DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[FWS–R6–ES–2008–008; 92220–1113–0000; ABC Code: C6]

RIN 1018–AU53

Endangered and Threatened Wildlife and Plants; Final Rule Designating the Northern Rocky Mountain Population of Gray Wolf as a Distinct Population Segment and Removing This Distinct Population Segment From the Federal List of Endangered and Threatened Wildlife

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service, we or us), hereby establishes a distinct population segment (DPS) of the gray wolf (*Canis lupus*) in the Northern Rocky Mountains (NRM) of the United States (U.S.) and removes this DPS from the List of Endangered and Threatened Wildlife. The NRM gray wolf DPS encompasses the eastern one-third of Washington and Oregon, a small part of north-central Utah, and all of Montana, Idaho, and Wyoming. Based on the best scientific and commercial data available, the NRM DPS is no longer an endangered or threatened species pursuant to the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). The NRM DPS has exceeded its biological recovery goals, and all threats in the foreseeable future have been sufficiently reduced or eliminated.

The States of Idaho (2002) and Montana (2003) adopted State laws and management plans that meet the requirements of the Act and will conserve a recovered wolf population into the foreseeable future. In 2007, following a change in State law, Wyoming drafted and approved a revised wolf management plan (Wyoming 2007). We have determined that this plan meets the requirements of the Act as providing adequate regulatory protections to conserve Wyoming's portion of a recovered wolf population into the foreseeable future. Our determination is conditional upon the 2007 Wyoming wolf management law (W.S. 11–6–302 *et seq.* and 23–1–101, *et seq.* in House Bill 0213) being fully in effect and the wolf management plan being legally authorized by Wyoming statutes. If the law is not in effect (discussed in more detail below) within 20 days from the date of this publication, we will withdraw this final rule and replace it with an alternate final rule that removes the Act's protections throughout all of the DPS, except the significant portion of the gray wolf's range in northwestern Wyoming outside the National Parks.

DATES: This rule becomes effective March 28, 2008.

ADDRESSES: This final rule is available on the Internet at *http://www.regulations.gov.* Comments and materials received, as well as supporting documentation used in preparation of this final rule, are available for inspection, by appointment, during normal business hours, at our Montana office, 585 Shepard Way, Helena, Montana 59601. Call (406) 449–5225, extension 204 to make arrangements.

FOR FURTHER INFORMATION CONTACT: Edward E. Bangs, Western Gray Wolf Recovery Coordinator, U.S. Fish and Wildlife Service, at our Helena office (see **ADDRESSES**) or telephone (406) 449–5225, extension 204. Individuals who are hearing-impaired or speech-impaired may call the Federal Relay Service at 1–800–877–8337 for TTY assistance.

SUPPLEMENTARY INFORMATION:

Background

Gray wolves are the largest wild members of the dog family (Canidae). Adult gray wolves range from 18–80 kilograms (kg) (40–175 pounds (lb)) depending upon sex and region (Mech 1974, p. 1). In the NRM, adult male gray wolves average over 45 kg (100 lb), but may weigh up to 60 kg (130 lb). Females weigh slightly less than males. Wolves' fur color is frequently a grizzled gray, but it can vary from pure white to coal black (Gipson *et al.* 2002, p. 821).

Gray wolves have a circumpolar range including North America, Europe, and Asia. As Europeans began settling the U.S., they poisoned, trapped, and shot wolves, causing this once widespread species to be eradicated from most of its range in the 48 conterminous States (Mech 1970, pp. 31–34; McIntyre 1995). Gray wolf populations were eliminated from Montana, Idaho, and Wyoming, as well as adjacent southwestern Canada by the 1930s (Young and Goldman 1944, p. 414).

Wolves primarily prey on medium and large mammals. Wolves normally live in packs of 2 to 12 animals. In the NRM, pack sizes average about 10 wolves in protected areas, but a few complex packs have been substantially bigger in some areas of Yellowstone National Park (YNP) (Smith *et al.* 2006, p. 243; Service *et al.* 2007, Tables 1–3). Packs typically occupy large distinct territories from 518 to 1,295 square kilometers (km^2) (200 to 500 square miles (mi^2)) and defend these areas from other wolves or packs. Once a given area is occupied by resident wolf packs, it becomes saturated and wolf numbers become regulated by the amount of available prey, intra-species conflict, other forms of mortality, and dispersal. Dispersing wolves may cover large areas (See Defining the Boundaries of the NRM DPS) as they try to join other packs or attempt to form their own pack in unoccupied habitat (Mech and Boitani 2003, p. 11–17).

Typically, only the top-ranking (''alpha'') male and female in each pack breed and produce pups (Packard 2003, p. 38; Smith *et al.* 2006, pp. 243–4; Service *et al.* 2007, Tables 1–3). Females and males typically begin breeding as 2-year-olds and may annually produce young until they are over 10 years old. Litters are typically born in April and range from 1 to 11 pups, but average around 5 pups (Service *et al.* 1989–2007, Tables 1–3). Most years, four of these five pups survive until winter (Service *et al.* 1989–2007, Tables 1–3). Wolves can live 13 years (Holyan *et al.* 2005, p. 446), but the average lifespan in the NRM is less than 4 years (Smith *et al.* 2006, p. 245). Pup production and survival can increase when wolf density is lower and food availability per wolf increases (Fuller *et al.* 2003, p. 186). Pack social structure is very adaptable and resilient. Breeding members can be quickly replaced either from within or outside the pack and pups can be reared by another pack member should their parents die (Packard 2003, p. 38; Brainerd *et al.* 2008; Mech 2006, p. 1482). Consequently, wolf populations can rapidly recover from severe disruptions, such as very high levels of human-caused mortality or disease. After severe declines, wolf populations can more than double in just 2 years if mortality is reduced; increases of nearly 100 percent per year have been documented in low-density suitable habitat (Fuller *et al.* 2003, pp. 181–183; Service *et al.* 2007, Table 4).

For detailed information on the biology of this species see the ''Biology and Ecology of Gray Wolves'' section of the April 1, 2003, final rule to reclassify and remove the gray wolf from the list of endangered and threatened wildlife in portions of the conterminous U.S. (2003 Reclassification Rule) (68 FR 15804).

Previous Federal Actions

In 1974, four subspecies of gray wolf were listed as endangered, including the NRM gray wolf (*Canis lupus irremotus*), the eastern timber wolf (*C.l. lycaon*) in

the northern Great Lakes region, the Mexican wolf (*C.l. baileyi*) in Mexico and the southwestern U.S., and the Texas gray wolf (*C.l. monstrabilis*) of Texas and Mexico (39 FR 1171, January 4, 1974). In 1978, we published a rule (43 FR 9607, March 9, 1978) relisting the gray wolf as endangered at the species level (*C. lupus*) throughout the conterminous 48 States and Mexico, except for Minnesota, where the gray wolf was reclassified to threatened. At that time, critical habitat was designated in Minnesota and Isle Royale, Michigan. On February 8, 2007, we established a Western Great Lakes (WGL) DPS and removed it from the List of Endangered and Threatened Wildlife (72 FR 6052).

On November 22, 1994, we designated portions of Idaho, Montana, and Wyoming as two nonessential experimental population areas for the gray wolf under section 10(j) of the Act including the Yellowstone Experimental Population Area (59 FR 60252, November 22, 1994) and the Central Idaho Experimental Population Area (59 FR 60266, November 22, 1994). These designations, which are found at 50 CFR 17.40(i), assisted us in initiating gray wolf reintroduction projects in central Idaho and in the Greater Yellowstone Area (GYA). In 2005 and 2008, we revised these regulations to provide increased management flexibility for this recovered wolf population in States with Service-approved post-delisting wolf management plans (70 FR 1286, January 6, 2005; 73 FR 4270, January 28, 2008). The revisions are at 50 CFR 17.84(n).

The NRM wolf population is a metapopulation comprised of three core recovery areas. It has a range (wolf breeding pairs, wolf packs, and routine dispersing wolves) that encompasses all of Idaho, most of Montana and Wyoming, and parts of adjacent States (Service 2005, p. 1–2). It achieved its numerical and distributional recovery goals at the end of 2000 (Service *et al.* 2007, Table 4). The temporal portion of the recovery goal was achieved in 2002 when the numerical and distributional recovery goals were exceeded for the third successive year (Service *et al.* 2007, Table 4). To meet the Act's requirements, Idaho, Montana, and Wyoming needed to develop post-delisting wolf management plans to ensure that adequate regulatory mechanisms would exist should the Act's protections be removed. In 2004, the Service determined that Montana and Idaho's laws and wolf management plans were adequate to assure that their shares of the NRM wolf population would be maintained above recovery levels (see Recovery section). However, we determined the 2003 Wyoming legislation and wolf management plan (Wyoming 2003) were not adequate to assume that Wyoming's portion of the NRM wolf population would be maintained above recovery levels (Williams 2004). Wyoming challenged this determination, but the Federal District Court in Wyoming dismissed the case (360 F. Supp 2nd 1214, D. Wyoming 2005). Wyoming appealed that decision, and on April 3, 2006, the Tenth Circuit Court of Appeals upheld the district court decision (442 F. 3rd 1262).

On July 19, 2005, we received a petition from the Office of the Governor, State of Wyoming and the Wyoming Game and Fish Commission (WGFC) to revise the listing status for the gray wolf by establishing a NRM DPS and to remove it from the Federal List of Endangered and Threatened Wildlife (Freudenthal 2005). On August 1, 2006, we announced a 12-month finding that the petitioned action (delisting in all of Montana, Idaho, and Wyoming) was not warranted because the 2003 Wyoming State law and wolf management plan did not provide the necessary regulatory mechanisms to ensure that Wyoming's numerical and distributional share of a recovered NRM wolf population would be conserved (71 FR 43410). Wyoming challenged this finding in Federal District Court (*State of Wyoming, et al.* v. *USDOI*, CA No. 06CV0245J). Wyoming has indicated that they will deem the claims in the pending litigation settled and will request that the court dismiss the litigation upon publication of this final rule by February 28, 2008 (Freudenthal 2007b).

On February 8, 2007, we proposed to designate the NRM DPS of the gray wolf and to delist all or most portions of the NRM DPS (72 FR 6106). Specifically, we proposed to delist wolves in Montana, Idaho, and Wyoming, and parts of Washington, Oregon, and Utah. The proposal noted that the area in northwestern Wyoming outside the National Parks (i.e., YNP, Grand Teton National Park, and John D. Rockefeller Memorial Parkway) would only be delisted in the final rule if adequate State regulatory mechanisms were developed. On July 6, 2007, the Service extended the comment period in order to consider a 2007 revised Wyoming wolf management plan and State law that we believed, if implemented, could allow the wolves in northwestern Wyoming to be removed from the List of Endangered and Threatened Wildlife (72 FR 36939). On November 16, 2007, the WGFC unanimously approved the 2007 Wyoming Plan (Cleveland 2007, p. 1). We then determined this plan provides adequate regulatory protections to conserve Wyoming's portion of a recovered wolf population into the foreseeable future (Hall 2007, p. 1–2). Our determination was conditional upon the 2007 Wyoming wolf management law being fully in effect and the wolf management plan being legally authorized by Wyoming statutes. The plan automatically goes into effect upon the Governor's certification to the Wyoming Secretary of State that all of the provisions found in the 2007 Wyoming wolf management law have been met (W.S. §§ 23–1–101 *et sec.;* discussed in further detail in Factor D below) (Freudenthal 2007b, p. 1–3).

For detailed information on previous Federal actions also see the 2003 reclassification rule (68 FR 15804, April 1, 2003), the 2006 advanced notice of proposed rulemaking (ANPR) (71 FR 6634, February 8, 2006), the 12-month finding on Wyoming's petition to delist (71 FR 43410, August 1, 2006), and the February 8, 2007, proposed rule to designate the NRM population of gray wolf as a DPS and remove this DPS from the List of Endangered and Threatened Wildlife (72 FR 6106).

