

another predator. They were both lone wolves killed by mountain lions. Wolves in the northern Rocky Mountains inhabit the same areas as mountain lions, grizzly bears, and black bears, but conflicts rarely result in the death of either species. Wolves are occasionally killed by prey that they are attacking, but those instances are rare. Since 1987, wolves in the northern Rocky Mountains have apparently died from wounds they received while attacking prey on about 6 occasions. This level of mortality will not significantly affect wolf recovery. Other wolves are the largest cause of natural predation among wolves. About a dozen mortalities have resulted from territorial conflicts. Wherever wolves occur, including Montana, Idaho, and Wyoming, some low level of mortality resulting from territorial conflict between wolves is common. Those incidents occur but are so infrequent that they do not cause a level of mortality that would significantly affect a wolf population that is at or above recovery levels.

Humans are the largest cause of wolf mortality and the only cause that can significantly affect wolf populations at recovery levels. The annual survival rate of immature wolves in northwestern Montana and adjacent Canada from 1984 to 1995 was 80 percent (Pletscher *et al.* 1997); 84 percent for resident wolves and 66 percent for dispersers. That study found 84 percent of immature wolf mortality to be human-caused. Fifty-eight wolves from northwestern Montana with functioning radio-collars have died between 1987 and 1996, and humans caused the death of 49 (84 percent). Trends in causes of wolf mortality seem to be similar since 1996. Wolves are more likely to be radio-collared if they come into conflict with people, so the proportion of mortality caused by agency depredation control actions could be overestimated by this study. People who illegally kill wolves may destroy the radio-collar so the proportion of illegal mortality could be under-estimated. However, the wolf population has continued to expand rapidly in the face of human-caused mortality.

As was typically the case elsewhere in North America, humans were the largest cause of wolf mortality in northwestern Montana. Wolf control was the leading cause of death for wolves since their return to northwestern Montana.

The EIS (Service 1994a) predicted that 10 percent of the reintroduced wolves would be removed annually for depredation control with an additional 10 percent dying annually from other causes. Known annual mortality has

been below the 20 percent annual level that was predicted in the EIS. Compared to naturally colonizing wolves, reintroduced wolves had a lower proportion of human-caused mortality because they were released in remote areas where contact and conflicts with people were less likely. Relocated depredating wolves in northwestern Montana had a higher proportion of human-caused mortality (96 percent) than either reintroduced (61 percent) or naturally colonizing wolves in northwestern Montana (71 percent excluding legal harvest in Canada). In northwestern Montana, relocated depredating wolves traveled widely and often resettled in places similar to the areas that they had been removed from, typically private ranch land. Consequently they continued to come into conflict with people and livestock (Bangs *et al.* 1998).

The levels of documented human-caused mortality among wolves in the northern Rocky Mountains have not, at this time, been significant enough to cause declines in wolf populations or to slow overall wolf population growth. The protection of wolves under the Act appears sufficient to promote wolf population growth. Under the provisions of the experimental population rules for the central Idaho and Yellowstone areas, wolf population growth has been high. Although the new special management regulations under section 4(d) of the Act will allow some expanded take of problem wolves outside the experimental population areas, such regulations will still sufficiently protect wolves from human persecution. Continued steady growth towards recovery levels is therefore expected, and recovery targets should be achieved by the end of 2002 (see the *Special Regulations Under Section 4(d) for Threatened Species* section below).

Enforcement of the Act's prohibitions on taking wolves listed as "experimental" and "endangered" has been successful to date. Twelve wolves have been illegally killed in the experimental areas, and 6 cases have been resolved. In northwestern Montana, 9 wolves were known to have been illegally killed, and 4 cases have been resolved. Fines have ranged from \$500 to \$10,000, with jail sentences of up to 8 months incarceration and 1 year supervised release being imposed for some violators. The legal or illegal killing documented to date has not been at a level that could affect wolf population growth to recovery levels.

To date, 3 experimental wolves were legally killed (one in Montana and in Idaho) under the provisions of the experimental population special

regulation by livestock producers who saw the wolves attacking livestock. They reported the shooting of the wolves to authorities within 24 hours as required. Investigations confirmed compliance with the experimental rules, and no further action was taken. Fewer than a dozen other wolves have been unintentionally killed in the northern Rockies by vehicles, coyote cyanide (M-44) devices, and traps, and during control and management actions, but investigations of these incidents concluded that prosecution was not warranted. These types of mortalities are relatively rare and will not affect wolf population growth to recovery levels.

Special management regulations under section 4(d) of the Act will allow for the legal take of wolves under more circumstances than the existing special regulation. The previous special management regulations under section 10(j) of the Act will continue to apply to the two nonessential experimental populations in the northern U.S. Rocky Mountains (see the *Special Regulations Under Section 4(d) for Threatened Species* section below). Therefore, we do not expect wolf mortality rates to change significantly as a result.

*Southwestern DPS.* Through January 2003, illegal killing has been confirmed as the cause of death of 11 of the 74 Mexican wolves that have been released to the wild. Two of the 74 wolves released died due to injuries sustained from other predators. However, there are now 8 packs in the wild, of which 7 appear to have produced pups in 2002, and 4 of those 7 litters were conceived and born in the wild. In addition, we continue to release additional gray wolves into the Blue Range Wolf Recovery Area (BRWRA) of New Mexico and Arizona. However, based on the current growth of the BRWRA population, releases will likely be scaled back or eliminated in the next few years. The rate of natural wolf population increase, combined with our continuing release of captive-raised wolves, is such that population growth is expected to continue despite these losses from human and animal-caused mortalities. Therefore, although predation may initially slow recovery, we do not believe that predation or illegal killing will preclude recovery of the Mexican wolf. Killing or capture and permanent confinement of gray wolves for scientific and educational purposes is discussed under Factor B, above.

#### *D. The Adequacy or Inadequacy of Existing Regulatory Mechanisms*

Upon being listed under the Act, the gray wolf immediately benefitted from a