreaming of this day, the young wolves bolted from their transport cages like they knew they were home at last.

The fact that by the late 1960s wolves in the lower 48 states had been reduced to a single population of gray wolves in Minnesota—just 1 percent of their former range—and a handful of red wolves along the Gulf Coast shows the power we have to alter our landscape drastically and to destroy creatures we find in our way. But, with the release of those Mexican gray wolves in Arizona—and wild gray wolves from Canada in the Northern Rockies a few years earlier and captive-bred red wolves in the Southeast in 1987—we showed the power of people to evolve, to grow and to appreciate the value of all species, to right the wrongs of the past.

Defenders has been an agent of this evolution. Since 1967, when we first promoted the idea of reintroducing wolves in Yellowstone National Park, Defenders has been a leader and champion of wolf recovery. Guided by our belief in the inherent value of wildlife and the natural world and our dedication to finding enduring, scientifically sound solutions to conservation challenges, we have a vision for wolves. We see them in suitable habitat throughout their former range in North America in populations large enough to allow the wolf to fulfill its critical role in the ecosystem.

Places for Wolves lays the foundation for this vision. It briefly reviews the history of wolf recovery in the lower 48 states and then makes our cases for wolves: the ecological, cultural and economic reasons for restoring these incredible animals.

There is no doubt that we have had amazing successes in restoring wolves. With the protection of the Endan-

ROSE CREEK PACK MEMBERS, YELLOWSTONE ©JOEL SARTORE/WWW.JOELSARTORE.COM

gered Species Act passed in 1973 and the relentless work of Defenders and our allies in the conservation community, wolf populations have grown in the Northern Rockies and the Great Lakes. Wolves are now making their way to Oregon, Washington and even California.

Wolves continue to struggle in the Southeast and the Southwest. Prejudice against wolves is still strong in many areas and some states that are now managing wolves are more focused on wolf control than continued recovery. Defenders of Wildlife will continue to provide the support, hard work and the focused vision necessary to ensure that wolves retain their hard-won places and continue to reclaim new ones.

Jamie Rappaport Clark, President and CEO
Defenders of Wildlife

Defenders' summer field technicians use telemetry equipment to track the movements of radio-collared wolves in Idaho sheep-grazing country.

Defenders and the Wolf: A Legacy of Action and Leadership

On the ground:

- Launched a program to compensate ranchers for livestock losses to wolves. The $1.5 million invested in this program was critical in showing that we were willing to put significant resources behind recovery.
- Field-tested and promoted nonlethal methods and tools to reduce livestock losses to wolves, working hand in hand with ranchers to minimize impacts on wolves and livestock and saving countless wolves from needless killing. Many of these tools are now used worldwide to save wolves and other carnivores.
- Wrote the book on nonlethal tools and methods, a how-to manual distributed to thousands of ranchers and wildlife managers and translated into a Spanish edition.
- Established a Livestock Producer Advisory Council to maintain open dialogue with cattle and sheep producers.
- Partnered with county, state, federal and tribal governments to provide hands-on training and equipment to restore and manage wolves on their lands.
- Mobilized hundreds of thousands of people to speak up for wolves at town hall meetings, sign petitions and contact their elected officials.

In the courts:

- Took legal action as necessary such as when the powerful American Farm Bureau Federation attempted to halt wolf reintroduction in the Northern Rockies and the many times protections for wolves have been challenged.

In the political arena:

- Provided expert testimony, legal expertise, education and advocacy in state legislatures and on Capitol Hill.
- Deflected congressional attacks on wolf protections, defeating several proposals to exempt wolves across the country from the Endangered Species Act.

