

11

Wolves



Credit: Ron Hilton/Shutterstock.

Keywords

- Anthropocentrism
- Apex predators
- Background extinction rate
- Biodiversity
- Conservation biology
- Ecocentrism
- Ethics/ethical
- Extinction crisis
- Masculinity
- Maximum sustainable yield
- Natural resource management
- NEPA
- Niche
- Rewilding
- Stakeholders
- Sustainability
- Trophic levels

Chapter Menu

January 12, 1995, Yellowstone National Park	182
A Short History of Wolves	183
Ethics: Rewilding the Northeast	191
Institutions: Stakeholder Management	194
Social Construction: Of Wolves and Men Masculinity	197
The Wolf Puzzle	200

Assess the role of stakeholders
in environmental management.

January 12, 1995, Yellowstone National Park

The Roosevelt Arch is one of the most famous and recognizable icons of the National Park Service (Figure 11.1). Erected in 1903, early in Theodore Roosevelt's presidency, the arch marks the northern (and oldest) entrance to the world's first national park. In 1872, the US Congress established Yellowstone National Park, as the founding document stated, "for the benefit and enjoyment of the people." In the first 123 years of its existence, over a hundred million visitors have enjoyed its world-renowned geysers, waterfalls, and wildlife. Most visitors come to the park during the busy summer months. Winter mornings in Yellowstone, on the other hand, tend to be relatively quiet. The morning of January 12, 1995, however, was anything but. Hundreds of people lined the road near the Roosevelt Arch. Local and national press crews vied for the best camera angles, and scrambled to interview anyone who looked official. What was all the fuss about? What could draw all these people outside to brave the freezing weather?

The crowds were there to witness the return of one of Yellowstone's most famous residents. A converted horse trailer was the centerpiece of the celebrity motorcade. Within the trailer were eight wolves, each in a small cage. Their destination was the Lamar Valley, about

40 miles by road inside the park. Wolves had been eradicated from the region decades earlier, but now the federal government was taking the bold step of reintroducing them to the park. The motorcade passed under the arch to snapping camera shutters and a cheering crowd. Inside the park, the motorcade stopped so that Bruce Babbitt, Secretary of the US Department of the Interior (the agency that runs the Park Service), and Mollie Beattie, Director of the US Fish and Wildlife Service (the agency in charge of managing endangered species), could greet the crowd and make short speeches. Babbitt called it a "day of redemption and a day of hope" (Fischer 1995: 161). The mood was triumphant, but the good vibes were quickly dampened, at least for a few hours (Figure 11.1).

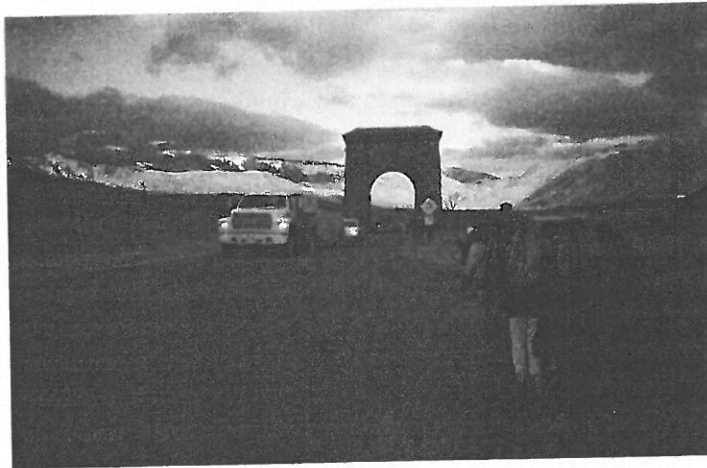


Figure 11.1 The wolf motorcade passes under the Roosevelt Arch as it enters Yellowstone National Park on January 12, 1995. Environmentalists, the press, and schoolchildren bussed in on field trips look on. *Credit:* National Park Service.

The night before, the Wyoming Farm Bureau (a group representing agricultural interests, including livestock raisers) had filed an emergency appeal in federal court to halt the reintroduction. Standard practice is for judges to issue "stays" (temporary halting of actions) to give themselves time to review the appeal. The judge initially called a 48-hour stay on the reintroduction, meaning that the wolves could not be released into the park for two days. Agents scrambled for a backup plan, as it would be dangerous to the wolves to

leave them drugged and penned for that much time. The judge, as it turns out, did not need two days to decide whether to grant the appeal; early that same evening the stay was lifted. At about 10:30 p.m., the wolves were released from their pens into the Yellowstone snow. Environmentalists cheered. Yellowstone was, as many emotionally said, finally “whole” again. Ranchers and many other locals, however, greeted the event with mortification.

How and why, then, did it ever happen that wolves were intentionally eliminated from nearly their entire natural range, *even in national parks*? Moreover, what could explain both the frenzy that accompanied their return to Yellowstone and the deep feelings of the animal’s opponents?

A Short History of Wolves

The wolf (or the “gray wolf,” more technically), *Canis lupus*, is the largest member of the Canidae, the dog family (Figure 11.2). Other canids include foxes, coyotes, jackals, African wild dogs, and domestic dogs. Indeed, domestic dogs are so genetically similar to wolves that they are now considered by most to be a subspecies of the wolf, *Canis lupus familiaris*; it is likely that all breeds of domestic dogs are biological descendants of wolves. Many subspecies of the gray wolf have been identified and include the critically endangered red wolf (*Canis lupus rufus*) of the Southeastern United States, the Mexican wolf (*Canis lupus baileyi*), and the Iranian wolf (*Canis lupus pallipes*).

The gray wolf evolved into something very close to its present form several hundred thousand years ago. Likely evolving in North America, through successive ice ages (during which a land/ice bridge opened up between North America and Eurasia) the wolf spread throughout most of North America and Eurasia. A very adaptable species, wolves occupy desert, grassland, forest, and tundra ecosystems. Adults range in size from around 45 pounds (the smallest subspecies is the Arabian wolf) to over 100 pounds (which would be a large northern gray wolf). Coat color varies widely, even within local populations, ranging from white-blond to every conceivable gray and brown to slate black. Most wolves live and hunt in packs and feed primarily on ungulates – large, geographically widespread, hoofed animals which include wild species such as elk, deer, antelope, and bison as well as domestic species such as cattle, sheep, and goats. Indeed, the ubiquity of domesticated ungulate species is one of the primary reasons that the wolf has for so long been an object of concern and fear for agricultural human societies.