Distinct Vertebrate Population Segment Policy Overview

Pursuant to the Act, we consider if information is sufficient to indicate that listing any species, subspecies, or, for vertebrates, any DPS of these taxa may be warranted. To interpret and implement the DPS provision of the Act and congressional guidance, the Service and the National Marine Fisheries Service (NMFS) published a policy regarding the recognition of distinct vertebrate population segments under the Act (61 FR 4722–4725, February 7, 1996). Under this policy, three factors are considered in a decision regarding the establishment and listing, reclassification, or delisting of a DPS. The first two factors determine whether the population segment is a valid DPS—(1) discreteness of the population segment in relation to the remainder of the taxon, and (2) the significance of the population segment to the taxon to which it belongs. If a population meets both tests, it is a DPS. Then the third factor, the population segment's conservation status, is evaluated in relation to the Act's standards for listing, delisting, or reclassification (i.e., is the DPS endangered or threatened).

Defining the Boundaries of the NRM DPS

We defined the geographic boundaries for the area to be evaluated for DPS status based on discreteness and

significance as defined by our DPS policy. The DPS policy allows an artificial (e.g., State line) or manmade (e.g., road or highway) boundary to be used as a boundary of convenience for clearly identifying the geographic area for a DPS. The NRM DPS includes all of Montana, Idaho, and Wyoming, the eastern third of Washington and Oregon, and a small part of north central Utah. Specifically, the DPS includes that portion of Washington east of Highway 97 and Highway 17 north of Mesa and that portion of Washington east of Highway 395 south of Mesa. It includes that portion of Oregon east of Highway 395 and Highway 78 north of Burns Junction and that portion of Oregon east of Highway 95 south of Burns Junction. Finally, the NRM DPS includes that portion of Utah east of Highway 84 and north of Highway 80. The center of these roads is deemed the border of the NRM DPS (See Figure 1).

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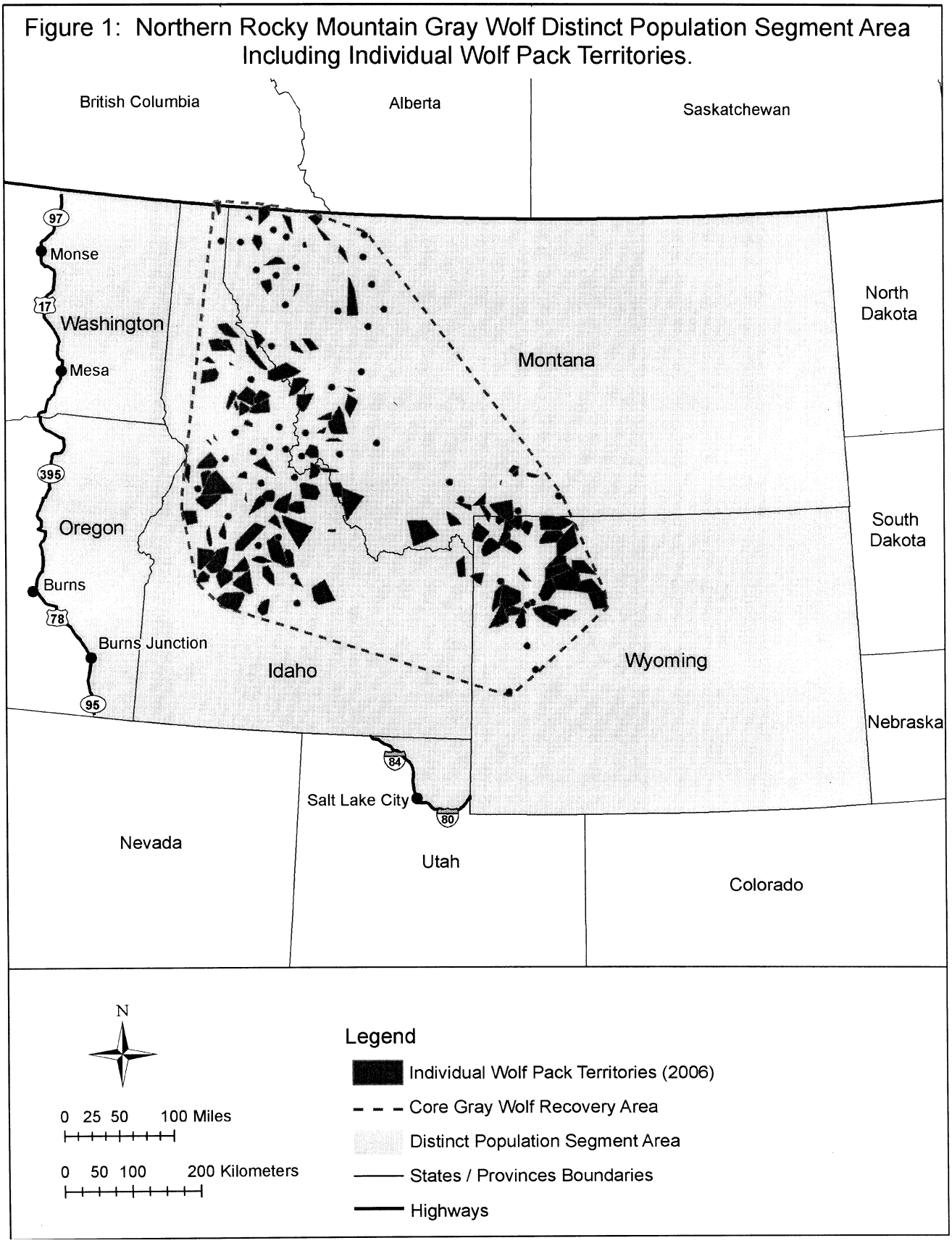

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One factor we considered in defining the boundaries of the NRM DPS was the current distribution of known wolf packs in 2006 (Service *et al.* 2007,

Figure 1) (except four packs in northwestern Wyoming that did not persist). We also examined the annual distribution of wolf packs from 2002 (the first year the population exceeded the recovery goal) through 2006 (Service *et al.* 2003–2007, Figure 1; Bangs *et al.* in press). Because outer distribution changed little in these years, we used the 2004 data because it had already been analyzed in the February 8, 2006 ANPR (71 FR 6634). Wolf packs have been documented in Montana, Idaho, or Wyoming so we include these three States in the DPS.

Dispersal distances also played a key role in determining the boundaries for the NRM DPS. We examined the known dispersal distances of over 200 marked dispersing wolves from the NRM from 1993 through 2005 (Jimenez *et al.* in prep.). These data indicate that the average dispersal distance of wolves from the NRM was about 97 km (60 mi) (Boyd and Pletscher 1999, p. 1094; Jimenez *et al.* in prep; Thiessen 2007, p. 33). We determined that 300 km (190 mi), three times the average dispersal distance, was a breakpoint in our data for unusually long-distance dispersal out from existing wolf pack territories (Jimenez *et al.* in prep., Figure 2 and 3). Only 10 wolves (none of which subsequently bred) have dispersed farther outside the core population areas and remained in the United States. None of these wolves returned to the core recovery areas in Montana, Idaho, or Wyoming. Only dispersal from the NRM wolf packs to areas within the United States was considered in these calculations because we were trying to determine the appropriate NRM DPS boundaries within the U.S. Dispersers to Canada were not considered in our calculation of average dispersal distance because the distribution of suitable habitat and wolves and level of human persecution in Canada is significantly different than in the U.S., potentially affecting wolf dispersal patterns. We plotted average dispersal distance and three times the average dispersal distance from existing wolf pack territories in the NRM. The resulting map indicated a wide area where wolf dispersal was common enough to support intermittent additional pack establishment from the core recovery areas given the availability of patches of nearby suitable habitat (Service 2005, p. 1–2). Our specific data on wolf dispersal in the NRM may not be applicable to other areas of North America (Mech and Boitani 2003, pp. 13–16).

We also examined suitable wolf habitat in Montana, Idaho, and Wyoming (Oakleaf *et al.* 2006, pp. 555–558) and throughout the western U.S. (Carroll *et al.* 2003, p. 538; Carroll *et al.* 2006, pp. 27–30) by comparing the biological and physical characteristics of areas currently occupied by wolf packs with the characteristics of adjacent areas that remain unoccupied by wolf packs. The basic findings and predictions of those models (Carroll *et al.* 2003, p. 541; Carroll *et al.* 2006, p. 32; Oakleaf *et al.* 2006, p. 559) were similar in many respects. Suitable wolf habitat in the NRM DPS is typically characterized by public land, mountainous forested habitat, abundant year-round wild ungulate populations, lower road density, lower numbers of domestic livestock that were only present seasonally, few domestic sheep (*Ovis sp.*), low agricultural use, and low human populations (see Factor A). The models indicate that a large block of suitable wolf habitat exists in central Idaho and the GYA, and to a smaller extent in northwestern Montana. These findings support the recommendations of the 1987 wolf recovery plan (Service 1987) that identified those three areas as the most likely locations to support a recovered wolf population and are consistent with the actual distribution of all wolf breeding pairs in the NRM since 1986 (Bangs *et al.* 1998, Figure 1; Service *et al.* 1999–2007, Figures 1–4, Tables 1–3). The models indicate little habitat is suitable to support wolf packs within the portion of the NRM DPS in eastern Montana, southern Idaho, eastern Wyoming, Washington, Oregon, or northcentral Utah (See Factor A).

Unsuitable habitat also was important in determining the boundaries of the NRM DPS. Model predictions by Oakleaf *et al.* (2006, p. 559) and Carroll *et al.* (2003, pp. 540–541; 2006, p. 27) and our observations during the past 20 years (Bangs *et al.* 2004, p. 93; Service *et al.* 2007, Figures 1–4, Table 4) indicate that non-forested rangeland and croplands associated with intensive agricultural use (prairie and high desert) preclude wolf pack establishment and persistence. This unsuitability is due to high rates of wolf mortality, high densities of livestock compared to wild ungulates, chronic conflict with livestock and pets, local cultural intolerance of large predators, and wolf behavioral characteristics that make them vulnerable to human-caused mortality in open landscapes (See Factor A). We looked at the distribution of large expanses of unsuitable habitat that would form a broad boundary separating the NRM DPS from both the southwestern and midwestern wolf populations and from the core of any other possible wolf population that might develop in the foreseeable future in the western U.S.

We included the eastern parts of Washington and Oregon and a small portion of north central Utah within the NRM DPS, because—(1) These areas are within 97 to 300 km (60 to 190 mi) from the core wolf population and routinely used by dispersing wolves; (2) lone dispersing wolves have been documented in these areas more than once in recent times (Jimenez *et al.* in prep.); (3) these areas contain some suitable habitat (see Factor A); and (4) the potential for connectivity exists between the relatively small and fragmented patches of suitable habitat in these areas with larger blocks of suitable habitat in the NRM DPS. If wolf breeding pairs establish in these areas, habitat suitability models suggest these nearby areas would likely be more connected to the core recovery areas in central Idaho and northwestern Wyoming than to any future wolf populations that might become established in other large blocks of potentially suitable habitat farther beyond the NRM DPS border. As noted earlier, large swaths of unsuitable habitat would isolate any wolf breeding pairs within the NRM DPS from other large patches of suitable habitat to the west or south (Carroll *et al.* 2003, p. 541).