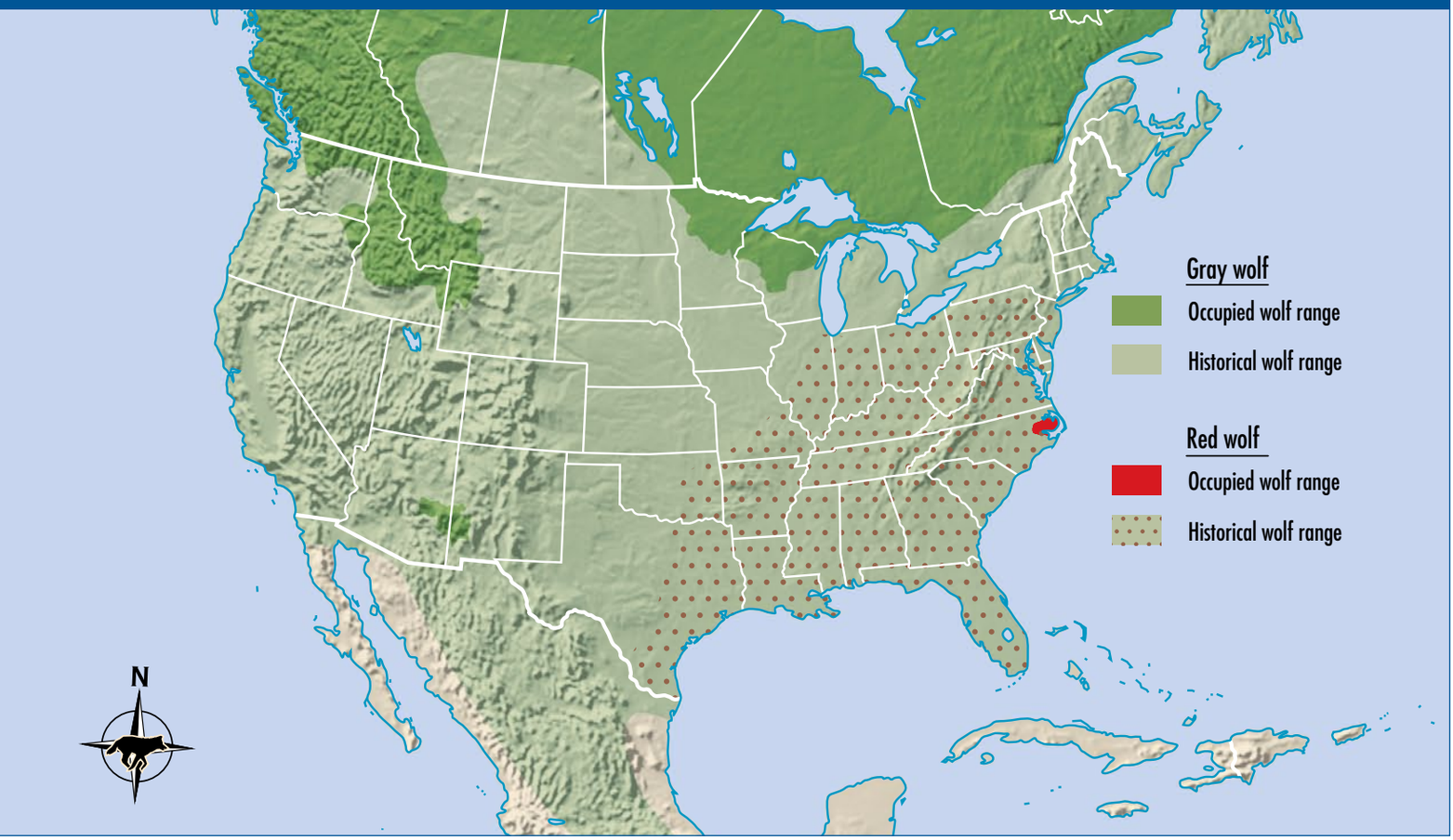
Wolves in the Lower 48: From Persecuted to Protected

The return of wolves to the contiguous United States is one of the most notable success stories of wildlife conservation. Once the most widespread carnivore on Earth, wolves were eradicated for centuries across Europe, and early immigrants to North America brought with them their cultural prejudice and fear of the species. Since that time, this important keystone species—an animal vital to the structure and integrity of its ecological community—has been both targeted for extermination and revered as a symbol of wilderness. Despite near total eradication in the lower 48 states, wolves are on the road to recovery thanks to protection afforded them under the Endangered Species Act (ESA) and to efforts by Defenders of Wildlife and other partner conservation organizations, tribes, state and federal agencies and citizen activists.

Wolves once roamed across the North American continent, from the Atlantic to the Pacific coast and from Canada and Alaska's low Arctic to Mexico's Central Plateau. Together, two species, the gray wolf (*Canis lupus*) and the red wolf (*Canis rufus*), may have numbered 400,000 or more before European settlement (Leonard et al. 2005). Misconceptions rooted in myth and folklore, along with concerns over competition between people and wolves for wild game and livestock, contributed to negative attitudes toward wolves.

Shortly after Europeans arrived, human intolerance led to aggressive eradication programs that eliminated wolves from most of their former range. Populations survived in Canada and Alaska, but in the lower 48 states, the only wolves left by the 1960s were gray wolves in northern Minnesota, Michigan's Isle Royale National Park in Lake Superior and red wolves in a small portion of Texas and Louisiana (Mech 1995).