Despite conflict with humans, wolves still exist over much of their historic range (Figure 11.3 and Table 11.1). Eurasian wolves live as far east as Eastern Siberia (Russian Federation), Mongolia, and parts of China (and at least two subspecies of wolves inhabited Japan until

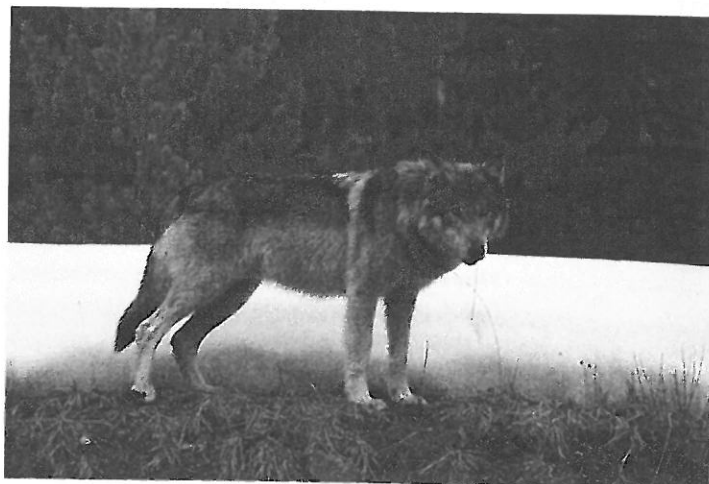


Figure 11.2 The gray wolf, *Canis lupus*. Credit: Al Parker Photography/Shutterstock.

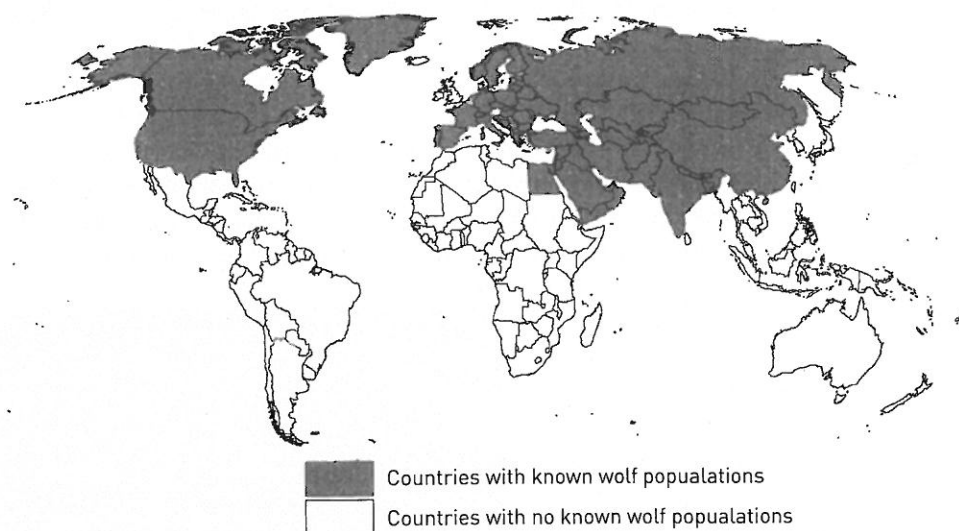


Figure 11.3 World map of countries with known wolf populations. *Sources:* 1. Mech and Boitani (2003), pp. 322–3. Chicago: University of Chicago. 2. International Wolf Center: <http://www.wolf.org/>.

Table 11.1 Countries worldwide with wolf populations of 2,000 or greater

Country	Wolf population
Canada	52,000–60,000
Kazakhstan	30,000
Russia	25,000–30,000
Mongolia	10,000–20,000
China	12,500
United States	9,000
Kyrgyzstan	4,000
Tajikistan	3,000
Belarus	2,000–2,500
Spain	2,000
Ukraine	2,000
Uzbekistan	2,000

Source: Mech and Boitani (2003)

around the turn of the twentieth century). The largest Eurasian populations exist across Siberia southwest through the Central Asian Republics. Though critically endangered across the southern portion of their range, wild wolves still persist from Bangladesh across the Indian subcontinent, west through the Arabian Peninsula (where very little is known about their distribution and numbers), even into Africa, where a small population of perhaps 50 individuals survives in Egypt. Perhaps surprisingly, wolves still roam most of

continental Europe, but they have been extinct on the British Isles for several hundred years. In North America, both Alaska and Canada have substantial populations, even though they were eliminated from nearly half of their North American range after the arrival of European settlement.

The social success of wolves

Wolves live in packs, extended families of about five to eight individuals. Larger packs have been witnessed but are unusual. Usually, only one female per year per pack gets pregnant after copulating with one male member of the pack. Litters commonly consist of six to eight pups, but litters as small as one and as large as 14 have been noted by field biologists. Wolf pups – blind and deaf and weighing about one pound – are born in dens that shelter them from predators and the elements. Pups are raised by the entire pack, but with the most attention coming from their biological parents. They are nursed exclusively for the first couple of weeks, after which pack members feed them regurgitated meat. Within a few months, pups are eating raw meat and their social activities have broadened beyond play. Within the first year, most are hunting with the pack. Young wolves will live as subordinate members within the pack for between one and four and a half years.

The social structure of the wolf pack is intimately tied to every facet of the pack's survival and reproduction. At least three hierarchies exist in every wolf pack: one for the females, one for the males, and a third non-gender-specific hierarchy that varies from season to season. The lead male and the lead female – often called the “alpha” wolves – are usually, but not always, the parents of the year's pups. Socially structured activities include raising young, play, territory defense, and hunting. Sound familiar? There exists a large literature on the parallels between wolf and human sociality.

The social structure of wolves has (like ours) proven to be evolutionarily successful. Eventually, young wolves “disperse,” meaning they leave their packs. Lone wolves that find a mate and available territory will mate and, if successful, establish a new pack. In Isle Royale National Park (an island in Lake Superior) a pair of young wolves colonized some unclaimed territory and successfully raised seven pups *in the first year!* While this 450 percent increase was unusually high, wolves have very high reproductive rates. Highest rates occur when recolonizing vacant territory (e.g., Yellowstone in the first few years after reintroduction) or in years following a significant reduction in population size (whether due to human action or by natural mortality factors such as disease). Annual population increases of 30–50 percent are common, meaning it is not unusual for a wolf population to double its numbers within two years (Terborgh et al. 1999).

The ecological role of the wolf

Ecosystems – geographical areas inhabited by assemblages of plants and animals interacting with their physical environment – contain multiple **trophic levels** which comprise the local food webs. Over-simply, these map out a food chain in which photosynthesizing plants are consumed by herbivores, which are in turn consumed by

Trophic Levels Parallel levels of energy assimilation and transfer within ecological food webs; in terrestrial ecosystems, photosynthetic plants form the base trophic level, followed “up” the web by herbivores and successive levels of carnivores

Apex Predators Also known as "top carnivores," the animals in any ecosystem occupying the top trophic level; apex predators do not have any natural predators

Biodiversity The total variability and variety of life forms in a region, ecosystem, or around the world; typically used as a measure of the health of an environmental system

Niche In ecology, the location of an organism or species within a larger ecosystem, typically fulfilling an ecological function

predators. Wolves exist as **apex predators** (also commonly called "top carnivores") in that they have no natural, regular predators. Most ecosystems will have multiple apex predators. For example, in the Northern Rocky Mountains wolves, grizzly bears, lynx, wolverines and golden eagles are all apex predators.