Although we have received reports of individual wolves and wolf packs in the North Cascades of Washington (Almack and Fitkin 1998, pp. 7–13), agency efforts to confirm them were unsuccessful and to date no individual wolves or packs have been confirmed there (Boyd and Pletscher 1999, p. 1096; Jimenez *et al.* in prep.). Intervening unsuitable habitat makes it highly unlikely that wolves from the NRM DPS have dispersed to the North Cascades in recent history. However, if wolves dispersed into this area, they would remain protected by the Act as endangered because it is outside of the NRM DPS.

We include all of Wyoming, Montana, and Idaho in the NRM DPS because (1) their State regulatory frameworks apply Statewide; and (2) expanding the DPS beyond a 300 km (190 mi) band of likely dispersal distances to include extreme eastern Montana and Wyoming adds only unsuitable habitat and does not affect the distinctness of the NRM DPS. Although including all of Wyoming in the NRM DPS results in including portions of the Sierra Madre, the Snowy, and the Laramie Ranges, we do not consider these areas to be suitable wolf habitat because of their size, shape, and distance from a strong source of dispersing wolves. Oakleaf *et al.* (2006,

pp. 558–559) chose not to analyze these areas of southeast Wyoming because they are fairly intensively used by livestock and are surrounded with, and interspersed by, private land, making pack establishment and persistence unlikely. While Carroll *et al.* (2003, p. 541; 2006, p. 32) optimistically predicted these areas were suitable habitat, the model predicted that under current conditions these areas were largely sink habitat and that by 2025 (within the foreseeable future) they were likely to be ranked as low occupancy because of human population growth and road development.

We chose not to extend the NRM DPS border east beyond Montana and Wyoming, because those adjacent portions of North Dakota, South Dakota, and Nebraska are far outside the predicted routine dispersal range of gray wolves from the NRM. In addition, the available information on potentially suitable habitat indicates that Colorado and additional areas of Utah to the south and west of the NRM DPS include large areas of potentially suitable but unoccupied habitat (Carroll *et al.* 2003, p. 541). The current distribution of wolf packs in the NRM wolf population encompasses most of the suitable habitat, that area is surrounded by unsuitable habitat, and the nearest other blocks of suitable habitat are far beyond the expected dispersal distance of wolves that might form new breeding pairs. Therefore, we concluded that a smaller NRM DPS that contains the core recovery areas and the adjacent areas of largely unsuitable habitat where routine wolf dispersal could be expected, but that excludes contiguous blocks of potentially suitable habitat to the west and south that are outside the routine wolf dispersal area is representative of the current and future status of the existing NRM wolf population and consistent with our DPS policy.

Analysis for Discreteness

Under the DPS policy, a population segment of a vertebrate taxon may be considered discrete if it satisfies either one of the following conditions—(1) Is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors (quantitative measures of genetic or morphological discontinuity may provide evidence of this separation); or (2) is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act.

Markedly Separated from Other Populations of the Taxon—The eastern edge of the NRM DPS (Figure 1) is about 644 km (400 mi) from the western edge of the WGL DPS core wolf population (eastern Minnesota) and is separated from it by hundreds of miles of unsuitable habitat (see Factor A). The southern edge of the NRM DPS border is about 724 km (450 mi) from the nonessential experimental populations of wolves in the southwestern U.S. with vast amounts of unoccupied marginal or unsuitable habitat separating them. No wild wolves have been confirmed west of the NRM DPS boundary (although occasionally we get unconfirmed reports and 2 wolves were killed close to that boundary). While one dispersing wolf was confirmed east and one south of the NRM DPS boundary, no wolf packs have ever been found there. No wolves from other U.S. wolf populations are known to have dispersed as far as the NRM DPS.

Although wolves can disperse over 1,092 km (680 mi) (with actual travel distances exceeding 10,000 km (6,000 mi)) (Fritts 1983, pp. 166–167; Ream *et al.* 1991, pp. 351–352; Boyd and Pletscher 1999, p. 1094; Missouri Department of Conservation 2001, pp. 1–2; Jimenez *et al.* in prep.; Wabakken *et al.* 2007, p. 1631), the average dispersal of NRM wolves is about 97 km (60 mi) (Boyd and Pletscher 1999, p. 1100; Jimenez *et al.* in prep.; Thiessen 2007, p. 72). Only 10 of over 200 confirmed NRM wolf dispersal events from 1992 through 2005 have been over 300 km (190 mi) and outside the core recovery areas (Boyd and Pletscher. 1999, p. 1094; Jimenez *et al.* in prep.). Undoubtedly many other dispersal events have occurred but not been detected because only 30 percent of the NRM wolf population has been radio-collared. All but two of these known U.S. long-distance dispersers remained within the NRM DPS. None of them found mates or survived long enough to form packs or breed in the U.S. (Jimenez *et al.* in prep.).

The first wolf confirmed to have dispersed (within the U.S.) beyond the border of the NRM DPS was killed by a vehicle collision along Interstate 70 in north-central Colorado in spring 2004. Video footage of a black wolf-like canid taken near Walden in northern Colorado in early 2006, suggests another dispersing wolf may have traveled into Colorado. The subsequent status or location of that animal is unknown. Finally, in spring 2006, the carcass of a male black wolf was found along Interstate 90 in western South Dakota. Genetic testing confirmed it was a wolf that had dispersed from the GYA. We expect that occasional lone wolves will continue to disperse between and beyond the core recovery areas in Montana, Idaho, and Wyoming, as well as into States adjacent to the NRM DPS. However, pack development and persistence outside the NRM DPS is unlikely because wolves that disperse as individuals typically have low survival (Pletscher *et al.* 1997, p. 459) and suitable habitat is limited and distant (Carroll *et al.* 2003, p. 541) from the NRM DPS.

No connectivity currently exists between the NRM, WGL, and Southwestern gray wolf populations, nor are there any resident wolf packs in intervening areas. While it is theoretically possible that a lone wolf might traverse over 644 km (400 mi) from one population to the other, movement between these populations has never been documented and is extremely unlikely because of both the distance and the large areas of unsuitable habitat between the populations. Furthermore, the DPS policy does not require complete separation of one DPS from other populations, but instead requires some ''marked separation.'' Thus, if occasional individual wolves or packs disperse among populations, the NRM DPS could still display the required discreteness. Based on the information presented above, we have determined that NRM gray wolves are markedly separated from all other gray wolf populations in the U.S.

Differences Among U.S. and Canadian Wolf Populations—The DPS policy allows us to use international borders to delineate the boundaries of a DPS if there are differences in control of exploitation, conservation status, or regulatory mechanisms between the countries. Significant differences exist in management between U.S. and Canadian wolf populations. About 52,000 to 60,000 wolves occur in Canada, where suitable habitat is abundant (Boitani 2003, p. 322). Because of this abundance, wolves in Canada are not protected by Federal laws and are only minimally protected in most Canadian provinces (Pletscher *et al.* 1991, p. 546). In the U.S., unlike Canada, Federal protection and intensive management has been necessary to recover the wolf (Carbyn 1983). When delisted, States in the NRM DPS would carefully monitor and manage to retain populations above the recovery goal (see Factor D). Therefore, we will continue to use the U.S.-Canada border to mark the northern boundary of the NRM DPS due to the difference in control of exploitation, conservation

status, and regulatory mechanisms between the two countries.

Analysis for Significance

If we determine that a population segment is discrete, we next consider available scientific evidence of its significance to the taxon to which it belongs. Our DPS policy states that this consideration may include, but is not limited to, the following factors: (1) Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon; (2) evidence that loss of the discrete population segment would result in a significant gap in the range of the taxon; (3) evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; and/or (4) evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics. Below we address factors 1 and 2. Factors 3 and 4 do not apply to the NRM DPS and thus are not included in our analysis for significance.

Unusual or Unique Ecological Setting—Within the range of holarctic wolves, the NRM has among the highest diversity of large predators and native ungulate prey species, resulting in complex ecological interaction between the ungulate prey, predator and scavenger groups, and vegetation (Smith *et al.* 2003, p. 331). In the NRM DPS, gray wolves share habitats with black bears (*Ursus americanus*), grizzly bears (*U.arctos horribilis*), cougars (*Felis concolor*), lynx (*Lynx canadensis*), wolverine (*Gulo gulo*), coyotes (*Canis latrans*), foxes (*Vulpes vulpes*), badgers (*Taxidea taxus*), bobcats (*Felis rufus*), fisher (*Martes pennanti*), and marten (*Martes americana*). The unique and diverse assemblage of native prey include elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), moose (*Alces alces*), woodland caribou (*Rangifer caribou*), bighorn sheep (*Ovis canadensis*), mountain goats (*Oreamnos americanus*), pronghorn antelope (*Antilocapra americana*), bison (*Bison bison*) (only in the GYA), and beaver (Castor canadensis). This complexity leads to unique dramatic and unique ecological cascades in pristine areas, such as in YNP. While these effects likely still occur at varying degrees elsewhere, they are increasingly modified and subtle the more an area is affected by humans (Smith *et al.* 2003, pp. 334–338; Robbins 2004, pp. 80–81; Campbell *et al.* 2006, pp. 747–753; Hebblewhite *et al.* 2005, p. 2135; Garrott *et al.* 2005, p. 1245). For example, wolves appear to be changing elk behavior and elk relationships and competition with other native ungulates in YNP. These complex interactions may increase streamside willow production and survival (Ripple and Beschta 2004, p. 755), that in turn can affect beaver and nesting by riparian birds (Nievelt 2001, p. 1). This suspected pattern of wolf-caused changes also may be occurring with scavengers, whereby wolf predation is providing a year-round source of food for a diverse variety of carrion feeders (Wilmers *et al.* 2003, p. 996; Wilmers and Getz 2005, p. 571). The wolf population in the NRM has extended the southern range of the contiguous gray wolf population in western North America nearly 400 miles (640 km) into a much more diverse, ecologically complex, and unique assemblage of species than is found elsewhere within occupied wolf habitat in most of the northern hemisphere.

Significant Gap in the Range of the Taxon—Wolves once lived throughout most of North America. Wolves have been extirpated from most of the southern portions of their historic North American range. The loss of the NRM wolf population would represent a significant gap in the species' holarctic range in that this loss would create a 15-degree latitudinal or over 1,600-km (1,000-mi) gap across the Rocky Mountains between the Mexican wolf and wolves in Canada. If this potential gap were realized, substantial cascading ecological impacts, such as behavioral changes in elk that reduced browsing pressure and allowed increased willow growth in riparian areas that can then support beaver or nesting song birds, would occur in the NRM, most noticeably in the most pristine and wildest areas (Smith *et al.* 2003, pp. 334–338; Robbins 2004, pp. 80–81; Campbell *et al.* 2006, pp. 747–753; Hebblewhite and Smith in press, p. 1–6).

Given the wolf's historic occupancy of the conterminous U.S. and the portion of the historic range the conterminous U.S. represents, recovery in the lower 48 States has long been viewed as important to the taxon (39 FR 1171, January 4, 1974; 43 FR 9607, March 9, 1978). The NRM DPS is significant in achieving this objective, as it is 1 of only 3 populations of wolves in the lower 48 States and currently constitutes nearly 25 percent of all wolves in the lower 48 States.

We conclude, based on our analysis of the best available scientific information, that the NRM DPS is significant to the taxon in that NRM wolves exist in a unique ecological setting and their loss would represent a significant gap in the range of the taxon. Therefore, the NRM DPS meets the criterion of significance under our DPS policy. Because the NRM gray wolf population is both discrete and significant, it is a valid DPS. The conservation status of the DPS is discussed below (see Summary of Factors Affecting the Species section).