Current and Former Range of Wolves in the Lower 48 States



A change in attitude

As the last wolves were eradicated from the western United States in the early 20th century, pioneers in the study of this persecuted species—scientists like Ernest Thompson Seton, Stanley P. Young, Adolph Murie and Aldo Leopold—warned that the loss of wolves would result in widespread damage to the environment. The concerns of these researchers (now considered the fathers of modern wolf conservation) were eventually adopted by the emerging environmental movement gaining momentum nationwide in the 1960s and 1970s.

National campaigns, movies and popular stories also fostered increasingly favorable attitudes toward wolves. The International Wolf Center and the Science Museum of Minnesota mounted "Wolves and Humans," a traveling exhibit seen by more than 2.5 million people in 18 U.S. and Canadian cities in nine years on the road. Books like Farley Mowat's "Never Cry Wolf," released in 1963 and adapted for a 1983 feature film, and Barry Lopez's "Of Wolves and Men," a 1978 National Book Award finalist, were widely read and acclaimed.

Fueled by this positive shift in public attitude toward these top predators, the recovery of wolves in the United States began to accelerate (Musiani and Paquet 2004).

WOLF ON YELLOWSTONE RIVER ©MIKE WHEELER

Misinformation and fairy tales like "Little Red Riding Hood" fostered a fear of wolves that crossed the Atlantic with early settlers and fueled the wanton killing and overharvesting for pelts that nearly wiped out wolves completely in the contiguous United States.

ENGRAVING BY EUGEN JOHANN GEORG KLIMSCH

TRAPPER WITH WOLF PELTS, ARIZONA HISTORICAL SOCIETY

Protections pave way for recovery

Wolves were first formally designated as "endangered" in 1967 under an earlier and much weaker version of today's ESA that provided no protection against lethal wolf control. When the current ESA was enacted in 1973, all the species listed as endangered under the earlier law, including gray and red wolves, were automatically listed as endangered under the new, much more protective law.

The U.S. Fish and Wildlife Service (FWS) designated red wolves as endangered and gray wolves as threatened in Minnesota and endangered in the rest of the lower 48 states. Thanks to these protections, gray wolf populations in Minnesota increased significantly and dispersed into Wisconsin and Michigan.

In 1987, FWS released captive-bred red wolves in northeastern North Carolina. Meanwhile, out west the prohibition under the 1973 ESA of hunting, trapping, harassing or otherwise harming wolves allowed the predators to slowly expand their range south of the Canadian border. Defenders helped win support for further wolf expansion and acceptance through programs to reimburse ranchers for livestock losses and to prevent losses in the first place. Wolf recovery in the Northern Rockies then got a huge boost in 1995 when FWS released gray wolves from Canada into Yellowstone National Park and central Idaho. And finally, in 1998, FWS released captive-bred Mexican gray wolves into a remote area in Arizona.

The public remains fascinated with wolves. Tourists from all over the world flock to Yellowstone and other wolf habitats, substantially benefiting local economies. With the successful restoration of wolves to key areas like Yellowstone and central Idaho, and their tentative return to the Southwest, modern science is now proving what Seton, Young, Murie and Leopold understood so long ago: Wolves have significant and important influences on other species and their environment (Smith et al. 2003, Ripple and Beschta 2012).

WOLVES ON FROZEN LAKE, BOUNDARY WATERS WILDERNESS AREA, MINNESOTA ©JOEL SARTORE/WWW.JOELSARTORE.COM

Sheep pass by a trail camera set up to document the presence of wolves in a heavily used grazing area.

The Wood River Wolf Coexistence Project

A county-wide collaboration in Idaho proves partnerships and a proactive approach are key to successful wolf recovery

When wolves moved into the Wood River Valley in the Sawtooth Mountains of south-central Idaho in 2007, local ranchers were justifiably concerned. The Phantom Hill pack had settled into a den near a 116-square-mile grazing "highway" traversed by more than 12,000 sheep each summer. The wolves preyed on a few sheep, and the pack– pups included–was slated for extermination.

Then Defenders of Wildlife stepped in and offered to help livestock producers try nonlethal means to deter depredation instead. They agreed, and for the 2008 grazing season Defenders hired and trained a field crew to keep sheep and wolves safely apart. The crew worked with sheep herders and used a combination of proactive tools and methods to deter wolves, including livestock guarding dogs, range riders, tracking devices to monitor wolf movements, noisemakers and spotlights to scare wolves away, and electrified fences affixed with fladry (fluttering red flags) to corral sheep at night to protect them.