The **biodiversity** of a given ecosystem – the number of different species – is determined by a number of abiotic (non-biological) and biotic (biological) factors. Abiotic factors include availability of water, wildfires, storms, harsh winters, and the like. Biotic factors include limiting factors such as competition, disease, parasitism, and predation, as well as availability of food and habitat. Another way of classifying processes that affect species distribution and abundance within ecosystems is by

dividing biotic factors into "bottom-up" and "top-down" processes (Mech and Boitani 2003: 41). A bottom-up process would be one sparked at the bottom (or at least a low trophic level) in a food chain. If, for example, the distribution of a native plant species in an ecosystem is dramatically reduced (perhaps by an introduced non-native species) and if this reduction causes a decline in an herbivorous species that depends on these plants, this might lead to a decline in predators, who rely on these herbivores as their prey. Such controls on predator populations are *bottom-up*, in that it is the limit of the resource base that impacts the consumer and predator population. As such, bottom-up effects can change the species makeup, biodiversity, and relative stability of an ecosystem.

Species distribution and abundance within ecosystems is also regulated by *top-down* processes. *Absence* of predators, for example, has effects on the distribution, numbers, and the behavior of prey species. If an apex predator is removed from an ecosystem, as wolves have been in countless ecosystems worldwide, their prey will increase in numbers (at least temporarily) as fewer succumb to predation. But the effects go beyond just the reduction or elimination of direct predation. Prey species freed from predation pressure spend less time hiding and burrowing down, therefore freeing up more time and energy for reproducing.

So what is wrong, you might ask, with more deer or more elk in an ecosystem in which wolves have been eliminated? Like bottom-up processes, top-down processes do not just affect the next trophic level down the food web, but rather cascade down through multiple levels. This is where we begin to see the significance of the ecological role (what ecologists call the *niche*) of the wolf within an ecosystem. In our current example, if wolves are eliminated and deer and elk (their primary prey in some ecosystems) increase their numbers, this has an effect on the next trophic level down. As deer and elk, both herbivores, increase in number, the local vegetation is affected.

Yellowstone National Park, site of a relatively recent elimination of wolves, followed several decades later by their reintroduction, provides a real-world laboratory of such top-down effects. Biologist Douglas Smith referred to Yellowstone after reintroduction as "the best chance we've ever had to figure out the difference between a wilderness system with wolves versus one without wolves" (Smith and Ferguson 2005: 118).

So what changes did the wolves cause after they were reintroduced in 1995? One of the most prominent is the rapid recovery of willows. With elk (who feed on willows) more

constantly on the move since wolf reintroduction, willows are not fed on as intensively. The renewal of willows, moreover, has led to the reemergence of beavers, since beavers use willows for dams and lodges. These dams, once restored, lead to a proliferation of reptiles and amphibians. Increases in eagles, magpies, and ravens have been noticed due to the wolf-kill carcasses left scattered about their feeding areas as well, with carcasses finally providing food for invertebrate species like beetles and decomposing in the soil, becoming food for detritus feeders and eventually becoming soil nutrients. The bottom line is simple: the Yellowstone ecosystem is a different place with wolves. So how was it that an enormous national park like Yellowstone came to be bereft of wolves?

Three centuries of slaughter: Wolf eradication in the United States

When European Americans settled the New World, wolves roamed across nearly the entire continent. Only parts of present-day California and possibly portions of the Great Basin were without wolves. Their numbers were as impressive as their extent, with probably at least 350,000 wolves inhabiting the American West alone (Barclay 2002). By 1958, they had been extirpated from nearly all of the contiguous United States and Mexico (see Figure 11.4). So what, exactly, can explain the demise of such an intelligent, adaptable animal that existed in such abundance over such a large area? For over three centuries, wolves were subject to a systematic, and ultimately successful, extermination campaign.

Wolf bounties – moneys paid by the government to citizens who kill wolves – are one of the oldest forms of tax expenditures in American history. Wolf bounties in the American

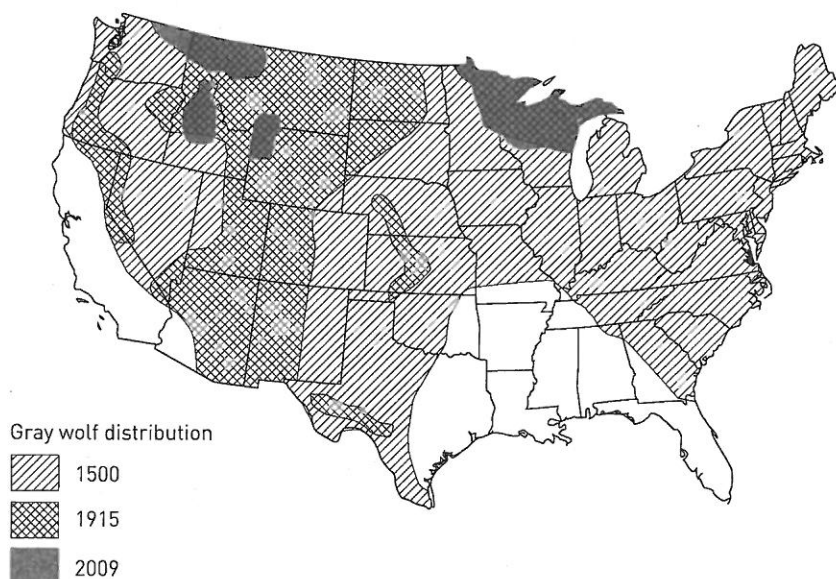


Figure 11.4 Estimated range of gray wolves in the contiguous United States, 1500, 1915, and 2009. *Sources:* Map is original, adapted from the data from the following sources: Current (2009) distribution: USFWS: www.fws.gov/midwest/Wolf/archives/2006pr_dl/2006pr_dlsum.htm and Sightline.org: www.sightline.org/maps/maps/Wildlife-Wolf-CS06m/?searchterm=None; 1915 Distribution: Young and Goldman (1944), p. 58; 1500 Distribution: Mech (1970), p. 31.

colonies go back at least as far as 1630, five years before the first public school was opened in Boston. The share of revenue dedicated to wolf eradication is impressive. In Chester County, Pennsylvania, for example, 28 percent of tax revenue was spent paying out wolf bounties. Dozens of other counties and municipalities across the colonies spent 10 percent or more of their budget on wolf bounties into the eighteenth century (Fischer 1995). Killing methods ranged from individuals shooting wolves on sight, to organized group hunts, to "wolf pits": holes dug in the ground over which baits were placed onto a collapsible false floor. The campaign was successful. By 1700 wolves were extinct throughout most of New England and by 1800 they were absent east of the Appalachian Mountains. In the nineteenth century, Midwestern states followed the colonial model, establishing bounties and quickly and efficiently eradicating their wolf populations (with the exception being the wolves that survived near the Canadian border in the North Woods of Minnesota, Wisconsin, and Michigan).

After the Civil War, wolf eradication in the Great Plains coincided with the well-known history of the incarceration of Native Americans on reservations. Conquering the Indians required destroying the bison, the primary subsistence base for many indigenous nations. During the first few decades after the Civil War, "buffalo hunters" killed literally tens of millions of bison. The systematic elimination of wolves soon followed. The last three decades of the nineteenth century indeed represents the period where the largest numbers of wolves were killed in the shortest period of time.

As cattlemen moved west, their livestock served as the primary feedstock for the remnant wolf populations. After all, the ecosystem had been transformed, in a span of a couple of decades, from one littered with wild prey to one scarce in wild prey but rich with livestock. Wolves, adaptable animals that they are, were effective killers of livestock, and represented the single largest economic threat to Western livestock men. Despite the shooting, trapping, and increasing use of poisons, straggler populations and crafty individual wolves persisted for decades.