Recovery

Recovery Planning and the Selection of Recovery Criteria—Shortly after listing we formed the interagency wolf recovery team to complete a recovery plan for the NRM population (Service 1980, p. i; Fritts *et al.* 1995, p. 111). The NRM Wolf Recovery Plan (recovery plan) was approved in 1980 (Service 1980, p. i) and revised in 1987 (Service 1987, p. i). Recovery plans are not regulatory documents and are instead intended to provide guidance to the Service, States, and other partners on methods of minimizing threats to listed species and on criteria that may be used to determine when recovery is achieved. There are many paths to accomplishing recovery of a species and recovery may be achieved without all criteria being fully met. For example, one or more criteria may have been exceeded while other criteria may not have been accomplished. In that instance, the Service may judge that the threats have been minimized sufficiently, and the species is robust enough to reclassify from endangered to threatened or to delist. In other cases, recovery opportunities may have been recognized that were not known at the time the recovery plan was finalized. These opportunities may be used instead of methods identified in the recovery plan. Likewise, information on the species may be learned that was not known at the time the recovery plan was finalized. The new information may change the extent that criteria need to be met for recognizing recovery of the species. Recovery of a species is a dynamic process requiring adaptive management that may, or may not, fully follow the guidance provided in a recovery plan.

The 1980 recovery plan's objective was to re-establish and maintain viable populations of the NRM wolf (*Canis lupus irremotus*) in its former range where feasible (Service 1980, p. iii). The revised recovery plan (Service 1987, p. 57) specifies a recovery criterion of a minimum of 10 breeding pairs of wolves (defined as 2 wolves of opposite sex and adequate age, capable of producing offspring) for a minimum of 3 successive years in each of 3 core recovery areas—(1) Northwestern

Montana (Glacier National Park; the Great Bear, Bob Marshall, and Lincoln Scapegoat Wilderness Areas; and adjacent public and private lands), (2) central Idaho (Selway-Bitterroot, Gospel Hump, Frank Church River of No Return, and Sawtooth Wilderness Areas; and adjacent, mostly Federal, lands), and (3) the YNP area (including the Absaroka-Beartooth, North Absaroka, Washakie, and Teton Wilderness Areas; and adjacent public and private lands). That plan recommended that wolf establishment not be promoted outside these distinct recovery areas, but that connectivity between them be encouraged. However, no attempts were made to prevent wolf pack establishment outside of the recovery areas unless chronic conflict required resolution (Service 1994, p. 1–15, 16; Service 1999; p. 2). The recovery plan states that if 2 recovery areas maintain a minimum of 10 breeding pairs for 3 successive years, the gray wolves in the NRM can be reclassified to threatened status, and if all 3 recovery areas maintain a minimum of 10 breeding pairs for 3 successive years, then the NRM wolf population can be considered fully recovered and can be considered for delisting.

The 1994 environmental impact statement (EIS) on wolf reintroduction reviewed wolf recovery in the NRM and the adequacy of the recovery goals because we were concerned that the 1987 goals might be insufficient (Service 1994, pp. 6:68–78). The Service conducted a thorough literature review of wolf population viability analysis and minimum viable populations, reviewed the recovery goals for other wolf populations, surveyed the opinions of 43 wolf experts, of which 25 responded, and incorporated our own expertise into a review of the NRM wolf recovery goal. We published our analysis in the Service's EIS and in a peer-reviewed paper (Service 1994, Appendix 8 & 9; Fritts and Carbyn 1995, p. 26–38). Our analysis concluded that the 1987 recovery goal was, at best, a minimum recovery goal, and that modifications were warranted on the basis of more recent information about wolf distribution, connectivity, and numbers. We agree with Fritts and Carbyn (1995, p. 26) that ''Data on survival of actual wolf populations suggest greater resiliency than indicated by theory'' and theoretical treatments of population viability ''have created unnecessary dilemmas for wolf recovery programs by overstating the required population size''. Based on our analysis and peer review comments, we concluded that ''Thirty or more breeding pairs comprising some 300+ wolves in a metapopulation (a population that exists as partially isolated sets of subpopulations) with genetic exchange between subpopulations should have a high probability of long-term persistence'' because such a population would contain enough individuals in successfully reproducing packs distributed over distinct but somewhat connected large areas to be viable for the long term (Service 1994, pp. 6:75). A population at or above this size would contain at least 30 successfully reproducing packs and ample individuals to ensure long-term population viability. In addition the metapopulation configuration and distribution throughout secure suitable habitat would ensure that each core recovery area would provide a recovered population that would be distributed over a large enough area to provide resilience to natural or man-caused events that may temporarily affect one core recovery area. No wolf population of this size and distribution has gone extinct in recent history unless it was deliberately eradicated by humans (Boitani 2003, 321–331). We further determined that a metapopulation of this size and distribution among the three core recovery areas within the area we now identify as the NRM DPS would result in a wolf population that would fully achieve our recovery objectives.

We conducted another review of what constitutes a recovered wolf population in late 2001 and early 2002 to reevaluate and update our 1994 analysis and conclusions (Service 1994, Appendix 9). We surveyed 86 biologists, of which 50 responded, with expertise in wolves and population viability from North America and Europe for their professional opinions regarding a wide range of issues related to the NRM recovery goal. We also reviewed a wide range of literature, including wolf population viability analysis from other areas (Bangs 2002, p. 1–9). Despite varied professional opinions and a great diversity of suggestions, experts overwhelmingly thought the recovery goal derived in our 1994 analysis was more biologically appropriate than the 1987 recovery plan's criteria for recovery and represented a viable and recovered wolf population. Reviewers also thought connectivity (either natural or human-facilitated) was important to maintaining the metapopulation configuration and wolf population viability. Reviewers also recommended other concepts/numbers for recovery goals but most were slight modifications to those we recommended in our 1994 analysis. While experts strongly (78%) supported our 1994 conclusions that a metapopulation of at least 30 breeding pairs and at least 300 wolves would provide for a viable wolf population, they also concluded that wolf population viability was enhanced by higher (500 or more wolves) rather than lower population levels (300) and longer (more than 3 years) rather than shorter (3 years) demonstrated time frames. The more numerous and widely distributed a species is, the higher its probability of population viability will be. However, the Act requires us to ensure a species is no longer threatened or endangered not that its viability would be theoretically maximized. A wolf metapopulation of at least 30 breeding pairs and at least 300 wolves ensures it will remain viable and recovered. A slight majority indicated that the 1987 recovery goal, of only 10 breeding pairs (defined as a male and female capable of breeding) in each of three distinct recovery areas, may be viable, given the persistence of other small wolf populations in other parts of the world. The results of previous population viability analysis for other wolf populations varied widely, and similar to our 1994 analysis, reviewers concluded that theoretical results were strongly dependent on the variables and assumptions used in such models and conclusions often predicted different outcomes than actual empirical data had conclusively demonstrated. Based on that review, we reaffirmed our more relevant and stringent 1994 definition of wolf breeding pairs, population viability, and recovery (Service 1994, p. 6:75).

We measure the wolf recovery goal by the number of breeding pairs because wolf populations are maintained by packs that successfully raise pups. We use ''breeding pairs'' to describe successfully reproducing packs (Service 1994, pp. 6:67; Bangs 2002, p. 7–8; Mitchell *et al.* in press). Breeding pairs are only measured in winter because most wolf mortality occurs in spring/summer/fall and winter is the beginning of the annual courtship and breeding season for wolves. Often we do not know if the specific pack actually contains an adult male, adult female, and two pups in winter; however, pack size has proven to have a strong correlation with breeding pair status and by simply knowing the size of wolf packs in mid-winter we can reliably estimate the number of breeding pairs (Ausband 2006; Mitchell *et al.* in press). In the future, the States will be able to use pack size in winter as a surrogate to reliably identify each pack's

contribution toward meeting our breeding pair recovery criteria and to better predict the effect of managing for certain pack sizes on wolf population recovery.

We have also determined that an essential part of achieving recovery is an equitable distribution of wolf breeding pairs and individual wolves among the three States and the three core recovery areas. A wolf metapopulation that is equitably distributed among the three core recovery areas provides each area with enough successfully reproducing packs and individuals to withstand any threats to it and to allow for local adaptation to the ecological conditions within each area (e.g., bison in the GYA, white-tailed deer in northwestern Montana, or steep terrain of central Idaho). In addition, a minimum number of successfully reproducing packs and individual wolves in each core recovery area ensures a consistent strong source of dispersing individuals between and among the three recovery areas to consistently occupy suitable habitat, form new or join existing packs, and provide the opportunity for genetic and demographic mixing within the population to maintain its viability and resilience. Like peer reviewers in 1994 and 2002, we concluded that NRM wolf recovery and long-term wolf population viability is dependent on its distribution as well as maintaining the minimum numbers of breeding pairs and wolves. While uniform distribution is not necessary, a well-distributed population with no one State/recovery area maintaining a disproportionately low number of packs or number of individual wolves is needed to maintain wolf distribution in and adjacent to core recovery areas and other suitable habitat throughout the NRM.

Following the 2002 review, we began to use States, in addition to recovery areas, to measure progress toward recovery goals (Service *et al.* 2003–2007, Table 4). Because Montana, Idaho, and Wyoming each contain the vast majority of one of the original three core recovery areas, we determined the metapopulation structure would be conserved by equally dividing the overall recovery goal between the three States. This approach made each State's responsibility for wolf conservation fair, consistent, and clear. It avoided any possible confusion that one State might assume all of the responsibility for maintaining the required number of wolves and wolf breeding pairs in a shared core recovery area. State regulatory authorities and traditional management of resident game populations occur on a State-by-State basis. Management by State would still maintain a robust wolf population in each core recovery area because they each contain manmade or natural refugia from high levels of human-caused mortality (e.g., National Parks, wilderness areas, and remote Federal lands) that guarantee those areas remain the stronghold for wolf breeding pairs and source of dispersing wolves in each State.

Recovery targets by State promote connectivity and genetic exchange between the metapopulation segments by avoiding management that focuses solely on wolf breeding pairs in relatively distinct core recovery areas and promote a minimum level of potential natural dispersal to and from each population segment. This approach also will increase the numbers of potential wolf breeding pairs in the GYA because it is shared by all three States. Wyoming alone has committed to maintain at least 15 breeding pairs (with at least 7 of those breeding pairs outside the National Parks) and 150 wolves, so wolves in the Montana and Idaho portion of the GYA would be in addition to those required to exceed minimal recovery area levels. A large and well-distributed population within the GYA is especially important because it is the most isolated core recovery area within the NRM DPS (Oakleaf *et al.* 2006, p. 554; vonHoldt *et al.* 2007, p. 19).

The numerical component of the recovery goal represents the minimum number of breeding pairs and wolves needed to achieve recovery. To ensure that the NRM wolf population continues to exceed the recovery goal of 30 breeding pairs and 300 wolves, Montana (2003), Idaho (2002; 2007), and Wyoming (2007) have committed to manage for at least 15 breeding pairs and at least 150 wolves per State in mid-winter and maintain its metapopulation structure. Because the recovery goal components are measured in mid-winter when the wolf population is near its annual low point, the average annual wolf population will be much higher than these minimal goals. At this point in time, it is unknown how many wolves and breeding pairs will ultimately result from implementation of the State management plans except that each State plan's management objectives assure that the NRM DPS will certainly be well over a combined total of 45 breeding pairs and 450 wolves. Each State has committed to manage for at least 150 wolves and 15 breeding pairs by regulating human-caused mortality. If each of the States managed to have only 15 breeding pairs and 150 wolves (which is extremely unlikely since each would have to be at their lowest allowable level at the same time and wolves will still also be present in National Parks, wilderness areas, and remote public lands where sharp reductions in wolf numbers are unlikely), then 45 breeding pairs would likely result in more than 450 wolves. Service data since 1986 indicate that, within the NRM DPS, each breeding pair has corresponded to 14 wolves in mid-winter (Service *et al.* 2007, Table 4).

