5

YELLOWSTONE WOLVES

Prior to the arrival of European settlers, the gray wolf ranged over all of North America, from Mexico City to the Arctic Circle, except parts of the southeastern United States, where a related species, the red wolf (*Canis rufus*), lived. In 1930, the last known gray wolf (*Canis lupus*) in the conterminous United States was killed. It was the end of a century-long campaign to eradicate the species from the lower forty-eight states and thereby eliminate its impact on game and livestock.[1]

The wolf still thrived in Canada and Alaska, however, and over time parts of the northern United States were recolonized by wolves migrating down across the border. When the gray wolf was listed as an endangered species in 1978, the listing exempted both Alaska (where the wolf was neither endangered nor threatened) and Minnesota (where the wolf population, already numbering in the thousands, was considered robust enough to be listed only as "threatened"). By 1986, a population of about sixty-five wolves had reestablished itself in the northwestern corner of Montana, principally inside Glacier National Park.

The Endangered Species Act not only requires the U.S. Fish and Wildlife Service (FWS) to endeavor to protect endangered or threatened species; where the condition of its former ranges makes it possible, the act also requires FWS to attempt to restore such species to those former ranges. To this end, FWS undertook a program to reintroduce the gray wolf to two areas with relatively intact ecosystems: a section of central Idaho consisting of 20,000 square miles of contiguous national forest, with 6,000 square miles of protected wilderness at its core, and, much more

controversially, the greater Yellowstone region, which includes Yellowstone National Park.[2]

FWS plans to reintroduce the gray wolf to Yellowstone were met by disbelief and resistance from livestock ranchers in Wyoming, Montana, and Idaho who feared the economic losses that could be caused by wolf predation. Wildlife biologists argued that such predation was unlikely because of the abundance of natural prey (wild ungulates such as elk) in the proposed restoration area, but ranchers were not reassured. Finally, in order to reduce resistance to the plan, two modifications were made.

First, in order to address the issue of economic losses from livestock predation, a private environmental group, Defenders of Wildlife, agreed to establish a fund to compensate any rancher who could document livestock loss due to wolf predation. Second, and perhaps more important, FWS agreed to classify the reintroduced animals as "experimental." This designation increased FWS's flexibility because it permits the reintroduced animals to be treated as members of a threatened rather than an endangered species. FWS explained the consequences of this change as follows:

> There would be no violation of the Act [ESA] for unintentional, nonnegligent, and accidental taking of wolves by the public, provided the take was incidental to otherwise lawful activities. . . . The Service may designate certain Federal, State, and/or tribal employees to take wolves that . . . pose a threat to livestock or property. Private land owners or their designates would be permitted to harass wolves in an opportunistic noninjurious manner on their leases or private property . . . [and] would be permitted to take (injure or kill) a wolf in the act of wounding or killing livestock on private land. . . . Once six or more breeding pairs are established in the Park or experimental area, livestock owners or their designates could receive a permit from a Service-designated agency to take (injure or kill) gray wolves that are attacking livestock on permitted public livestock grazing allotments. . . .
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> Wolves that repeatedly (two times in a calendar year) attack domestic animals other than livestock (fowl, swine, goats, etc.) or pets (dogs or cats) on private land would be designated as problem wolves and relocated from the area by the Service or a designated agency. After the relocation, wolves that continued to depredate on domestic animals would be considered chronic problem wolves and would be removed from the wild.

Although FWS officials and other policymakers believed that the compromise "experimental" designation was necessary in order to gain public ac-

ceptance of the restoration program, some environmental groups objected bitterly. In a press release announcing the Sierra Club Legal Defense Fund's intention to sue FWS to have the designation declared illegal, the organization asserted, "It's not a wolf-saving plan, it's a wolf-killing plan."[3]

The suit failed to stop the reintroduction program. FWS immediately went to work to implement the reintroduction plan. It was this:

> The Park's wolf reintroduction plan requires transferring 45 to 75 wolves from southwestern Canada, representing various sex and age classes, over a 3- to 5-year period. The capture of about 15 wild wolves from several different packs using standard capture techniques[4] will be done annually over 3 to 5 years. Captured wolves will be transported to the Park. Wolves from the same pack will be placed in individual holding pens of about 0.4 hectare (1 acre) for up to 2 months for acclimation to the new environment. The acclimation pens will be isolated to protect the wolves from other animals and to prevent habituation to humans. . . . After release, each wolf will be monitored by radiotelemetry to ensure quick retrieval, if necessary. . . . Food (ungulate carcasses) will be provided until the wolves no longer use it.

DISCUSSION

There have been no wolves in Yellowstone since 1930. In the more than seven decades since, Yellowstone's original ecosystem has found a new ecological composition without the wolves. Their successful reintroduction will have a significant, perhaps even dramatic, impact on that composition. In this respect, it is an exciting experiment in restoration ecology.