Many of these straggler populations lived on federal lands. In the first decade of the twentieth century, the federal government officially entered the wolf-killing business. Wolves preyed on livestock, but additionally, game managers felt wolf predation kept wild game species below optimal harvest levels. The last confirmed wolves in Yellowstone National Park were trapped and shot by park rangers in 1926 (Foreman 2004).

All in all, thousands of wolves were killed in the United States by private hunters, cattlemen, and federal officers in the first few decades of the century. In the 1950s, having successfully eradicated wolves from most of the contiguous United States, the eradication campaign went international. Federal officials traveled to Mexico, bringing "Compound 1080," a lethal poison that had been partly responsible for the elimination of some of the last wolves in the West. Within eight years the Mexican wolf (a subspecies of the gray wolf) had been eliminated, representing the final chapter in this North American saga.

Fortunately (at least from the perspective of most environmentalists), the epic of wolf eradication was followed not too long after by the contemporary era of conservation. By the 1940s, nearing the end of their systematic elimination, wolves were slowly gaining advocates within the scientific and conservation communities. Prominent ecologists were penning journal articles, and scientific and popular books were fitting the wolf within

ecology. Wolves began to appear not as things that threatened the stability of nature, but instead as part of larger ecological processes and networks. By the end of the 1960s, the modern environmental movement was in full swing, and efforts to conserve or reestablish historically persecuted species were at the forefront of activists' concerns (the slogan "Save the Whales!!" was practically synonymous with environmentalism in its early era). Key pieces of landmark legislation would give legal teeth to this popular trend. CITES, the Convention on International Trade in Endangered Species, was drafted by members of the World Conservation Union in the 1960s and signed in 1973 (see the CITES website at www.cites.org). As its name implies, CITES bans or highly regulates the international trade in plant and animal species either currently threatened with extinction, or whose unregulated international trade might lead to endangerment. The wolves of India, Pakistan, Nepal, and Bhutan are so-called "Appendix I" species, meaning they are given the strictest level of protection under CITES. All other wolves are "Appendix II" species, meaning the international trade in these animals or their parts (e.g., wolf pelts) is monitored and strictly regulated.

In 1973, the United States passed the Endangered Species Act (ESA), one of the most far-reaching and ambitious national environmental laws ever established (Box 5.1, "The Endangered Species Act"). All existing populations of wolves outside of Alaska were included in the original list of endangered species covered by the ESA. Powerful environmental groups like Defenders of Wildlife and the National Wildlife Federation pushed for aggressive programs to reestablish their presence throughout large parts of their former range (websites at: www.defenders.org and www.nwf.org), an effort that ends in our opening story: Thursday, January 12, 1995, when eight wolves were released into the snow of Yellowstone National Park.

The puzzle of wolves

This brief history of wolves provides insight into many facets of the relationship between nature and society. For one, it highlights that the relationship of humans to both wild and domesticated animals is quite complicated. Dogs, after all, are the same biological species as wolves, yet our relationships with each are different. Beyond this, these relationships change over time and across cultures. Wolves represent how particular "pieces" of non-human nature can be powerful symbols of broader aspects of the human-nature relationship. Moreover, the history of eradication and conservation of wolves shows how the very fate of the species is tightly tied to its cultural symbolic value. Finally, wolves serve as a humbling reminder of the difficulties of trying to live in the world without destroying its wildness.

Specifically, wolves are puzzles in that they force us to ask the following questions:

- Exploring our sometimes divisive relationships to one another – centered on wolves – how do we assert environmental priorities and govern our behavior in a way that is fair and democratic?
- Critically assessing our present relationship with wolves, where can we make room for wolves in a human-dominated world, and *how*?

Box 11.1 Predator-Friendly Beef and Wool

In the opening chapter, we discussed our preference for forms of **reconciliation ecology**, whereby new alliances forge innovative and more sustainable models of nature-society relationships. One laudable recent example of such an alliance can be found in the Rocky Mountain Northwest, where livestock ranchers and conservationists are allying to simultaneously conserve native predators and maintain ranching as an economically viable livelihood. That this alliance even came about is notable, as ranchers and environmentalists have historically been rather adversarial parties. The source of a considerable amount of the tension between these two groups was the traditional "shoot on sight" mentality of many ranchers toward predators. Even though ranchers are far from solely responsible for the demise of predator populations worldwide, they nonetheless were vilified by many environmentalists, who felt that concern for the conservation of native predators should override economic hardships of livestock producers.

Ranchers and environmentalists in some places, however, have moved beyond their differences to work toward a shared goal, the preservation of open space. The common enemy is exurban development. In places near rapidly growing cities and towns like Fort Collins, Colorado and Livingston, Montana, enormous portions of open range are being swallowed up by subdivisions, roads, and shopping malls. Many environmentalists quickly realized that their best potential allies in the fight against this land-use transformation are livestock ranchers, the people who were working and living on the very lands being transformed into McMansions and parking lots. Environmentalist-rancher alliances have resulted in a substantial network of "conservation easements" in the region. In a typical easement, the rancher-landowner is granted some sort of tax break or other financial incentive in return for a

guarantee that they will not sell and subdivide their land. The result is a win-win for both ranchers and environmentalists. For ranchers, the financial incentives help them remain economically viable as working livestock producers, a livelihood that has seen profit margins decline substantially over the past several decades. For environmentalists, the guaranteed preservation of open range (even with cattle) is far more desirable than the habitat loss and fragmentation that result from exurban development.

Building on the productive relationships developed in the conservation easement movement, some ranchers and environmentalists have taken their alliance even farther. One of the newer and more innovative alliances is the "predator friendly" certification program. The Bozeman, Montana-based conservation organization Keystone Conservation will certify beef and wool with their "predator friendly" stamp of approval if ranchers manage their herds using non-lethal methods. This might mean guard dogs instead of shotguns or poison, and it also might mean losing more livestock to predation. But ideally, the producers will be able to offset the higher costs of operation by selling to a customer base willing to pay a premium to know that their beef or wool was raised in a predator-friendly manner. Currently, the scale of the predator-friendly certification program is quite small, but it serves as a promising example of the creative efforts being made to find ways for humans to live on and work the land in more ecologically sustainable ways.

Reference

Keystone Conservation website:
www.keystoneconservation.us/, accessed March 20, 2009.

- And assessing our historical relationship with wolves, what can explain both our persecution and subsequent celebration of this species?

Wolves, therefore, present something of a window into humanity. When we look at wolves, we can see how our own science, industry, and emotion become entangled. If we can work

toward solving the puzzle of wolves, by implication, we may come a bit closer to forging a more sustainable relationship with non-human nature.

Ethics: Rewilding the Northeast

In Chapter 5 we established environmental problems as **ethical** dilemmas, problems of right versus wrong human actions toward nature. An ethics perspective is commonly applied to questions regarding the treatment of animals, both wild and domestic. Increasingly, however, ecological ethics look beyond just the treatment of individual animals to questions of right action toward species, entire ecosystems, and future generations of humans and non-humans. An ecological ethics perspective can have a good deal to say about solving the puzzle of wolf conservation.