These goals were designed to provide the NRM gray wolf population with sufficient representation, resilience, and redundancy for its long-term conservation (See Summary of Threats Analysis section for details). We have expended considerable effort to develop, repeatedly re-evaluate, and when necessary modify, the recovery goals (Service 1987, p. 12; Service 1994, Appendix 8 and 9; Fritts and Carbyn 1995, p. 26; Bangs 2002, p. 1). After evaluating all available information, we conclude the best scientific and commercial data available continues to support the ability of these recovery goals to ensure the population does not again become in danger of extinction.

Monitoring and Managing Recovery—In 1989, we formed an Interagency Wolf Working Group (Working Group) composed of Federal, State, and Tribal agency personnel (Bangs 1991, p. 7; Fritts *et al.* 1995, p. 109; Service *et al.* 1989–2007, p. 1). The Working Group conducted four basic recovery tasks (Service *et al.* 1989–2007, p. 1–2), in addition to the standard enforcement functions associated with the take of a listed species. These tasks were: (1) Monitor wolf distribution and numbers; (2) control wolves that attacked livestock by moving them, conducting other non-lethal measures, or killing them (Bangs *et al.* 2006, p. 7); (3) conduct research and publish scientific publications on wolf relationships to ungulate prey, other carnivores and scavengers, livestock, and people; and (4) provide accurate science-based information to the public and mass media so that people could develop their opinions about wolves and wolf management from an informed perspective.

The size and distribution of the NRM wolf population is estimated by the Working Group each year and, along with other information, is published in an interagency annual report (Service *et al.* 1989–2007, Table 4, Figure 1). Since the early 1980s, the Service and our cooperating partners have radio-collared and monitored over 940 wolves in the NRM to assess population status, conduct research, and to reduce/resolve conflict with livestock. The Working

Group's annual population estimates represent the best scientific and commercial data available regarding year-end NRM gray wolf population size and trends, as well as distributional and other information.

Recovery by State—At the end of 2000, the NRM population first met its overall numerical and distributional recovery goal of a minimum of 30 breeding pairs and over 300 wolves well-distributed among Montana, Idaho, and Wyoming (Service *et al.* 2001, Table 4; 68 FR 15804, April 1, 2003). This minimum recovery goal was exceeded every year since 2000 (Service *et al.* 2002–2007, Table 4; Service 2007a). Because the recovery goal must be achieved for 3 consecutive years, the temporal element of recovery was not achieved until the end of 2002 when 663 wolves and 49 breeding pairs were present (Service *et al.* 2003, Table 4). At the end of 2007, the NRM wolf population achieved its numerical and distributional recovery goal for 8 consecutive years (68 FR 15804, April 1, 2003; 71 FR 6634, February 8, 2006; Service *et al.* 2001–2007, Table 4; Service 2007a).

For the State-by-State recovery goals, Idaho and Wyoming first achieved the minimum recovery goal of 10 breeding pairs and 100 wolves in 2000, and Montana first achieved them in 2002. All three States have met or exceeded this goal every year since it was first achieved. In late 2007, preliminary estimates indicate there are 394 wolves in 37 breeding pairs in Montana, 788 wolves in 41 breeding pairs in Idaho, and 362 wolves in 27 breeding pairs in Wyoming for about 1,545 wolves in 105 potential breeding pairs in the NRM wolf population (Service 2007a). The NRM wolf population increased about 24 percent annually from 1995 to 2006 (Service *et al.* 2007, Table 4). Figure 2 illustrates wolf population trends by State from 1979 to 2006.

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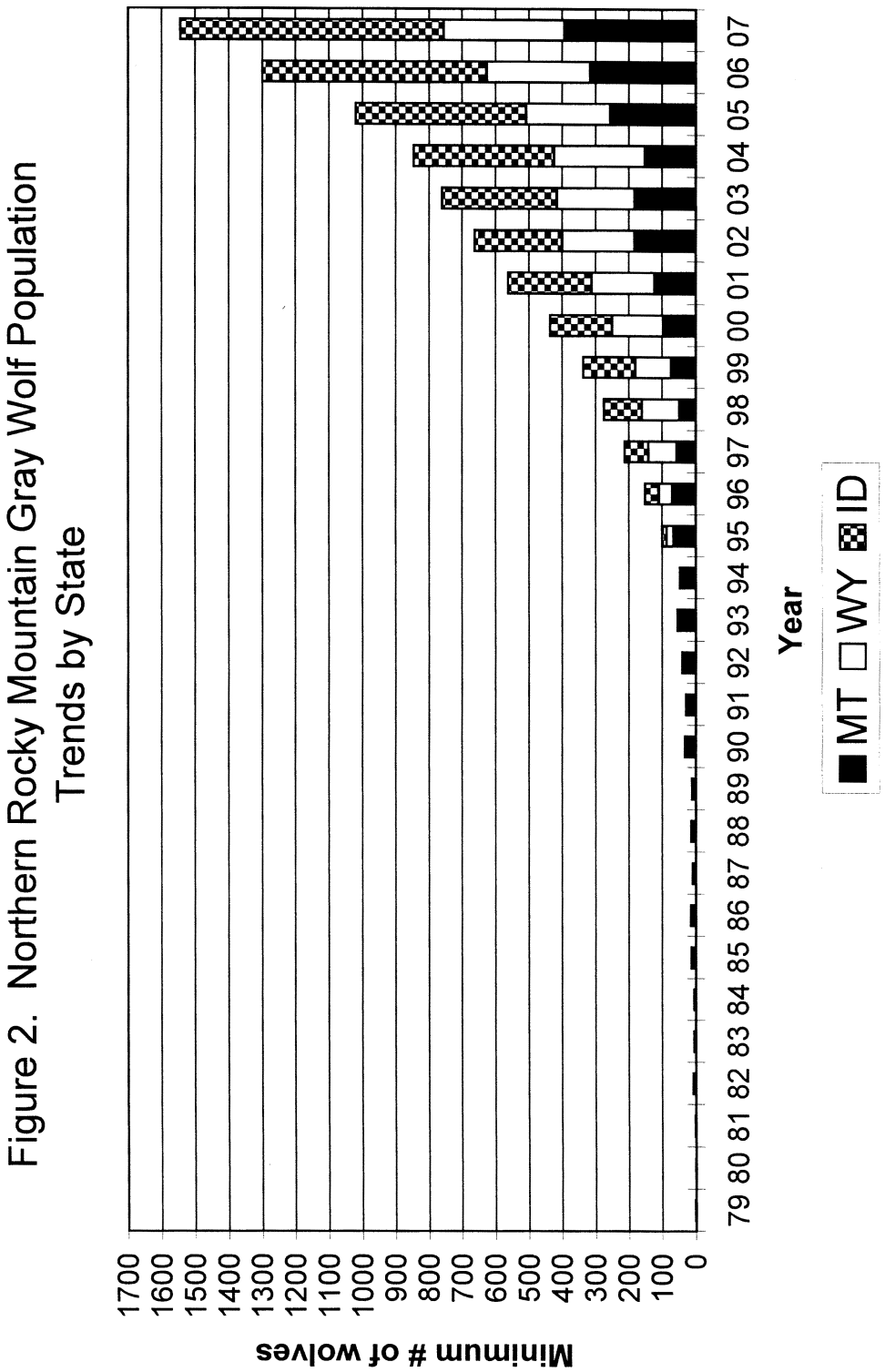

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As discussed previously, after the 2002 peer review of the wolf recovery efforts, we began using States, in addition to recovery areas, to measure progress toward recovery goals (Service *et al.* 2003–2007, Table 4). However, because the original recovery plan included goals for core recovery areas we have included the following discussion on the history of the recovery efforts and status of these core recovery areas, including how the wolf population's distribution and metapopulation structure is important to maintaining its viability and how the biological characteristics of each core recovery area differ (Service *et al.* 2007, Table 4).

Recovery in the Northwestern Montana Recovery Area— The Northwestern Montana Recovery Area's 84,800 km^2 (33,386 mi^2) includes: Glacier National Park; the Great Bear, Bob Marshall, and Lincoln Scapegoat Wilderness Areas; and adjacent public and private lands in northern Montana and the northern Idaho panhandle. Wolves there are listed as endangered.

Reproduction first occurred in northwestern Montana in 1986 (Ream *et al.* 1989). The natural ability of wolves to find and quickly recolonize empty habitat (Mech and Boitani 2003, p. 17–19), the interim control plan (Service 1988, 1999), and the interagency recovery program combined to effectively promote an increase in wolf numbers (Bangs 1991, p.7–13). By 1996, the number of wolves had grown to about 70 wolves in 7 known breeding pairs. However, since 1997, the estimated number of breeding pairs and wolves has fluctuated, partly due to actual population size and partly due to monitoring effort. It varied from 4 to 12 breeding pairs and from 49 to 171 wolves (Service *et al.* 2007, Table 4) but generally increased. In 2007, we estimated 214 wolves in 24 breeding pairs in the northwestern Montana recovery area (Service 2007a).

The Northwestern Montana Recovery Area has sustained fewer wolves than the other recovery areas because there is less suitable habitat and it is more fragmented (Oakleaf *et al.* 2006. p. 560). Some of the variation in our wolf population estimates for northwestern Montana is due to the difficulty of counting wolves in the areas' thick forests. Wolves in northwestern Montana also prey mainly on white-tailed deer, resulting in smaller packs and territories, which makes packs more difficult to detect (Bangs *et al.* 1998, p. 878). Increased monitoring efforts in northwestern Montana by Montana Fish, Wildlife and Parks (MFWP) since 2005 were likely responsible for some of the higher population estimates. Wolf numbers in 2003 and 2004 also likely exceeded 10 breeding pairs and 100 wolves but were not documented simply due to less intensive monitoring those years (Service *et al.* 2007, Table 4; Service 2007a). Wolf numbers in northwestern Montana have exceeded 100 wolves and 10 breeding pairs for at least the past 3 years, and probably the last 6 years (Service *et al.* 2007, Table 4).

Routine dispersal of wolves has been documented among northwestern Montana, central Idaho, and adjacent Canadian populations, demonstrating that northwestern Montana's wolves are demographically and genetically linked to both the wolf population in Canada and in central Idaho (Pletscher *et al.* 1991, pp. 547–8; Boyd and Pletscher 1999, pp. 1105–1106; Sime 2007, p. 4; Jimenez *et al.* in prep.). Because of fairly contiguous but fractured suitable habitat, wolves dispersing into northwestern Montana from both directions will continue to join or form new packs and supplement this portion of the overall NRM wolf population (Boyd *et al.* 1995, p. 140; Forbes and Boyd 1996, p. 1082; Forbes and Boyd 1997, p. 1226; Jimenez *et al.* in prep; vonHoldt *et al.* 2007, p. 19; Thiessen 2007, p. 50; Sime 2007, p. 4).

Unlike YNP or the central Idaho Wilderness complex, northwestern Montana lacks a large core refugium that contains large numbers of overwintering wild ungulates and few livestock. Therefore, wolf numbers may not ever be as high in northwestern Montana as they are in the Central Idaho or GYA core recovery areas. However, this portion of the NRM DPS has persisted for nearly 20 years, is robust today, and habitat there is capable of supporting 200 wolves (Service *et al.* 2007, Table 4). State management, pursuant to the Montana State wolf management plan (2003), will ensure this portion of the NRM DPS continues to thrive (see Factor D).