As a part of its planning process, the National Park Service had hired scientists to study the ecological effects of restoring the wolves to Yellowstone.[5] It was particularly concerned about grizzly bears (an endangered species) and game species. With regard to grizzly bears, the scientists predicted that "although some predation of wolves on bear cubs and adults (females with cubs) would occur, the level would be insignificant." With regard to game species such as elk and mule deer (the two species expected to be the wolves' primary prey), scientists predicted that there would be "some decline in population over a 10-year period after reintroduction." The scientists noted that more research would be needed to determine whether sport hunting would have to be restricted to compensate for big-game losses to wolf predation.

The species that would be most impacted by the successful reintroduction of the wolf would be the coyote (*Canis latrans*). Although the coyote and the wolf have different ecological niches, the niches overlap. Where the two species compete directly for food, the top predator, the wolf, would win. The scientists predicted that coyote populations would be displaced from wolf areas into more peripheral areas but that the coyote would survive because it can subsist on a wide variety of prey, including small mammals, that the wolves would not hunt.

So far, the reintroduction program seems to be a stunning success. Yellowstone is now home to nineteen functioning wolf packs composed of a total of 164 wolves.[6] Packs are established in all parts of the park and in twelve areas outside the park. Since the reintroduction program began, a total of forty-four wolves have died in the park. The leading causes of death were twelve shot or killed while or after attacking livestock, eight killed by other wolves, eight having died from other natural causes, five hit by motor vehicles, and five shot illegally. The last wolf of the original group of fourteen Canadian wolves reintroduced in 1995 died in January 2003. Known as "No. 2," he is credited with establishing the first new pack in the park (named the Leopold pack) and is believed to have fathered eight litters.[7]

QUESTIONS

1. Should gray wolves be reintroduced to ranges that, like Yellowstone, still have ecosystems in which they can be expected to prosper?
2. The program to restore the Yellowstone and central Idaho ecosystems to their "natural" states involves intensive human intervention and management. Does this undermine the naturalness of the ecosystems that will result?
3. Whether or not political considerations require that ranchers grazing their stock on public lands be compensated for animals lost to wolves, does justice require such compensation? Are losses due to predation from reintroduced wolves different from losses due to other natural events, such as drought and disease?
4. Designating the reintroduced animals as "experimental" permits property owners to do things that would otherwise be forbidden, such as killing endangered animals that attack their pets or livestock. Does

this aspect of the reintroduction plan turn it into a "wolf-killing plan" as the Sierra Club Legal Defense Fund charged?

5. Attempts to reintroduce the red wolf to some of its former ranges have failed miserably, with the death of thirty-eight of forty-four of the animals. How should FWS officials decide when and where to attempt reintroduction programs? Should they be attempted when the prospects that the reintroduced animals will survive is thought to be less than fifty-fifty?
6. There were no coyotes in Yellowstone before the wolf was eradicated. There, as in all parts of the lower forty-eight states, the coyote expanded its range dramatically when wolves were eradicated. In order to truly restore Yellowstone to its pre-1930 ecological composition, the coyote would have to be eradicated. Should park managers make coyote eradication a goal?

NOTES

1. For a history of wolf eradication in the United States, see Barry Holstun Lopez, *Of Wolves and Men* (New York: Scribner, 1978).

2. All material attributed to FWS here is taken from the *Federal Register* 59, no. 224, November 22, 1994, 60252.

3. For a brief description of this controversy, see Hank Fischer, *Wolf Wars* (Helena, Mont.: Falcon Press, 1995), 151–55.

4. Standard capture technique: Buzz a parcel of woods containing wolves with a helicopter until the wolves bolt into open country, then shoot them from the helicopter with a tranquilizer gun.

5. The result of this work was Robert Cook, ed., *Ecological Issues on Reintroducing Wolves into Yellowstone National Park*, Scientific Monographs, NPS/NRYELL/NRSM-93/22, U.S. Department of the Interior, National Park Service, 1993. The main chapter used for this section is "Effects of Restoring Wolves on Yellowstone Area Big Game and Grizzly Bears: Opinions of Scientists," by David Lime, Barbara Koth, and Jonathan Vlaming.

6. The latest information on the population and distribution of Yellowstone wolves is available at www.yellowstone-natl-park.com/wolf.htm. [Hint: Turn your computer speaker volume down a bit before you log on.]

7. "Last of Original Wolves Moved to Park Dies," *Salt Lake City Tribune*, January 9, 2003, available at www.sltrib.com/2003/Jan/01092003/nation_w/18601.asp.

SOURCES

Cook, Robert, ed. *Ecological Issues on Reintroducing Wolves into Yellowstone National Park.* Scientific Monographs, NPS/NRYELL/NRSM-93/22. Washington, D.C.: U.S. Department of the Interior, National Park Service, 1993.

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