Wanted: An ecocentric ethic of sustainability

An ethics of **sustainability** informs us that we have a moral obligation to sustain the quality and productivity of the environment for future generations. With this guidepost, we can critically assess current actions and ask, "Can such and such an action be continued more or less indefinitely? *Is it sustainable?*" If so, great! If not, then the *right* thing to do is to alter our actions so that they are sustainable. **Ecocentrism**, for its proponents, serves as a corrective to **anthropocentrism**. Seeing humans as part of nature, ecocentric ethics looks beyond narrow, human priorities to judge right and wrong actions within a broader, ecological context.

Even the deepest of ecologists, however, cannot really conform to a *solely* ecocentric ethic. We *must*, it seems, allow anthropocentric priorities to guide our environmental policy and planning, at least in part. For example, we need to divert some portion of the fresh water available in every ecosystem for use by humans. We should, in other words, simultaneously work to sustain the environmental conditions in which human communities can meet their needs.

There are some issues, however, that cannot be adequately judged through a strictly anthropocentric calculus. If you are a proponent of reintroducing wolves to New England or Scotland, for example, it is difficult to make your case arguing along solely anthropocentric lines. Granted, wolf reintroduction in these regions might spark an ecotourism boom that could help revitalize rural communities, as it has for a handful of communities around Yellowstone. This is a thin line to walk, however, as it is difficult to predict the long-term economic impact that reintroduced wolves would actually have. Besides, what if economic projections show marginal or even no economic benefit from reintroduced wolves? Is that reason *not* to proceed? Most wolf supporters would answer with an emphatic "no," and as such, many environmentalists argue that issues like species reintroductions should be guided by ecocentric concerns.

Ethics/Ethical The branch of philosophy dealing with morality, or, questions of right and wrong human action in the world

Sustainable/Sustainability The conservation of land and resources so as to secure their availability to future generations

Ecocentrism An environmental ethical stance that argues that ecological concerns should, over and above human priorities, be central to decisions about right and wrong action (compare to anthropocentrism)

Anthropocentrism An ethical standpoint that views humans as the central factor in considerations of right and wrong action in and toward nature (compare to ecocentrism)

Rewilding The restoration of natural ecological functioning and evolutionary processes to ecosystems; rewilding often requires the reintroduction or restoration of large predators to ecosystems

Conservation Biology A branch of scientific biology dedicated to exploring and maintaining biodiversity and plant and animal species

Extinction Crisis The current era of anthropogenically induced plant and animal extinction, estimated to be between one thousand and ten thousand times the historical average, or background extinction rate

Background Extinction Rate Usually given in numbers of plant and animal species per year, the estimated average rate of extinction over long-term, geologic time, not counting mass extinction events

This ecocentric spirit is most evident in the “rewilding” movement, which argues exactly along these lines, based in the philosophy of deep ecology and the science of **conservation biology** (Foreman 2004). Deep ecology arms rewilding advocates with the philosophical tools to argue for an ethics of sustainability (*what to preserve, and why*) and conservation biology provides the scientific roadmap to get there (*what it will take to make it happen*).

Rewilding, Part I: The ethical dimension

Every year, we lose a significant portion of the earth’s biodiversity. The magnitude of the **extinction crisis** is quite alarming. It is estimated that the current extinction rate is somewhere between one thousand and ten thousand times the historical average or **background extinction rate**. There have been five historical major extinction events in the past half-billion years, the most famous of these also being the most recent. About 65 million years ago, dinosaurs and (less famously) many mollusks became extinct. As you likely learned in childhood, many scientists believe that this extinction event was kick-started by an asteroid impact. Today’s extinction rate is so high that it ranks on the same level. The difference between those that came before and the current crisis is that today’s extinction crisis is an anthropogenic (human-caused) event.

Anthropogenic causes of the current extinction crisis include: fragmentation of habitats, loss of ecological processes, invasions of exotic species, air and water pollution, and climate change (Wilson 1993). Concomitant with the extinction crisis, it is argued, is the impoverishment of genetic diversity upon which adaptation and evolution rest. The broader significance of the extinction crisis, therefore, lies in its potential irreversibility and longevity. Take tropical deforestation, another justifiably high-profile current environmental issue, for comparison (see Chapter 10). Even a tropical rainforest can rejuvenate itself given a century or two. In other words, when we chop down a rainforest, we are “undoing” a century or two’s worth of ecological work. Compare this, by contrast, to the possible elimination of 50 percent (or more) of all living species on the planet, as the eminent biologist E. O. Wilson (2002) believes could happen *within this century*. Add on to that a massive slowdown of evolution and we have (some argue) something far more worrisome than a razed forest or depleted fishery. Rather, what we have is the undoing of tens of millions of years of the planet’s biological heritage.

Considered in this light, it is no surprise that many holding a consciously ecocentric worldview place this issue – reversing the extinction crisis and renewing evolutionary processes – atop their list of environmental priorities. So what does this all have to do with wolves? Many conservation biologists argue that we should rewild the landscape to enable the rejuvenation of evolutionary processes. The reintroduction of apex predators to portions of their former ranges is central to the project of rewilding.

Rewilding, Part II: How to get from here to there

Conservation biology is the scientific study of the biodiversity crisis, as well as a largely activist discipline, meaning that conservation biologists (generally, though some still resist) actively work toward promoting changes that they believe would help stem the biodiversity crisis. Many North American conservation biologists have been actively promoting the rewilding of the continent. Rewilding advocates argue that "vast expanses of self-willed terrain [should] be protected and recovered" (Barlow 1999: 54). These advocates argue that evolution cannot be sustained (or rejuvenated) without the important top-down ecological functions of large predators (as discussed above).

In North America, supporters of rewilding quickly realized that if their broad goal of a continental (or even global) scale renewal of biodiversity and evolution was to become a reality, areas outside of official wilderness designation required special attention (Sessions 2001). Indeed, there are many areas outside of formal wilderness where one might have "free nature," as Arne Naess, the founder of deep ecology, refers to it. Zones of free nature would be areas of sparse enough human habitation and intact enough natural ecosystems where the full complement of natural ecological-evolutionary processes could be restored and maintained (Nie 2003). Wolves would have to be reintroduced and managed on areas beyond government land, where people live, ranch, farm, and play.

Wary of the wild: Deep ecology and democracy

Which leaves us with "only" one small problem: How, exactly, do we manage these wolves once they are reintroduced to places where people live? Deep ecology may offer up ecocentrism as an appealing corrective to anthropocentric ethics and their attendant ecological destruction. Beyond giving us rather broad guideposts, however, deep ecology provides little help as to *how to make this happen all the while maintaining democratic forms of decision-making*. Some critics have even gone so far as to see deep ecology as leading to an *inherently authoritarian (or "eco-authoritarian") politics*. The potential of individual "self-realization" notwithstanding, when it comes down to managing real natures in real places, most proponents of deep ecology invariably fall back on *scientific* ecology as the final word for decision-making. Science, however, (ecology or otherwise) is an elite form of knowledge production, inaccessible to the uninitiated. Granting scientific ecologists sole responsibility for all management considerations regarding reintroduced wolves would be giving them literal authoritarian power; that is, decision-making control not subject to the checks and balances that constitute a democracy. This is at least a good part of the reason why proponents of, for example, "radical democracy" (a social movement dedicated first and foremost to maintaining decision-making power at all strata of society) are often wary of calls for science (solely) guiding politics.