With the cooperation of livestock producers, state and federal agencies and Blaine County, the project has grown and been a great success. No wolves have been lost and livestock losses have been less than 0.01 percent of the total present in the project area–90 percent lower than the estimated losses statewide. In 2011, at the urging of county officials and livestock operators, Defenders began extending the Wood River project to include cattle operations and to cover all areas of the county where wolves and livestock overlap.

During the 2012 grazing season, the project encompassed more than 1,500 square miles. Employing an ever-expanding and improving repertoire of tools and techniques, crews on the ground documented the presence of new wolf packs and protected cattle and more than 27,300 sheep without losing a single wolf to control measures. And they did it for far less than the cost of lethal wolf control programs that rely on helicopters, sharp shooters and trappers and wait until livestock are killed to take action.

Today the Wood River Project is the nation's most successful comprehensive nonlethal wolf-management model operating at a county level. This all-out effort demonstrates that by working together adversaries can become close partners. It also underscores that lethal state and federal wolf control programs are wasteful and needless when there are effective, economical, field-proven, nonlethal alternatives for reducing the losses of livestock and native wildlife.

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More than 20,000 sheep pass through the Wood River Valley each summer, but with good will, collaboration and wolf-deterring methods like the fladry corral a shepherd installs here, the number of sheep killed by wolves has been negligible.

The Ecological Role of Wolves

Predators play a fundamental role in maintaining ecosystem health, and research strongly supports the contributions of wolves in particular to the functioning and stability of the overall landscape (Ripple and Beschta 2012). Wolves prey primarily on large ungulates, hoofed mammals such as deer, elk and moose. By preying on the most vulnerable (diseased, young, old, weak or injured) individuals, wolves help keep prey populations healthier and more vigorous (Carbyn 1983). Predation by wolves also regulates ungulate distribution and group size, which impact overall native biodiversity (White et al. 2010, Ripple and Beschta 2012). When deer and elk become too abundant for their habitat, for example, they overgraze vegetation, leading to habitat degradation and potentially damaging effects on other native wildlife (Endress et al. 2012).

In recent centuries, the removal of wolves has allowed smaller predators to dramatically increase in number and range, thereby increasing exploitation of their prey. In the southeastern United States, elimination of red wolves was followed by increased coyote and raccoon populations, which in turn caused a reduction in wild turkeys (Miller et al. 1997, Miller et al. 2012). Through competition, expanding coyote populations have suppressed the abundance of small predators such as foxes, which prey on smaller mammals that are responsible for infecting ticks with Lyme disease (Levi et al. 2012). The increase of these smaller mammals, in turn, is a likely cause of increases in the incidence and range of Lyme disease (Levi et al. 2012).

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A cascade of positive impacts

In Yellowstone National Park, scientists have been carefully documenting the impacts of wolves on the ecosystem, noting many changes for the better since reintroduction. After an absence of about 70 years, wolves have triggered a "trophic cascade"— a series of direct and indirect effects on species diversity and abundance across various levels of the ecosystem (Berger et al. 2008; Beschta and Ripple 2010).

Predation creates these cascading effects by reducing prey numbers and density and altering prey behavior (White et al. 2012; Hairston et al. 1960; Be-

schta and Ripple 2009, 2010; Christianson and Creel 2008; Mao et al. 2005; Peterson 2001; Mech and Peterson 2002). Elk in the Yellowstone area have become wary of wolves (Fortin et al. 2005, Mao et al. 2005) and browse on different species of vegetation and at different intensity if wolves are present (Christianson and Creel 2008; White et al. 2012).

With less grazing pressure from elk, streambank vegetation such as willow and aspen is regenerating after decades of over-browsing (Kauffman et al. 2010; Beschta and Ripple 2008; Anderson 2007; Baril et al. 2011). This restored vegetation creates habitat for native birds, fish, beaver and other species. It also improves aquatic habitat by helping to stabilize channels and control erosion (Beschta and Ripple 2012).

Competition with wolves reduces coyote numbers and the impact they have on species such as pronghorn (Berger et al. 2008; Barnowe-Meyer et al. 2010). In some areas, wolves have contributed to reductions in Yellowstone's coyote population by as much as 50 percent. As a result, pronghorn survival has increased from 20 percent to 70 percent (White et al. 2007). Populations of smaller predators, such as the red fox, have also increased (Crabtree and Sheldon 1999; Levi and Wilmers 2012).

Scavenging species are also benefiting from the presence of wolves. Carrion feeders such as eagles, bears and magpies thrive on the remains left by wolves (Wilson and Wolkovich 2011; Wilmers et al. 2003; Wilmer and Getz 2005). Ravens are also known to follow wolves as a primary feeding strategy (Stahler et al. 2002). The remains of kills left by wolves help species survive food-stressed winters (Wilmers et al. 2003; Wilmers and Getz 2005).