Recovery in the Central Idaho Recovery Area—The Central Idaho Recovery Area's 53,600 km^2 (20,700 mi^2) includes: The Selway Bitterroot, Gospel Hump, Frank Church River of No Return, and Sawtooth Wilderness Areas; adjacent, mostly Federal lands, in central Idaho; and adjacent parts of southwest Montana (Service 1994, p. iv). In January 1995, 15 young adult wolves from Alberta, Canada were released in central Idaho (Bangs and Fritts 1996, p. 409; Fritts *et al.* 1997, p. 7). In January 1996, an additional 20 wolves from British Columbia were released (Bangs *et al.* 1998, p. 787). Central Idaho contains the greatest amount of highly suitable wolf habitat compared to either northwestern Montana or the GYA (Oakleaf *et al.* 2006, p. 559). Consequently, the central Idaho area population has grown continuously and expanded its range since reintroduction. As in the Northwestern Montana Recovery Area, some of the Central Idaho Recovery Area's increase in its wolf population estimate was due to an increased monitoring effort by Idaho Department of Fish and Game (IDFG). By 2007, we estimated 885 wolves in 48 potential breeding pairs in the central Idaho recovery area (Service 2007a). This marks ten successive years (1998–2007) that this recovery area contained at least 10 breeding pair and 100 wolves (Service *et al.* 2007; Service 2007a).

Recovery in the GYA—The GYA Recovery Area (63,700 km^2 [24,600 mi^2]) includes: YNP; the Absaroka Beartooth, North Absaroka, Washakie, and Teton Wilderness Areas (the National Park/Wilderness units); adjacent public and private lands in Wyoming; and adjacent parts of Idaho and Montana (Service 1994, p. iv). The wilderness portions of the GYA are only seasonally used by wolves due to high elevation, deep snow, and low productivity in terms of sustaining year-round wild ungulate populations (Service *et al.* 2007, Figure 3). In 1995, 14 wolves representing 3 family groups from Alberta were released in YNP (Bangs and Fritts 1996, p. 409; Fritts *et al.* 1997, p. 7; Phillips and Smith 1996, pp. 33–43). In 1996, this procedure was repeated with 17 wolves representing 4 family groups from British Columbia. Finally, 10 five-month-old pups removed from northwestern Montana were released in YNP in the spring of 1997 (Bangs *et al.* 1998, p. 787). Only 2 survived past 9 months but both became breeding adults. By 2007, we estimated 455 wolves in 34 potential breeding pairs in the GYA (Service 2007a). This marks eight successive years (2000–2007) that this recovery area contained at least 10 breeding pair and 100 wolves (Service *et al.* 2007; Service 2007a).

Wolf numbers in the GYA were stable in 2005, but known breeding pairs dropped by 30 percent to only 20 pairs (Service *et al.* 2006, Table 4). The population recovered in 2006, primarily because numbers outside YNP in Wyoming grew to about 174 wolves in 15 breeding pairs (Service *et al.* 2007). Most of this decline occurred in YNP (which declined from 171 wolves in 16 known breeding pairs in 2004 to 118 wolves in 7 breeding pairs in 2005 (Service *et al.* 2005, 2006, Tables 1–4) and likely occurred because: (1) Highly suitable habitat in YNP was saturated with wolf packs; (2) conflict among packs appeared to limit population density; (3) fewer elk occur in YNP than when reintroduction took place (Vucetich *et al.* 2005, p. 259; White and Garrott 2006, p. 942); and (4) a suspected 2005 outbreak of disease (canine parvovirus (CPV) or canine distemper (CD)) reduced that years'' pup survival to 20 percent (Service *et al.* 2006, Table 2; Smith *et al.* 2006, p. 244; Smith and Almberg 2007, pp. 17–20). By 2007, the YNP wolf population had rebounded and was estimated to contain 186 wolves in 12 breeding pairs (Service 2007a). Additional significant growth in the National Park/Wilderness portions of the Wyoming wolf population is unlikely because suitable wolf habitat is saturated with resident wolf packs. Maintaining wolf populations above recovery levels in the GYA of the NRM DPS will depend on wolf packs living outside the National Park/Wilderness portions of northwestern Wyoming and southwestern Montana.

For further information on the history of NRM wolf recovery, recovery

planning (including defining appropriate recovery criteria), population monitoring (through the end of 2007), and cooperation and coordination with our partners in achieving recovery, see the ''Recovery'' section of the August 1, 2006, 12-month status review (71 FR 43411–43413), Service weekly wolf reports (1995–2007), and the Rocky Mountain Wolf Recovery Interagency Annual Reports (Service *et al.* 1989–2007) at *http://westerngraywolf.fws.gov*. The NRM Wolf Interagency Annual Report for 2007 (Service *et al.* 2008) should be available about the time this rule is published.

Public Comments Solicited

In accordance with our Interagency Policy for Peer Review in Endangered Species Act Activities (59 FR 34270, July 1, 1994) and the Office of Management and Budget's (OMB) Final Information Quality Bulletin for Peer Review, we solicited independent review of the science in the proposed delisting rule from eight well-published North American scientists with extensive expertise in wolf biology. The purpose of this review was to ensure that our decision to establish and delist the NRM gray wolf DPS was based on scientifically sound data, assumptions, analyses, and conclusions. All eight peer reviewers submitted comments on the proposed delisting rule during the initial 90-day comment period (72 FR 6106, February 8, 2007; 72 FR 14760, March 29, 2007). Five of those experts reviewed the proposal again after we reopened the comment period (73 FR 36939, July 6, 2007) to allow consideration of Wyoming's revised wolf management plan and its impact upon our proposal.

Six of seven peer reviewers who specifically stated an opinion on the soundness of our overall initial delisting proposal confirmed that our approach was generally reasonable and science-based and that appropriate literature was cited. Five of the eight experts volunteered the opinion that the Service's rejection of the Wyoming 2003 wolf management framework appeared warranted. Two reviewers questioned whether delisting anywhere in the NRM DPS should proceed without an approved Wyoming wolf management plan. All of the experts who reviewed Wyoming's revised plan and commented during the reopened comment period indicated delisting was appropriate. Generally, the reviewers agreed with our conclusion that the wolf population in the NRM DPS is biologically recovered and is no longer threatened as long as the States adequately regulate human-caused mortality. The reviewers provided many valuable thoughts, questions, and suggestions for improving the document. Issues identified by reviewers included: Suggestions to expand the discussion related to the recovery criteria (connectivity, foreseeable future, metapopulation, and breeding pairs); the adequacy of State wolf management plans and their future commitments; how the DPS border and criteria for suitable habitat were developed; not delisting northwestern Wyoming within the NRM DPS; and the effect of human-caused mortality on the wolf population.

We considered their comments and recommendations as we made our final decision on the proposal. As a result of these comments, we incorporated many changes into the document. All other substantive peer reviewer comments are addressed under the appropriate Issue/Response sections, which follow.

Summary of Public Comments

In our proposed rule, we requested that all interested parties submit information, data, comments, or suggestions (72 FR 6106, February 8, 2007). The comment period was open from February 8, 2007, through May 9, 2007 (72 FR 6106, February 8, 2007; 72 FR 14760, March 29, 2007). On July 6, 2007, we reopened the comment period for an additional 30 days (73 FR 36939). During the comment periods, we held eight public hearings and eight open houses (72 FR 6106, February 8, 2007; 72 FR 14760, March 29, 2007; 73 FR 36939, July 6, 2007). To further promote interest and awareness in the proposal, we also: conducted numerous press interviews; published legal notices in newspapers; and posted on our website, and otherwise made available, the proposal and numerous background documents. Comments could be hand delivered to us or submitted to us via e-mail, mail, the Federal e-Rulemaking Portal, fax, or public hearing testimony. Because the **Federal Register** notices listed one email address and the press releases listed another email address, we considered comments submitted to either email address. During the public comment process, we received 410 oral statements, 103 written testimony statements, over 283,000 emailed public comments, and 434 mailed and faxed comments. Comments were submitted by a wide array of parties, including the general public, environmental organizations, outdoor recreation, agricultural agencies and organizations, and Tribal, Federal, State, and local governments.

We reviewed all comments from peer reviewers and the public for substantive issues and new information regarding the proposed rule. Substantive comments received during the comment period have been addressed below or incorporated directly into this final rule. Comments of a similar nature are grouped together under subject headings in a series of ''Issues'' and ''Responses.''

Technical and Editorial Comments

Issue 1: Numerous technical and editorial comments and corrections were provided by respondents on nearly every part of the proposal. Several peer reviewers and others suggested or provided additional literature to consider in the final rule.

Response 1: We corrected and updated numbers and other data wherever appropriate and possible. We edited the rule to make its purpose and rationale clearer. We shortened and condensed several sections by not repeating information that was already contained in the references cited.

The literature used and recommended by the peer reviewers and others has been considered and incorporated, as appropriate, in this final rule. We also reviewed and added literature in development and in press to our reference list when it represents the best scientific and commercial data available. The list of literature cited in this rule will be posted on our website.

Compliance With Laws, Regulations, and Policy

Issue 2: Numerous parties suggested that delisting the NRM DPS does not comply with our legal, regulatory, and policy responsibilities.

Response 2: We have carefully reviewed the legal requirements of the Act, its implementing regulations, and relevant case law, all relevant Executive, Secretarial, and Director Orders, Departmental and Service policy, and other federal policies and procedures. We believe this rule and the process by which it was developed fully satisfies all of our legal, regulatory, and policy responsibilities.

Issue 3: Some commenters suggested that a new NEPA analysis on the 1995 reintroduction was needed because wolves have exceeded levels analyzed in the 1994 Environmental Impact Statement (EIS). Others suggested NEPA compliance on the delisting was needed for other reasons.

Response 3: The 1994 EIS was limited to the NRM wolf reintroduction efforts and is not applicable to the delisting process. As noted in the proposed rule, NEPA compliance documents, such as environmental assessments or

environmental impact statements, need not be prepared in connection with actions adopted pursuant to section 4(a) of the Act (listings, delistings, and reclassifications). A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Issue 4: The Service has not adequately consulted with Native American Tribes, as required by Secretarial Order 3206.

Response 4: The Service has engaged in a wide variety of efforts to consult with Native American Tribes. During the development of the proposal and this final rule, we endeavored to consult with Native American Tribes and Native American organizations to provide them with a complete understanding of the proposal and to enable us to gain an understanding of their concerns. We made additional efforts to contact and inform Tribes during the comment period, including providing the opportunity for informational meetings with Tribal representatives before the open houses and hearings on the delisting proposal. As we have become aware of Native American concerns, we have tried to address those concerns to the extent allowed by the Act, the Administrative Procedure Act, and other Federal statutes. We continue to work closely with and fund the Nez Perce Tribe and we assisted the Wind River Tribes in developing a Tribal Wolf Management Plan (Wind River Tribes 2007) that we approved in June 2007.

Recovery Goals, Recovery Criteria, and Delisting

Issue 5: Some commenters suggested that we should not use numerical quotas in reclassification or delisting decisions for the gray wolf. Commenters offered a multitude of reasons why delisting is warranted/not warranted or premature/overdue.

Response 5: The Act specifies that objective and measurable criteria be developed for recovering listed species. For a detailed discussion of the NRM wolf recovery criteria see the Recovery section. This final delisting determination is based upon the species' status relative to the Act's definition of threatened or endangered and considers potential threats to the species as outlined in section 4(a)(1) of the Act. Population numbers and status provide useful information for assessing the species' vulnerability to these factors. Therefore we believe that it is appropriate to use numerical information in our analysis if delisting is warranted. As described in detail in this rule, the species no longer meets the definition of threatened or endangered, thus, delisting is warranted.

Issue 6: Some commenters requested that we further explain the recovery criteria.

Response 6: The rule now provides a fuller explanation of the recovery goals (see the *Recovery Planning and the Selection of Recovery Criteria section*).

Issue 7: Several commenters used the higher numbers of wolves required for recovery of wolves in the WGL DPS as evidence that the NRM wolf population is too low to delist.