Happily, deciding "between" ecology and democracy is a false dilemma. It is possible to have our wild nature and our democracy, too. One of the more promising forms of such win-win ecologies arose out of this very puzzle, wolf management, in the North Woods of Minnesota.

Institutions: Stakeholder Management

Wolves are unusual, though not unique, as *resources*. If we define resources, typically, as "things useful to humans," the question arises: *For whom are wolves useful? How so, and why?* For certain, they are not (at least not legally) useful in the typical "consumptive" sense. That is, we do not remove them from "nature" for some or another use (such as we might pick blueberries or capture tropical fish to put in a home aquarium). Wolves' *value* is harder to pin down. In line with the previous section, wolves have value in helping to restore ecosystem functioning. Wolves also have symbolic value. Their presence makes many of us feel better about the world, that at least some corners of the world are more wild than tame. (On the other hand, one might more cynically look at the multi-million-dollar budget of Defenders of Wildlife, whose symbol is the wolf, and say "yeah, symbolic value: wolves sell t-shirts.")

The question of the value of wolves can also, however, be turned on its head. The presence of wolves, for some, is objectively more bad than good. Livestock owners are the most obvious example. Wolves kill livestock. With wolves around, these people stand to lose money in an already economically marginal livelihood. There are also those who perceive the presence of wolves to mean lost game for hunters and lost clients for paid hunting guides.

There are, in sum, people who have different reasons to *positively or negatively* value wolves. This is part of what makes wolf management so vexing. It is not a matter of assessing how to divvy up a commonly valuable resource, like a patch of forest or an ocean fishery. Yet wolves are still, in a way, common property resources. In Chapter 4, we reviewed the management of commons as problems often successfully solved through *institutions*, that is, "systems ... leading to orderly and constrained use of natural resources." The puzzle of wolf management is no different. If wolves are to persist (at least without an authoritarian de-peopling of the landscape), environmentalists must *constrain* their "use" of the animals (i.e., they cannot be everywhere; their populations cannot expand indefinitely). Hunters and livestock owners, just the same, must constrain their traditional treatment of the wolf (i.e., shoot on sight). As such, people are experimenting with new institutional structures.

Of course, wolf management is very complex; it is not a simple two-group affair, neatly divided into proponents and opponents, each unified and speaking with a single voice. It is, rather, a diverse continuum of groups, each containing diverse voices and viewpoints. The best hope for wolves, some say, is to get these so-called "**stakeholders**" together, and have them craft rules and responsibilities collectively.

Stakeholders Individuals or groups with a vested interest in the outcome of disputed actions

Natural Resource Management Both the academic discipline and professional field dedicated to the management of environmental conditions, goods, or services for social goals, which may range between instrumental human utility to ecological sustainability

Public participation in resource management

Natural resource management in the United States has been, for most of the modern era, a highly centralized, "expert" affair. Up through the 1960s, professionally trained range managers, wildlife

managers, and foresters “scientifically” managed their resource stocks for **maximum sustainable yield**, but with little or no input from the lay public. By the 1960s many resource professionals were thinking *ecologically*, integrating assessments of ecological connections and ecosystem health into their attempts to maximize resource yields. But even as management emphases evolved, the public (including the growing body of environmental activists) remained, for the most part, left out of the decision-making process.

The seeds of a more participatory management structure were sown in 1970 with the passage of the National Environmental Policy Act (NEPA), which among other innovations required “environmental impact statements” (EIS) for any government action. Further, these statements required the inclusion of *public input and participation* in the process. The era of public involvement in environmental management had begun (Andrews 1999).

Many endangered species conservation plans, wolf reintroduction in Yellowstone included, must fulfill the full scope of the EIS process, including public participation. The arrival of wolves to Yellowstone suggests, however, that although reintroduction may have heralded a shift in management priorities (from eradication to conservation), it hardly marked a new era in management *style*. Recall the opening story of the chapter: Bruce Babbitt and Mollie Beattie – two high-ranking federal officials – literally carrying the cage of the first wolf to be released from the truck and into the snow. For some, this was a powerful (and negative) symbolic gesture: wolf reintroduction was a top-down, federally imposed action. As such, for many residents of Montana and Idaho, wolf reintroduction was perceived as business-as-usual: East Coast priorities imposed in their backyards. This was so much the case that some environmentalists feel reintroduction may have done as much harm as good, further polarizing opponents against proponents of environmental protection in the region (Fischer 1995). It was not until a few years later that a different model, one that moved from public *input* to a more truly *participatory* structure, would be tested in the highly volatile context of wolf conservation.

Stakeholders in Minnesota wolf conservation

In 1998, the state of Minnesota began implementing the first *stakeholder* model wolf management plan in the United States. Home to about 2,500 wolves, Minnesota was given more leeway than other states by the federal government because it had the largest and most stable population of wolves.

The process began with 12 informational meetings held throughout the state, in which attendees were informed of the state’s plan, and additionally could provide comments and recommendations on the process. After the 12 meetings, a wolf management “roundtable” was convened. The roundtable included representatives from environmental groups (e.g., the Sierra Club), agricultural interests (e.g., the Minnesota Farm Bureau), wolf groups (e.g., HOWL – Help Our Wolves Live), hunting and trapping groups (e.g., Minnesota Deer Hunters Association), and tribal interests (there are 11 Native American reservations in Minnesota). These were joined by regional and scientific representatives.

Maximum Sustainable Yield The largest seasonal or annual amount of any particular natural resource (e.g., timber, fish) that can be harvested indefinitely

NEPA The National Environmental Policy Act of 1970 commits the US government to protecting and improving the natural environment; after NEPA, the federal government is required to write environmental impact statements (EIS) for government actions that have significant environmental impact

The roundtable had a specific mandate to develop a management plan for the state's wolves, formed entirely through *consensus*; every member of the roundtable had to back the plan or it was back to the drawing board. After several meetings, including a marathon 10-hour final session, the roundtable voted unanimously on a management plan. Highlights of the plan included:

- The state's wolf population would be managed to expand its numbers and range.
- Landowners could kill wolves caught depredating on livestock or pets.
- No wolf hunting or trapping seasons would be considered for at least five years.
- Livestock and pet owners would be compensated for losses.
- The state would encourage non-lethal methods of livestock protection.
- A stiff fine of \$2,500 for illegal wolf kills would be implemented.