Researchers expect the widespread benefits documented in the Northern Rockies to occur in other areas where wolves become reestablished. As the Mexican gray wolf population approaches an ecologically effective population density in the Southwest, for example, aspen recruitment, which is currently suppressed by elk browsing, could increase (Beschta and Ripple 2010b). Increased riparian vegetation from reduced ungulate browsing with wolves on the landscape (Kauffman et al. 2010; Beschta and Ripple 2008; Anderson 2007; Baril et al. 2011) may also aid the recovery of the threatened Apache trout, which benefits from the increased cover (Cantrell et al. 2005). The benefits to biodiversity and ecological health alone make a strong case for wolf restoration and recovery wherever feasible.

TROUT LAKE, YELLOWSTONE © JIM CLARK

© JOHN TANGNEY

Members of Yellowstone's Lamar Canyon pack close in on a bull elk.

The Goal of Wolf Recovery: Ecosystem Health

We can be proud of securing the persistence of wolves in several regions. But ecosystem health, not mere persistence, is what we desperately need. The difference is as important as the difference between a healthy person and someone on life support. The relationship that elk and deer have with grasslands and forests, for example, is not healthy unless tempered by wolf predation. The only reliable way to enable a healthy relationship is to let wolf abundance be determined by natural processes, like the abundance of prey. We are learning to share the land with wolves. Now it is time to learn to share elk and deer with wolves. Sharing with nature does not merely make us healthy, it makes us human.

— John A. Vucetich, Associate Professor
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The Cultural Significance of Wolves

Native American cultures have long seen the wolf as both a powerful animal and a source of inspiration (Lopez 1978; Hunt 2008; Mech and Boitani 2001). The Arikara and Ojibwe believed a wolfman spirit made the Great Plains for them and for other animals (Dorsey 1904; ICTMN 2012). The Hopi honor a wolf katsina, a spiritual being who serves as a guardian for the other sacred dancers. Before battle, White Mountain Apache warriors would sing and pray for the strength, endurance and teamwork of wolves.

On Washington's Olympic Peninsula, legend holds that the first Quileute people were wolves changed to human form by Kwati, a shape shifter known as the transformer. Wolf imagery features prominently in Quileute, and tribal songs, dances and ceremonies underscore the significance of wolves in the culture of the Pacific Northwest.

Tribes have also been supportive of modern recovery efforts. The Nez Perce tribe viewed the return of the gray wolf to Idaho in the 1990s as being intimately connected to their culture and history and a revival of their spirituality (Ohlson et al. 2008, Stone 2008). As wolves were reintroduced to Idaho, the Nez Perce tribal elders sang prayer blessings for the animals before they were released to the wild. Nez Perce children named one of the first wolves Chat Chaaht, which means "elder brother," and tracked his movements as he became the alpha male of one of Idaho's most successful wolf packs.

