

breeding range of the mountain plover is not a major threat to their continued existence.

*Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*

Prior to the passage of the Migratory Bird Treaty Act in 1918, mountain plovers were commercially hunted for food. However, this no longer occurs. Mountain plovers reside on some prairie dog colonies where recreational prairie dog shooting occurs. Although a few mountain plover mortalities have been attributed to shooting, this loss is not thought to be significant. There is no recent evidence that overutilization is a current threat.

*Factor C. Disease or Predation*

Disease-related factors are not known to be a direct threat to the species. However, plovers that breed on prairie dog colonies are indirectly affected through a modification of habitat when an epidemic of sylvatic plague reduces numbers of prairie dogs in a colony (see discussion under Factor A).

Mountain plovers eggs and chicks are the most vulnerable life stages to terrestrial and avian predation. Potential avian and terrestrial predators include the prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), ravens (*Corvus corax*), swift fox (*Vulpes velox*), red fox, ground squirrels (*Spermophilus spp.*), and coyote (*Canis latrans*) (Graul 1975). Predation influences the productivity of all ground-nesting birds, and nesting success of less than 50 percent is not unusual. Predation on plover nests on the Pawnee National Grassland has ranged between 15 and 74 percent from 1969 to 1994 (Graul 1975, Miller and Knopf 1993, Knopf and Rupert 1996). A high rate of nest predation by swift fox at the Pawnee National Grassland in 1993 and 1994 may have been due to temporarily reduced alternate prey resources (Knopf and Rupert 1996).

From 1994 to 2003, grasslands on the Pawnee National Grassland have been burned each year to enhance mountain plover nesting habitat (E. Humphrey, in litt. 2003). All eight nests monitored on the burn sites in 1996 were destroyed by swift fox (F. Knopf, in litt. 1996). Increased predation following burning, as indicated on the Pawnee National Grasslands, may affect nesting success locally in some years, but is not a persistent factor throughout the species' range. Nest predation also occurs in Phillips County, Montana, but is probably not a significant influence on nesting success at this location (Dinsmore 2001).

On December 17, 2002, we completed conferencing under the Act with the BLM for proposals to develop oil and gas resources in the Powder River Basin (M. Long, Service, in litt. 2003). We concluded that predation by mammalian and avian predators would increase with the development as proposed, and we recommended conservation measures to minimize adverse effects. Predation on the small number of nests in the Powder River Basin will not have an impact on the species rangewide.

There is no evidence to indicate at this time that mountain plovers are affected by West Nile virus (Knopf pers. comm.).

*Factor D. The Inadequacy of Existing Regulatory Mechanisms*

Protecting the mountain plover and its habitat is complicated by its wide geographic range, which includes private and public land, and numerous State, Federal, and Tribal Land authorities.

**Federal Regulations**

One regulatory mechanism that currently protects the mountain plover is the Migratory Bird Treaty Act (MBTA), which prohibits direct mortality or the destruction of active nests. Other Federal laws that currently provide for conservation of mountain plovers include the Federal Land Policy and Management Act of 1976; National Forest Management Act of 1976; Federal Onshore Oil and Gas Leasing Reform Act; Federal Insecticide, Fungicide, and Rodenticide Act; and Federal Agriculture Improvement and Reform Act. Some Federal agencies such as the BLM or the Forest Service also have adopted policies to require that their actions not contribute to the declining status of a species.

While Federal land ownership is not a guarantee of species conservation, Federal jurisdiction over surface resources can make application of conservation practices easier to implement. The BLM administers 13 percent of the mountain plover habitat (13,000 ha (27,000 ac)) in South Park, Park County, Colorado, where 20 percent or more of the entire mountain plover breeding population is estimated to occur. The BLM recently produced a conservation assessment to help guide implementation of future conservation measures for the mountain plover, including land exchange and consolidation (Granau and Wunder 2001). In that assessment, the Reinecker Ridge State Wildlife Area in the central part of the county was identified as having excellent mountain plover

breeding habitat and good conservation potential. It is already under public ownership, primarily through the BLM and Colorado State Land Board (Granau and Wunder 2001).

The National Forest Management Act requires the Forest Service to manage habitats for native species. The Service has coordinated with the Forest Service for over a decade regarding the conservation needs of the mountain plover on the Pawnee National Grassland in Colorado. Mountain plovers are now nearly extirpated from this historic stronghold due to climatic events and changes in grazing management, and restoration of habitat has not been immediately forthcoming. Recently, the Forest Service initiated efforts to improve nesting habitat conditions on the Pawnee (Bedwell, in litt. 2003), although some recovery plans and recovery objectives will not be fully realized for several years (S. Currey, in litt. 2002).

The Forest Service has closed the shooting season for black-tailed prairie dogs on the Thunder Basin National Grassland in Wyoming. While the reason for the closure was recovery of the endangered black-footed ferret, the mountain plover stands to gain habitat as prairie dogs there recover from an epizootic of sylvatic plague.

Two small National Wildlife Refuges (Kern and Pixley) in The San Joaquin Valley and Carrizo Plain provide some natural and cropland habitat for wintering mountain plovers (J. Engler, in litt. 1992, 2003; Knopf and Rupert 1995), although they are not managed specifically for mountain plovers and some of the former potentially suitable grassland and shrubland on Kern National Wildlife Refuge has been overwhelmed with exotic grasses and saltcedar (J. Engler, in litt. 2003). The BLM, California Department of Fish and Game, and The Nature Conservancy have developed a management plan for the Carrizo Plain Natural Area that calls for grazing a 1,850-ha (4,640-ac) BLM allotment by sheep in a manner that would encourage use by mountain plover (BLM *et al.* 1995). Prescribed burning also is called for in the plan and has been demonstrated to encourage use by mountain plovers (Knopf and Rupert 1995).

**International Mechanisms**

The mountain plover is designated as a threatened species by Mexico (S. Jewell, Service, in litt. 2000) a designation that has begun to provide some awareness of the need for the species' conservation. Mexico currently has no regulations to protect the habitat of the mountain plover. The species also