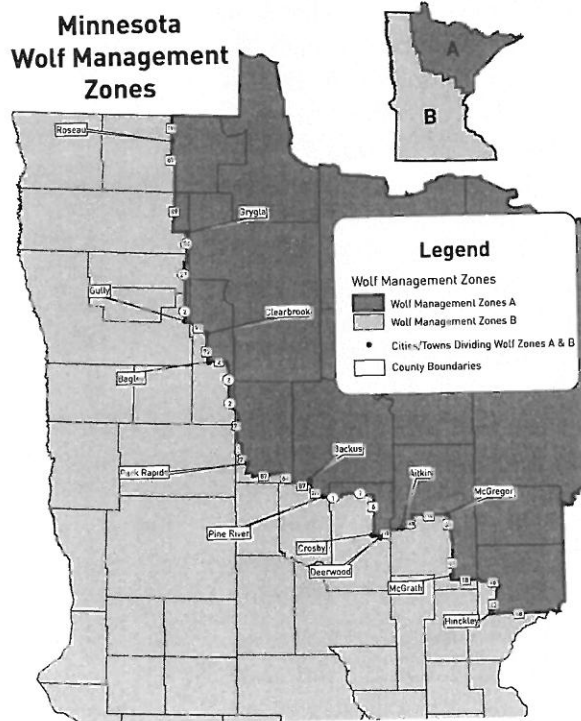


Figure 11.5 Wolf Management Zones in Minnesota. In Zone "A," wolves are managed by the plan crafted by the stakeholder roundtable. This zone contains 90 percent of existing wolf range and 98 percent of the state's wolf population. Zone "B" is designated an "agricultural zone," where landowners and managers have considerably more flexibility in the management option, including the right to shoot wolves suspected of threatening property or livestock. Source: From online state management plan: <http://wildlife.utah.gov/wolf/pdf/mn-wolf-plan-01.pdf>, p. 45.

After submitting its plan to the state department of natural resources, most roundtable members felt they had reached a reasonable consensus and most Minnesotans held a positive impression of the process. It became quickly apparent, however, that roundtable members had worked (tirelessly, and for months) under the false impression that their plan would be implemented as written. This proved to be far from the case. As it turned out, the Minnesota state legislature continued to hold final authority, and they initially proceeded by largely overlooking the group plan altogether and presenting their own, which included extensive hunting and trapping. Only after a public outcry did a revised plan emerge, representing something of a compromise. The revised plan implemented the stakeholder plan on 90 percent of the wolves' range (Figure 11.5), making the remaining 10 percent into an "agricultural zone" in which landowners have much more flexibility in killing wolves (Williams 2000).

Evaluating the results

As would have to be expected, there is mixed opinion on the merits of the roundtable and the resulting management plan. Supporters of the final outcome highlight that the roundtable group was able to forge a consensus plan that was deemed biologically sound by state scientists. Supporters also point to the significance of the *process* of the roundtable, in that it built bridges and opened lines of communication

that will make future wolf (and other) management issues more easily resolvable. Critics still abound, however. Some in the environmental community felt that the final plan was too much of a compromise and did not represent a true commitment to wolf recovery. Most pro-wolf critics of the plan most vociferously opposed the splitting of the state into two management zones.

Which is the fairest assessment? Certainly, the process was not perfect, and the stakeholder team should have been aware of their limited power from the start. But wolf protection advocates – even those most adamantly opposed to compromise – may in the end have gotten more than they realize. According to veteran wolf biologist David Mech, one nearly sure route to failure in wolf recovery is to *overprotect* them, allowing them to become “pests” to livestock owners. Indeed, this is exactly what happened in Poland: *three times* wolves were reintroduced with full protection and no leeway for control, and all three times they were all shot by landowners (Emel 1998). So, in the case of Minnesota, by including livestock owners, hunters, and trappers in the decision-making process, perhaps the agricultural attitude toward wolves in Minnesota will change from a “shoot on sight” mentality to one where living with wolves is viewed as the best goal for all concerned. If, via the new institution of stakeholder management, Minnesota turned that corner, then its wolves probably stand a much better chance of long-term recovery than they would have otherwise. But changing human views of wolves, for either environmentalists or for ranchers, is no easy affair, because of the powerful *social constructions* of the wolf amongst differing communities.

Social Construction: Of Wolves and Men Masculinity

In Chapter 8 we introduced the social construction of nature. Viewing nature not as some preexisting entity but rather as a social construction – a product and process arising from human images, stereotypes, and cultural norms – can be a productive exercise in a number of ways. In the puzzle of wolves, a social constructivist analysis can help shed light on the connections between dominant representations of the wolf and our treatment of and attitudes toward these animals.

Man as righteous hunter, wolf as evil hunter

The fact that European Americans exterminated the wolf across so much of its native range is tragic, but perhaps not particularly surprising. After all, early American settlers carried with them a culture that feared wilderness and the wild creatures that inhabited the forests and “empty” lands beyond cultivation (see Chapter 8). Moreover, wolves were a *practical* problem for agrarian settlers. Wolves may not have killed people, even if Western wolf mythology might lead one to believe so (think “Little Red Riding Hood”), but they did (and *still do*) kill livestock. But can these two factors – a disdain toward the wild and an agrarian mode of production – really explain the fanaticism of the killing? Can these factors explain the gruesomeness and carelessness of some of the techniques used to kill wolves? Does this explain the use of poisons so deadly that they affected literally thousands of



Figure 11.6 An early-twentieth-century government wolf trapper, chaining to a tree the one wolf pup whose life was temporarily spared after its littermates were killed. Any adult pack members who returned to the den in response to the pup's cries were shot on sight. After the returning adults were killed, the "spared" pup would be shot. *Credit: Unknown photographer.*

Masculinity The socially agreed upon characteristics of behavior associated with men in any society; these may vary significantly between cultures, locations, and periods of history

non-targeted species – including many overtly desirable – just to rid the land of every wolf? What about the public torturing and/or burning of trapped wolves? Or killing all but one of a litter of wolf pups, and then tying the pup by its leg to a tree so that its cry would bring back its mother (to be shot) (Figure 11.6)? As the geographer Jody Emel ponders:

What is this all about? It is not solely about protecting livestock, because ... the slaughter went on long after the economic threat ended. It continues to this day when almost no one in the continental United States has seen a wolf. (Emel 1998: 201, emphasis added)

An examination of constructions of **masculinity** during this era can help us more fully understand its causes and learn to avoid repeating history. First clues come from the ways in which ideals of masculinity were historically perpetuated, particularly through one of the masculine stereotypes of the day: the gentleman hunter. The gentleman hunter was the pinnacle of manhood in turn-of-the-century America. He embodied all the qualities of the idealized rugged, independent American. He was a survivor, wise in the ways of nature, thriving in solitude that would strike fear in lesser men. Yet he was selective and restrained, only ever killing as much as he could use.

The wolf, too, is a hunter. Such a good hunter, perhaps, that for many men, there may have been some envy at work. Moreover, wolf-as-hunter fell short of cultural standards of "the hunt." First off, wolves hunt in packs. This appeared cowardly when compared to the idealized solitary huntsmen. Wolves also sometimes kill more than they need, leaving "wasted" flesh strewn about kill sites. Of course, most predators do this, a practice that opens up ecological niches for scavengers, which are integral to terrestrial and marine ecosystems everywhere. But this is not how

wolf kills were viewed. In contrast to the *humane* gentleman hunter, which treated his game with *mercy*, the wolf was viewed as savage or merciless. This attitude is typified by noted turn-of-the-century natural historian William Hornaday: "There is no depth of meanness, treachery, or cruelty to which [wolves] do not cheerfully descend" (Hornaday 1904: 36). If there was to be any hope of bringing light to the wilderness (see Figure 8.3), these creatures had to be done away with.