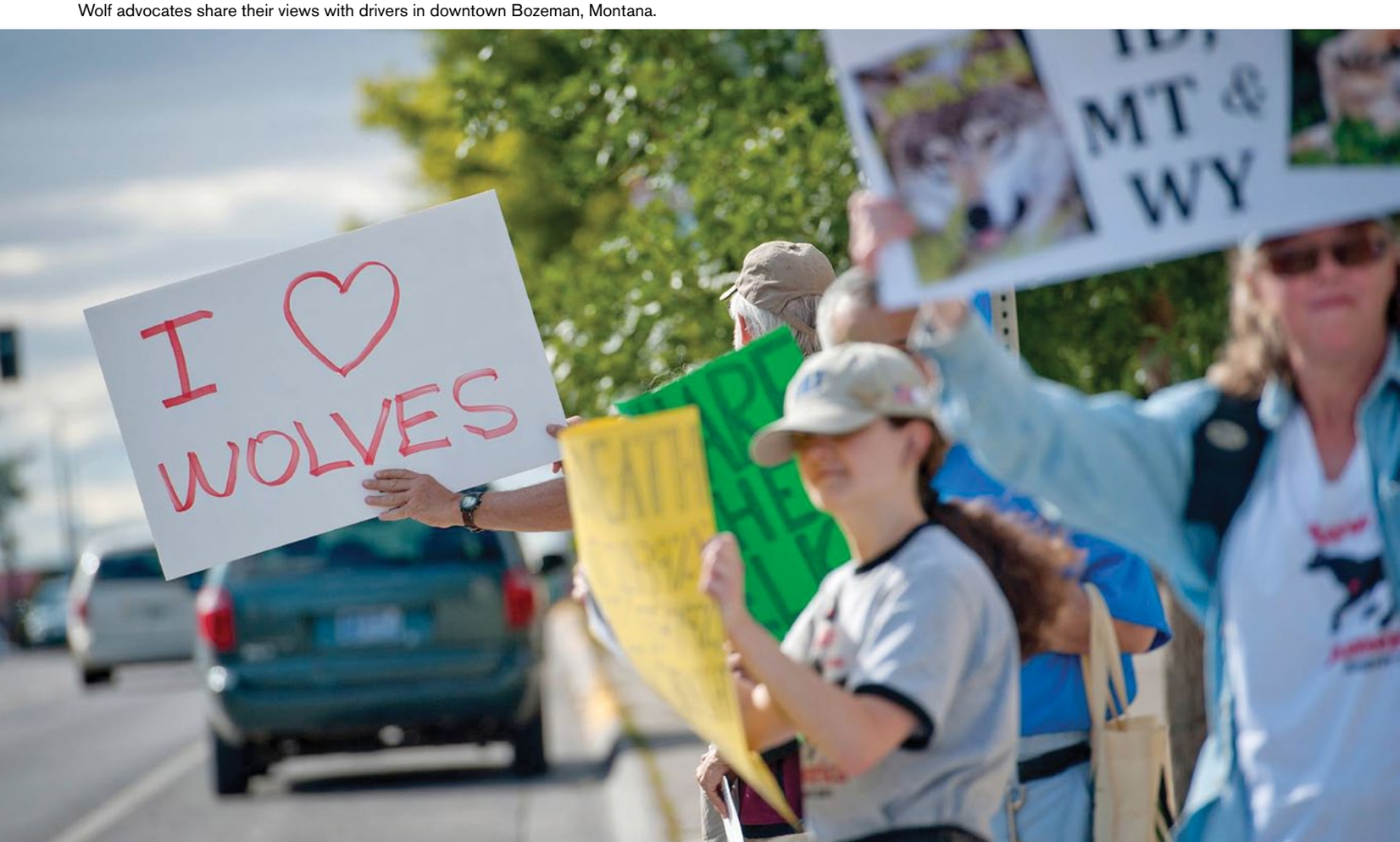
In Arizona, the White Mountain Apaches, a tribe that has always embraced a principle of conservation founded in their belief in an inseparable relationship between humans and the natural world, are a valued partner in Mexican wolf restoration.

A cultural shift

With a world view shaped by immediate survival, the early settlers of America considered land and animals resources that were here solely for human use; if it wasn't useful, if it had no economic benefit, then it would simply be destroyed. Add the myths, fears and hatred of wolves the colonists brought with them to the New World, and the wolf did not stand a chance.

Fortunately for wolf recovery efforts, we have come a long way toward sharing the respect for wolves held by the na-

Wolf advocates share their views with drivers in downtown Bozeman, Montana.



A Quileute tribesman wears a wolf mask (ca 1955). Dancers don the elaborately carved masks for ceremonies honoring the tribe's legendary connection to wolves.

tive peoples who lived in harmony with these predators for centuries before the Europeans arrived.

Education about the natural world, including the ecological role of wolves, has contributed to a cultural shift from negative to positive perceptions about wolves. Concerted efforts by Defenders and others to disseminate accurate, science-based information also played a major role in rehabilitating the wolf's image in America and raising awareness of their plight.

Our growing interest in wolves has spawned books, videos, educational displays, school curricula and an annual Wolf Awareness Week celebrated nationwide. The popularity of wolf imagery and pro-wolf messaging on T-shirts, coffee cups and collectibles reaffirms the cultural shift in attitudes toward wolves.

Indeed, since the 1970s, numerous studies and public opinion polls have found that a large majority of Americans support efforts to protect and restore wolves (Williams et al. 2002; Browne-Nuñez and Taylor 2002; Harris Interactive 2011; Kellert et al. 1996; Bath 1989; Bath and Buchanan 1989). Today, those who support wolf recovery often cite not only ecological reasons, but cultural reasons for their views. These include a stewardship ethic that holds that we have an obligation to maintain and restore ecosystems that include wolves for future generations, a moral responsibility that recognizes the wolf's right to exist, and an aesthetic standard that values the wolf as a symbol of wilderness.

Although anti-wolf sentiments remain, particularly in rural areas, a vocal majority of Americans derives satisfaction from knowing that wolves are again part of the natural landscape.