Response 7: The recovery goals for the WGL DPS and the NRM DPS differ because the biological circumstances (such as prey type and density, wolf density, habitat suitability, terrain, other ecological conditions, the history of recovery and planning efforts, and potential for human conflict) in each area differ. However, the standards for achieving recovery have the same biological foundation. Each set of recovery goals required a metapopulation structure, numerical and distribution delisting criteria to be exceeded for several years, State plans that would adequately regulate wolf mortality, and sufficient elimination or reduction of threats to the population. The standards for achieving recovery in the WGL DPS and NRM DPS are both scientifically valid and realistically reflect the biological similarities and differences between each area.

Issue 8: Some suggested that the 1994 recovery goal was inadequate to ensure the continued viability of the NRM DPS. Specifically, it was suggested that the 1994 EIS could not properly evaluate the recovery goals because predicting the number of wolves the two then-unoccupied recovery zones might support was not possible in 1994. Some thought that the wolf recovery goals should be reevaluated given historic or recent wolf numbers and distribution throughout the NRM. Others suggested that additional protection of the ecosystem on which the NRM wolves depend would be necessary to accomplish successful recovery in areas of historic occupancy. Some questioned the objectivity of the peer review process for the recovery goals. Others suggested that the wolf population be reduced to the minimum recovery goal of 300 wolves in 30 breeding pairs.

Response 8: We do not dispute the fact that the NRM can support a wolf population that is several times higher than the minimum numerical recovery goal. However, under the Act, species recovery is considered to be the return of a species to the point where it is no longer threatened or endangered. Recovery under the Act does not require restoring a species to historic levels or even maximizing possible levels of genetic diversity, density, or distribution. The Service has reviewed the NRM wolf recovery goal to ensure it is adequate (see discussion in Recovery section). We determined that a three-State wolf metapopulation that does not fall below 10 breeding pairs and 100 wolves per State in mid-winter is biologically recovered. Montana, Idaho and Wyoming have committed to maintain the NRM wolf population above those minimum numerical and distributional levels.

We used an extensive unbiased scientific peer review and public review process and our own expertise to help investigate, and modify as necessary, the recovery goals. We continue to believe these goals are adequate to ensure the species does not again become threatened or endangered. Additionally, peer reviews of the State wolf management plans and the rulemaking process also confirmed the adequacy of the recovery goals to maintain a recovered wolf population in the NRM.

Regarding habitat, we believe the NRM DPS contains sufficient quality and quantity of habitat to maintain a healthy and viable wolf population in the long-term (as discussed in Factor A below). Thus, we do not believe there is a need for additional habitat protections in the NRM DPS.

Finally, the Act does not require or authorize the Service to manage a listed species to keep it from surpassing minimum recovery goals.

Future Wolf Numbers

Issue 9: Many pointed out that the States will manage the NRM wolf population for fewer wolves than currently exist. Others recommended that we recognize that wolf numbers can fluctuate dramatically.

Response 9: The delisted NRM DPS wolf population may be reduced from its current levels of around 1,500 wolves after delisting. However, the three States containing all habitat occupied by persistent wolf packs and most of the suitable habitat in the NRM DPS have each committed to manage for at least 15 breeding pairs and 150 wolves so the population never goes below recovery levels. These States have indicated that they will likely manage the population at around 883–1,240 wolves in 69–96 breeding pairs (see *Recovery Planning and the Selection of Recovery Criteria* section and Factor D.). We believe maintenance well above the minimum recovery goal is more than sufficient to maintain wolf recovery in the NRM. We and our State partners recognize that all

wildlife populations, including wolves, can fluctuate widely over a relatively short period of time. By managing for at least 50 percent above the minimal recovery levels, the States provide an adequate safety margin. This margin, combined with the States' commitment to adaptively manage the species as needed, adequately addressed concerns about population fluctuations.

Additional Recovery Efforts

Issue 10: Some commenters suggested that the Service should initiate additional recovery programs in order to achieve gray wolf recovery before any delisting occurs. Others thought additional recovery efforts in these areas were unwise and unnecessary. The adjacent States of California, Nevada, Colorado, Utah, Oregon, and Washington were mentioned most frequently for additional recovery programs.

Response 10: Possible future wolf recovery programs are beyond the scope of this rulemaking as such actions are not necessary to ensure the NRM DPS remains unlikely to become endangered in the foreseeable future throughout all or a significant portion of its range.

Issue 11: Several commenters thought that wolf recovery should require re-colonization of all historical range or, at least, the portions of the historical range that could be made suitable. Some suggested that wolves should remain listed to promote wolf restoration within unoccupied portions of the species historic range, both in and beyond the NRM DPS. Others indicated that the conservation biology concepts of resiliency, redundancy, and representation need to be addressed over a much broader area. Some believed that our interpretation of recovery led us to focus on occupied habitat and controlling excessive rates of human-caused mortality rather than ''true recovery.'' It was suggested that ''true recovery'' requires natural connectivity or linkage, protection and enhancement of existing population levels, widespread habitat protection and restoration, and very protective regulatory mechanisms.

Response 11: Many of these comments would expand the purpose of the Act and the meaning of ''recover'' under the Act. The purpose of the Act is to prevent species extinctions and provide for the conservation of endangered and threatened species. Conservation is defined as the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. According to our implementing regulations (50 CFR 424.11), a species is recovered when the best scientific and commercial data available indicate that it no longer meets the definition of endangered or threatened under the Act.

Restoration of historically occupied areas can play a role in achieving this goal. In the case of the NRM DPS, occupancy has been restored and will be sustained across a sufficiently large area to ensure the recovered status of the NRM DPS is never compromised. Occupancy across larger portions of the historical range, unless required to preclude the NRM DPS from again becoming threatened or endangered, are beyond the requirements of the Act.

Resiliency, redundancy, and representation (described in detail in the Conclusion of the 5-Factor Analysis section below) are important factors in the long-term conservation status of any species (Shaffer and Stein 2000). The principles of resiliency and redundancy are satisfied by the metapopulation structure of the NRM DPS, the numeric and distributional elements of the recovery goal, the core of highly protected public lands that provide secure habitat in each core recovery area, and the natural biological resiliency and adaptability of wolves. The concept of representation, when applied to the conservation of the gray wolf, indicates that we should preserve enough genetic diversity so that future genetic problems are unlikely to lead to extinction. These problems may include genetic drift (random fluctuations of gene frequencies in a population) and inbreeding depression (decreased vigor in terms of growth, survival, or fecundity), which would result in a diminished ability to survive or evolve as new environmental conditions develop. Within the NRM DPS, the current gray wolf recovery program preserves all of what remains of the species' genetic diversity in that area (Leonard *et al.* 2005, p. 1) (See discussion of genetics in Factor E.). The three wolf populations in the lower 48 States (WGL DPS, NRM DPS, and the wolf population in the southwest) contain all of the remaining genetic material of the gray wolf that formerly inhabited those areas. Additionally, the species remains abundant in many areas of the northern hemisphere. Collectively, this information shows that the conservation biology principle of representation is satisfied.

We disagree with the assertion that we have inappropriately focused our recovery efforts on occupied habitat and mortality control. In fact, we have focused recovery efforts on wolf population levels, distribution, habitat, connectivity, all forms of mortality, wolf/human conflicts, diseases and parasites, predation, human attitudes, genetics, and dispersal (Service *et al.* 2007). We have also worked to maintain public tolerance of wolves by limiting damage to private property. These recovery efforts led to significant increases in wolf numbers and range, allowing wolves to reoccupy habitats they were absent from since the 1930s. Our efforts also provided demographic, genetic, and habitat security. Wolves now occupy most of the suitable habitat within the NRM DPS. This comprehensive approach to recovery will be continued under State management in the future. Additional conservation actions that would result in a more widely distributed and numerically abundant wolf population in the NRM DPS are not necessary to meet the definition of recovered under the Act.

Issue 12: Many suggested that we failed to recognize the ecological importance or trophic cascades (the ripple effect in predator, herbivore, plant, and scavenger communities caused by restoring a keystone species like wolves) and ecological effects emanating from wolf restoration in the NRM. Some suggested that the Act mandates that a species be ''ecologically effective.'' Still others thought we should use an ''ecosystem approach'' when implementing recovery. Finally, some suggested delisting does not fulfill parts of the Service mission which includes, ''working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.''

Response 12: We recognize that wolf recovery appears to have caused trophic cascades and ecological effects that affect numerous other animal and plant communities, and their relationships with each other. One example is changes in elk density and behavior that reduce browsing pressure in riparian areas that allow increased willow growth and survival, which then provides habitat for beaver, fish fry, and nesting song birds. These effects have been most pronounced when wolf populations are at natural carrying capacity, such as in YNP (Smith *et al.* 2003, pp. 330–340; Robbins 2004, pp. 76–85; Campbell *et al.* 2006, pp. 360–363). While some believe we should stall delisting until these cascading ecological effects are restored throughout the NRM DPS or beyond, this approach is not supported by the Act. Instead, when a species no longer meets the definition of endangered or threatened under the Act, it is

recovered, and should be delisted. Similarly, the Act does not require that we achieve or maintain ''ecological effectiveness'' (*i.e.*, occupancy with densities that maintain critical ecosystem interactions and help ensure against ecosystem degradation) (Soule *et al.* 2003, p. 1239).

Service policy intends that we apply an ecosystem approach in carrying out our programs for fish and wildlife conservation (National Policy Issuances 95–03 and 96–10; 59 FR 34274, July 1, 1994). The goal of such an approach is to strive to contribute to the effective conservation of natural biological diversity through perpetuation of dynamic, healthy ecosystems when carrying out our various mandates and functions. Preserving and recovering endangered and threatened species is one of the more basic aspects of an ecosystem approach to conservation. Successful recovery of a threatened or endangered species requires that the necessary components of its habitat and ecosystem be conserved, and that diverse partnerships be developed to ensure the long-term protection of those components. Thus, the recovery success demonstrated for gray wolves, a keystone or ''highly interactive species'' (as defined by Soule *et al.* 2003), incorporated an ecosystem approach.

Finally, we believe the delisting portrays successful implementation of our mission statement. Gray wolf recovery programs involve many partners in the private and public sector, at all levels of government, and include numerous other State and Federal agencies. The gray wolf recovery successes described in this rule resulted from working with others to conserve, protect, and enhance gray wolf populations in the NRM DPS. That success has now reached a point where the NRM DPS is no longer threatened or endangered and thus no longer requires the protections of the Act.

Issue 13: Some commenters suggested that we should delist gray wolves in areas outside the proposed DPS because: wolves are common elsewhere (in other areas of the lower 48 States or in Alaska and Canada); wolves have recovered (in that area or elsewhere); wolves are extirpated in many areas and could be delisted on the basis of extinction in those areas; keeping wolves listed where there is little or no suitable habitat results in irresolvable conflicts; and a State can manage a resident species better than the Federal government.

Response 13: The Federal status of wolves under the Act outside of the NRM DPS is beyond the scope of this action. An evaluation of these areas for either delisting or additional recovery efforts will be addressed in subsequent efforts.

Designating the NRM Distinct Population Segment

Issue 14: Some commenters suggested that we improperly designated the NRM DPS.

Response 14: As described above, the NRM DPS is biologically based, appropriate, and was developed in accordance with the Act and the DPS Policy. The Service has the authority to list, reclassify, or delist at the subspecies, species, or DPS level, as we believe to be most appropriate to carry out the purpose of the Act.

Issue 15: Some commenters suggested that the NRM gray wolf population is not a DPS because all populations in the lower 48 States were once connected. Thus, the population should not be considered discrete.

Response 15: A comprehensive evaluation of the NRM gray wolf population's discreteness is included in the ''Analysis for Discreteness'' section above. The Act and the DPS Policy require that a DPS be discrete from other existing populations. Historical distribution has no bearing on the NRM population's current discreteness. The boundaries of the NRM DPS are based on likely dispersal distances and surrounding unsuitable habitat.