Clearly, the man for the job was the wolves' opposite: a righteous, gentleman hunter, bringing order to the wilderness. Wolf hunters were *heroic*. Of course, it is difficult if not impossible to assess exactly how much causality to place on the contrasting constructions of the hellish wolf and the righteous, heroic hunter. It is also difficult to untangle all the seemingly double standards at work in American society at that time. For example, how

did society reconcile these constructions of the evil wolf while at the same time witnessing (*subsidizing* even) the merciless slaughter of bison on the Great Plains? And even as we can never hope to conclusively answer these questions, we can recognize the power of constructions in guiding our actions and our notions of acceptable versus unacceptable actions. For centuries, negative constructions of wolves fueled an extreme hatred toward them, and this hatred was manifest in a terrible slaughter that went nearly unquestioned by society as a whole.

Wolves save the wilderness, but for whom?

A critical constructivist analysis of wolves should not, however, stop at the turn-of-the-century anti-wolf attitudes; it must be brought to bear on their opposite. Wolves are no less powerfully constructed today than they were a century ago. Wolves have become, in North America at least, nearly synonymous with "wilderness," but as reviewed in Chapter 8, wilderness itself is far from an innocent social construction. While wilderness is (currently) typically constructed as land outside human control, actual wilderness areas are, rather, marked by formal sets of rules that dictate their use. The ecological "use" of wilderness (as reviewed in the "Ethics" section above) is a relatively recent justification for wilderness preservation. Even as late as the 1960s, the primary official justification for wilderness was recreation. This is codified in the Wilderness Act of 1964, the legislation that formalized the US system of designated wilderness areas. As went the typical language of the day, "man" needed a place for solitude, a respite from modern urban civilization.

As such, the allowed uses of wilderness are non-motorized, low-impact activities like canoeing, backpacking, and fishing. These are all activities that are quite literally exclusive, in regards to both gender and class. The wilderness was, and to a good degree still very much is, the domain of middle-class men. It takes time and money to, say, float for six days on the Salmon River through the Frank Church/River of No Return Wilderness in Idaho. Gendered exclusivity exists on many levels as well. For example, how many working-class women with children at home have the freedom to head off for a week (or an afternoon for that matter!) of quiet recreation in the wild? Debates over wilderness areas, as such, are not so much arguments over using versus not-using a piece of land, as much as debates over who gets to use them and in what manner.

But the era of protecting wilderness for the respite of the white man has (justifiably) waned. Today, justifications for land preservation rest more commonly on ecological grounds. Enter the wolf. Today, the presence of wolves *makes* (read: constructs) a "rewilded" land, a *wilderness*. Regardless of formal "Wilderness" designation, getting wolves onto the land – *constructing wilderness* – favors some land uses (and some land *users*) over others. Wolves in northern Vermont could, for example, give weight to opponents of snowmobiles, as wolves tend to avoid areas of high snowmobile use. It might make it easier if they can argue that affluent bed-and-breakfast patrons are visiting the area to listen to wolves howling and not snowmobiles humming.

Wolf reintroduction would also spur a local growth-industry in conservation biology research. By arguing for wolf reintroduction, scientists are arguing for personal and somewhat exclusive access to the land (now constructed as the "ecosystem"). Granted, it would

be unfair and cynical to argue that this is *the* motivation behind their advocacy. But it is undeniable that scientists have something to gain, personally and professionally, from successful reintroduction. It is also undeniable that, like earlier dominant uses of the wilderness, the backwoods "muddy boots" fieldwork of large carnivore science is an overwhelmingly white and well-educated affair. Perhaps the reticence toward ambitious rewilding efforts like wolf reintroduction held by many rural residents in Minnesota, Vermont, and elsewhere is not fueled by some archaic disdain toward wolves. For many, it is undoubtedly driven more by the recognition that wolves *do* mean wilderness, and that while a local wilderness might make the perfect getaway or laboratory for some, it will also mean exclusion and hardship for others.

The Wolf Puzzle

In this chapter we have learned that:

- Wolves are an evolutionarily successful, adaptable species.
- Humans have a long history of intimate interactions with wolves, dating back thousands of years to their domestication, through to the more recent era of systematic programs of eradication, to the even more recent trend of wolf conservation.
- Humans are the primary mortality factor for wolves worldwide.
- Novel institutional models of wolf conservation offer more democratic and possibly also more effective methods of ensuring the species' long-term health and survival.
- Ecocentric ethics suggests that we need to think well beyond the bounds of human usefulness if we are to allow significant spaces for wolves to thrive.
- Conservation biology suggests that the fate of the wolf may be linked to the broader fate of global biodiversity and evolutionary processes.
- Social constructions of the wolf have changed through time, and these constructions are inextricably tied to societal norms and stereotypes.
- Social constructions of the wolf have effects; they are tied to the way in which we treat these magnificent animals (note: the irony of this statement is not lost on us; we realize that wolves-as-magnificent-animals itself is a construction, reflecting our culture, and having real effects).
- Social constructions of wolves are also tied to how we treat each other.

This brings us back to Yellowstone. As of the time of writing, the Yellowstone wolves are doing fine. Indeed, as of April 2009, the secretary of the interior was moving to delist the wolf from the federal endangered species list. If delisted, their management (as in Minnesota) will be in the hands of states, all of which traditionally have politics influenced by the livestock industry. The next decade or two of wolf conservation *around* (if not so much *in*) Yellowstone will be a telling reflection of 1) shifting social-environmental priorities, 2) competing socio-environmental discourses, and 3) increasing enviro-institutional experimentation.

Globally, calls for wolf recovery will increase. What will be the fate of the wolves of India? Of Egypt? Of Denmark? Will wolves be reintroduced to the Highlands of Scotland, as some have proposed? The answers will, no doubt, vary from place to place, from population to population. Hopefully, we can learn from the past and sort through the complex spaces of our mutual interaction. Wolves are, to be sure, one of the more difficult, persistent, and intriguing puzzles of nature and society.

Questions for Review

1. List a species from each trophic level (producer through apex predator) in a food web somewhere near your home. (The food web can be terrestrial or aquatic.)
2. How has the reintroduction of wolves affected the ecosystem in and around Yellowstone National Park?
3. Write an ethics-based argument in favor of *or* against reintroducing wolves into the northeastern United States.
4. Contrast the Minnesota wolf "roundtable" to traditional "expert-based" wolf management.
5. Explain the following statement: The presence of wolves helps construct a wilderness.

Suggested Reading

- Lopez, B. (1978). *Of Wolves and Men*. New York: Scribner.
- Mowat, F. (1963). *Never Cry Wolf*. Toronto: McClelland and Stewart.
- Steinhart, P. (1995). *The Company of Wolves*. New York: Alfred A. Knopf.
- Walker, B. L. (2005). *The Lost Wolves of Japan*. Seattle, WA: University of Washington Press.

Exercise

In this chapter, we have reviewed how the puzzle of wolves might be addressed by ethics, institutions, and social construction. Explain how you might understand this problem using a population-centered framework (as described in Chapter 2). How might human population growth affect existing populations and habitats of wolves and pose challenges for wolf conservation? What are the limits of a population-based approach to wolves?