MEXICAN GRAY WOLVES (CAPTIVE)/©JOEL SARTORE/WWW.JOELSARTORE.COM

White Mountain Apache Ecotour Benefits Wolves and People

Apache Wilderness Journeys, created by the White Mountain Apaches with help from Defenders of Wildlife, takes travelers on a week-long educational trip into prime Mexican gray wolf country. Situated between the Blue Range wolf recovery area and wild lands farther to the west in the Grand Canyon region, the tribe's 1.6 million mostly wild acres in eastern Arizona are the gateway for future wolf recovery in the Southwest. Apache guides take tour participants into remote, lush Ponderosa pine forests for a chance to hear or see the world's rarest wolf and learn about efforts to restore it and other imperiled wildlife like Mexican spotted owls and Apache trout.

The tour also gives visitors an opportunity to experience firsthand the Apache way of life through crafts, storytelling and traditional meals. It emphasizes the sacred connections Apaches see among the human soul, the land and all living things—with special reverence for the endangered Mexican gray wolf. "The Apache people respect every creature on the land; the mighty Creator has them here for a purpose. That's why we want to bring the Mexican wolf back to its home, which is White Mountain Apache land," says tribe member and wolf biologist Krista Beazley.

Proceeds from the trips benefit the tribe's wolf-conservation program, which works to resolve conflicts between wolves and tribal cattle ranchers by providing proven nonlethal tools and methods like electrified fencing, range riders, remote cameras to document the presence of wolves, and compensation for occasional losses of livestock to wolves. The White Mountain Apaches are doing what they can to help the Mexican gray wolf return to an ancestral home where it has been absent for far too long.

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Apache wolf biologist Krista Beazley installs a trail camera to document the presence of wolves. Proceeds from the ecotour help the tribe pay for these cameras and other coexistence tools.

The Economic Benefits of Wolves

Wolves may not be typically thought of as a source of income, but they can provide significant economic benefits. These include the direct economic impacts of tourism and related activities and the indirect benefits derived from the improvements in ecological health wolf restoration can bring to an area from which wolves have long been absent.

A boost for local economies

Direct monetary benefits come from wolf tourism, which gives local economies a considerable boost.

A survey of visitors to Yellowstone National Park conducted by John Duffield of the University of Montana from 2004 to 2006 found that more than 150,000 people from all over the world come to the park each year specifically because of wolves (Duffield et al. 2006). This wolf-related tourism brings in $35.5 million annually to Wyoming, Idaho and Montana, stimulating economic activity through local communities (Duffield et al. 2006). Wolf-based tourism can be a lucrative business for small outfitters and business owners in and around Yellowstone National Park (Yellowstone National Park 2011). By offering activities such as wolf-watching tours to thousands of visitors, these businesses cumulatively bring in about $5 million or more each year, and this revenue is steadily growing (Yellowstone National Park 2011).

These direct benefits are not limited to the Northern Rockies. A wolf education and conservation organization, the International Wolf Center in Ely, Minnesota, contributes $3 million to the local economy and creates the economic equivalent of 66 full-time jobs (Schaller 1996). The reintroduction of the Mexican gray wolf to the Blue Range Wolf Recovery Area has generated $3.2 million to $3.8 million in annual net benefits at the regional level (Kroeger et al. 2006).

In 2005, a study of ecotourism in northeastern North Carolina found tourism related to red wolves to have significant revenue potential and the interest of both tourists and local residents (Lash and Black 2005). Surveys in states surrounding red wolf territory have shown that people are more likely to visit an area with red wolves present, particularly if activities related to red wolves are offered as part of an ecotourism opportunity (Rosen 1997).

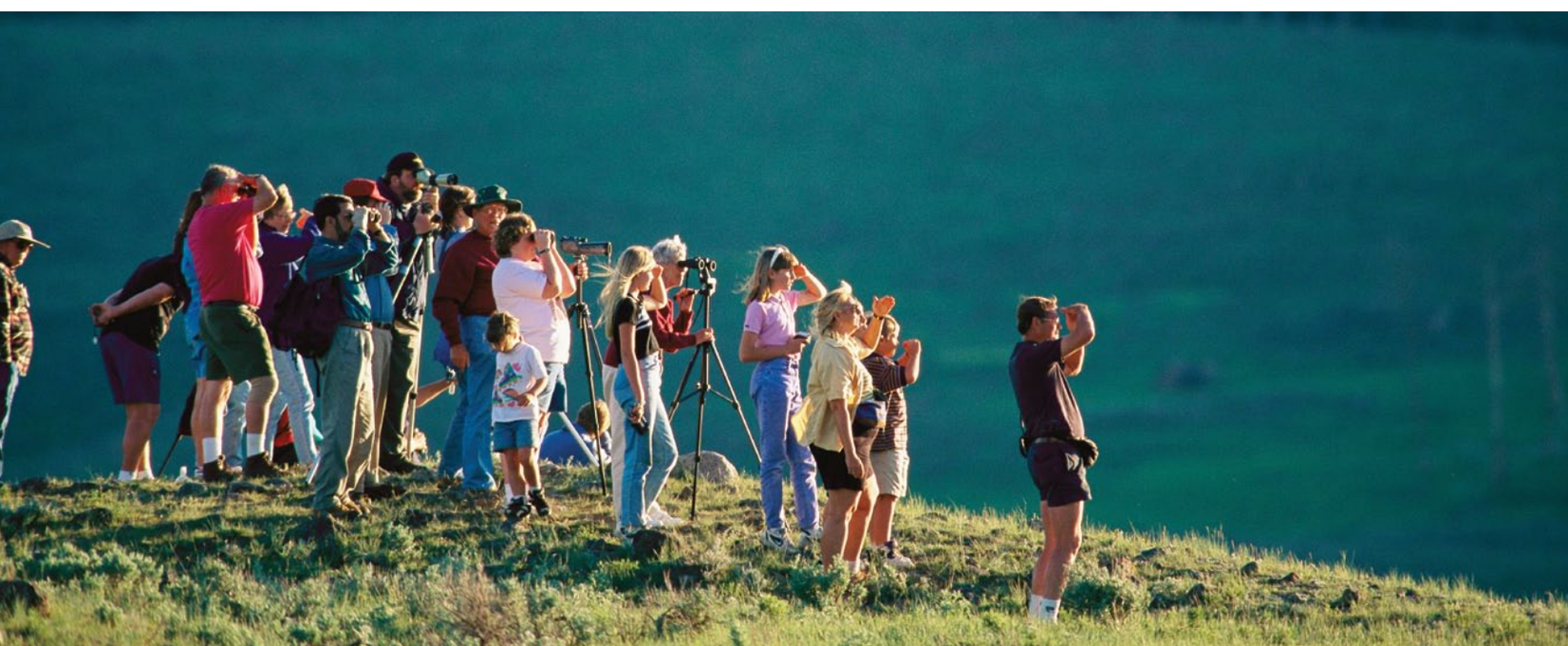
Added value for ecosystems

Wolves can have a positive impact on the ecosystem services that economically benefit us (Kroeger et al. 2006). These are the services that healthy ecosystems provide such as furnishing goods like timber and fish and natural functions like air and water purification and erosion control.

For example, wolves can help improve conditions for fish by changing patterns of deer and elk browsing and reducing streamside grazing (Beschta and Ripple 2009, 2012; Ripple and Beschta 2004; White et al. 2003). The resulting increase in riparian vegetation lowers water temperatures, improving habitat conditions for trout and creating more fishing opportunities for anglers (Kroeger et al. 2006).

The bottom line is that wolf conservation pays.

Wolf watchers in Yellowstone National Park follow a pack in the Lamar Valley.



OLYMPIC NATIONAL PARK, A POTENTIAL PLACE FOR WOLVES ©ANNA GORIN

Wanted: More Wolves in More Places

Wolf recovery has made tremendous gains since the days of near eradication in the contiguous United States. The expansion of wolf packs across parts of Washington and Oregon is a direct result of the reintroduction of wolves to Idaho and Yellowstone and the progress of restoration efforts to date. The crossing of a wolf from Oregon into California in 2011, the first wolf documented in the state since 1924, is another historic milestone testifying to the amazing dispersal capability of wolves.

Many suitable areas unoccupied

However, the wolf still only occupies a fraction of its historic range and faces significant threats from human intolerance, conflicts with livestock and aggressive management. There is still great potential for restoring wolves to the ecosystems of which they were once an integral part. True recovery implies a reintegration of wolves in the wild to the point of acceptance afforded cougar, bear, elk and other native species.

With so much suitable wolf habitat still unoccupied on the landscape, Defenders believes the gray wolf and red wolf are far from fully recovered in the lower 48 states.

We have made a good start on restoring wolves to selected areas of their historical ranges, but it is only a start. Much remains to be done to assure that our native wolves reclaim their rightful places and thrive to play their important roles in our environment, culture and economy long into the future.

MEXICAN GRAY WOLF PUP (CAPTIVE)/©JOEL SARTORE/WWW.JOELSARTORE.COM

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