We believe a continuous uninterrupted population throughout most of the lower 48 States, as existed historically, is not achievable. The best scientific and commercial information available suggests the NRM population will remain markedly separated from other gray wolf populations in the lower 48 States. Occupancy in the vast majority of intervening areas is unsustainable because most of those areas have been too modified by people for wolf packs to persist.

Issue 16: Several commenters suggested that the DPS policy is to be used only in listing decisions and that using it in a delisting decision violates Congressional intent and the legislative and statutory structure of the Act.

Response 16: The Act, its implementing regulations, and our DPS policy provide no support for this interpretation. Section 4(a)(1) of the Act directs the Secretary of the Interior to determine whether ''any species'' is endangered or threatened. Numerous sections of the Act refer to adding and removing ''species'' from the list of threatened or endangered plants and animals. Section 3(15) defines ''species'' to include any subspecies ''* * * and any distinct population segment of any species of vertebrate fish or wildlife * * *'' The Act directs us to list, reclassify, and delist species, subspecies, and DPSs of vertebrate species. It contains no provisions requiring, or even allowing, DPSs to be treated in a different manner than species or subspecies when carrying out the listing, recovery, and delisting functions mandated by section 4. Furthermore, our DPS Policy states that the policy is intended for ''the purposes of listing, delisting, and reclassifying species under the Act'' (61 FR 4722, February 7, 1996), and that it ''guides the evaluation of distinct vertebrate population segments for the purposes of listing, delisting, and reclassifying under the Act'' (61 FR 4725, February 7, 1996).

These comments also overlook the untenable situation that would arise if DPSs could be listed, but could never be delisted, after they have been successfully recovered. Clearly Congress did not envision such an outcome when amending the definition of species to include vertebrate DPSs.

Issue 17: It was pointed out that the designation of the NRM DPS created a remnant population. Some suggested this violates the Act as the Act allows us to ''consider listing only an *entire* species, subspecies, or DPS'' (*Alsea Valley Alliance* v. *Evans,* 161 F. Supp. 2d 1154, 1162 (D. Or. 2001)); therefore, we cannot declare part of a listed species a DPS without also designating the remaining listed species as DPS(s). We should reconsider the status of all other wolf populations in the lower 48 States simultaneously and should not delist the NRM population until we consider recovery goals and planning for all other wolf populations/areas in the lower 48 States.

Response 17: While in some situations it may be appropriate to designate multiple DPSs simultaneously, the Act does not require it. This flexibility allows the Service to subsequently list or delist additional DPSs when additional information becomes available or as the conservation status of the taxon changes. Importantly, the court held that the Act allows this flexibility. In *National Wildlife Federation* v. *Norton* (385 F. Supp. 2d 553, 565 (D. Vt. 2005), the court found that ''Nowhere in the Act is the Secretary prevented from creating a 'non-DPS remnant' designation, especially when the remnant area was already listed * * *'' Our current designation of a NRM DPS, while retaining the remaining other wolves listed as endangered or nonessential experimental, is consistent with this aspect of the District Court's ruling.

Issue 18: Some suggested that the Service should use subspecies to

designate DPSs across the gray wolf's historical range and these DPSs should replace or supplement the current recovery zones. Others thought the current program illegally restored the wrong subspecies of wolf to Montana, Idaho, and Wyoming.

Response 18: The subspecific classification for the gray wolf identified by Hall (1984, pp. 2–11) is no longer in accordance with accepted, although evolving, scientific taxonomic literature and approaches (Service 1994, p. 1–21–22; Brewster and Fritts 1995, p. 353; Nowak 1995, p. 375; Nowak 2003, pp. 248–50), including new genetic analysis (Wayne and Vila 2003, pp. 223–4; Leonard *et al.* 2005; p. 1; Leonard and Wayne 2007, p. 1). Newer molecular techniques indicate distinct subspecies classifications or ranges are not appropriate when evaluating natural diversity and evolution in wolves. We accept the holarctic species (*Canis lupus*) concept without regard to theoretical historic subspecies designations. Therefore, we do not consider the wolves we reintroduced from Canada as a separate subspecies. Theoretical use of multiple DPSs to reestablish wolf populations in areas outside the recovered NRM DPS is beyond the scope of this rulemaking.

Issue 19: It was suggested that a wolf dispersing outside of the DPS boundaries (e.g., into Colorado) may create confusion among State, Federal, and Tribal agencies regarding the status of that wolf. To address this confusion, some believed that any wolf originating from the NRM DPS should be considered part of that DPS, regardless of where they are geographically.

Response 19: Consistent with Section 4(c) of the Act, the status of individual members of any species, subspecies, or DPS is dependent on its geographic location. We used easily identifiable boundaries, such as the center line of major highways or State borders, to minimize management confusion. Once this rule goes into effect, if a wolf goes beyond the NRM DPS boundary it attains the listing status of the area it has entered (i.e., endangered in much of the lower 48 States except where listed as nonessential experimental or delisted, as in the WGL DPS). Similarly, if a wolf enters the NRM DPS, it would not be listed and would be managed according to the relevant State management plan. State and Federal agencies adjacent to the NRM DPS are aware of and understand the management implications of the DPS boundaries. While we believe that future dispersal and conflicts outside the DPS will be rare, we will continue to work with any affected States or Tribes to resolve them.

Issue 20: Numerous comments suggested the border of the DPS was improperly developed. Some suggested the DPS should have been larger, while others thought it should have been smaller. Some believe that because the boundaries were mainly highways or State borders, they were arbitrary and not based on sound biological principles or natural features like rivers. The adjacent States requested that the NRM DPS boundary be changed to include most of Utah, Nevada, and Oregon, some of eastern North and South Dakota, and none of Washington.

Response 20: The boundary of the NRM DPS was established by analyzing the distribution of potentially suitable and unsuitable habitat for wolves in the NRM and the documented dispersal distances of radio-collared wolves. These are the most likely factors to influence a split between the NRM DPS and other potential areas of occupancy. A smaller DPS might split the biological entity. A larger DPS might split a neighboring biological entity, should one ever be established. According to our DPS policy, an artificial or manmade boundary (such as Interstate, Federal, and State highways, or State borders) may be used as a boundary of convenience in order to clearly identify the geographic area included within the DPS. We believe such use of easily understood boundaries will promote public understanding of the decision. In this case, the NRM DPS boundaries were defined along easily identifiable boundaries that represent the most appropriate DPS for this population (see DPS discussion in this rule for our rationale). While some suggested ''more biological'' borders like rivers or geological features, we do not believe such borders are of any greater biological meaning to wolves given their ability to cross nearly any geographic feature and distance (Linnell *et al.* 2005). In our view, the biological influences of suitable and unsuitable habitat in combination with mortality risk are likely to have the greatest influence on separation among populations.

Defining Suitable Habitat

Issue 21: Some commenters thought we should explain why some historically occupied lands were excluded from our definition of suitable habitat.

Response 21: Our identification of suitable habitat was based on the best scientific and commercial information available regarding successful utilization of habitat. Many areas of historic wolf habitat are no longer capable of supporting wolves. Most of these areas have been so modified by human activities as to be unsuitable for wolves. This issue is discussed in more detail in Factor A below.

Issue 22: Some commenters suggested that we improperly considered more than strictly biological criteria in defining suitable habitat by allowing the definition of suitable to consider human tolerance. Others suggested that we misinterpreted the habitat suitability models because they only present probabilities of successful occupation by wolves under current conditions.

Response 22: Our approach to suitable habitat considered a variety of factors including but not limited to human tolerance. Suitable wolf habitat in the NRM is generally characterized as public land with mountainous, forested habitat that contains abundant year-round wild ungulate populations, low road density, low numbers of domestic livestock that are only present seasonally, few domestic sheep, low agricultural use, and few people. Unsuitable wolf habitat is not capable of supporting viable populations. In the NRM, unsuitable habitat is generally considered private land, flat open prairie or desert, lands containing low or seasonal wild ungulate populations, high road density, high numbers of year-round domestic livestock including many domestic sheep, high levels of agricultural use, and many people. When wolves occur in places with high levels of human activity, they experience an increased mortality risk. The level of impact from such mortality is directly related to the location and numbers of humans and their activities.

In terms of suitable habitat models, we recognize that none of the available models are exact indicators of what is ''suitable.'' Each model only identifies areas with a 50 percent or greater chance of being suitable. Thus, we made our determination based upon a number of factors including, but not limited to, these models.

Foreseeable Future

Issue 23: Some commenters believed that limiting foreseeable future to 30 years was inappropriate.

Response 23: For the NRM DPS, the foreseeable future differs for each factor potentially impacting the DPS and we revised our definition of foreseeable future in this final rule to take into account the variability of what is foreseeable for each threat factor. However, for most factors impacting the NRM DPS, we believe a window of up to 30 years is foreseeable. We consider this to be a reasonable timeframe

because: (1) It took approximately this long from listing for public attitudes and regulations to result in a social climate that promoted and allowed for wolf restoration in the WGL DPS and NRM DPS; (2) this timeframe represents about ten wolf generations (3 years each) which is about how long it took for wolves in both the NRM DPS and WGL DPS to expand numbers and exceed their biological recovery criteria; and (3) available habitat and potential future distribution models (Carroll *et al.* 2003, 536; Carroll *et al.* 2006, Figure 6) predict out about this far. For some threat factors, a longer time horizon may be appropriate. For example, in our consideration of genetics, we reviewed a paper that looked 100 years into the future (vonHoldt *et al.* 2007). When evaluating the available information, with respect to foreseeable future, we take into account reduced confidence as we forecast further into the future.

Potential Threats to the NRM DPS

Issue 24: A number of commenters disputed our analysis of the five listing factors, suggesting alternative scenarios where the NRM wolf population would be threatened in the future.

Response 24: We updated and augmented the final rule's five-factor analysis to address specific issues raised. Our analysis revealed that none of these potential factors will threaten the NRM DPS wolf population in the foreseeable future.

Issue 25: It was suggested that we did not fully evaluate or acknowledge the potential impacts from oil and gas development or other human development on the wolf population. Other habitat issues in the NRM that required additional consideration included rapid human population growth and the resulting increase in houses, roads, recreation, and wolf/human conflicts.

Response 25: These issues are now considered under Factor A below.

Issue 26: Some commenters thought that the Service should reduce the future threat to wolves by requiring that livestock be reduced or eliminated on public lands.

Response 26: Wolves and livestock, primarily cattle and horses, can live near one another for extended periods of time without significant conflict. Through active management, most wolves do not learn that livestock can be successfully attacked and do not view them as prey. However, when wolves and livestock mix some livestock and some wolves are inevitably killed. Furthermore, when wolves learn to attack livestock, that behavior can quickly be learned by other wolves if it is not stopped. Since large numbers of wild ungulates winter on private property, even wolves that prey exclusively on wild ungulates will be in close proximity to livestock during at least some portion of the year. Wolf recovery has occurred and will continue to be maintained without modification of traditional western land-use practices and without removing livestock from public grazing allotments. Public lands in the NRM can have both large predators and seasonal livestock grazing. The Service has no need, for the purposes of wolf recovery, for livestock grazing practices on either public or private land to be modified, because wolf recovery is not threatened by the current levels of activities. Regulating livestock grazing on public lands is under the authorities of the respective land management agencies. We believe State management will continue to successfully balance traditional livestock grazing practices, open space, and wolf conservation.

Issue 27: Some commenters were concerned about humane treatment of wolves and were opposed to certain methods of take, particularly aerial gunning and poisoning. Numerous parties suggested that the Service should not allow public hunting of wolves. Others suggested that we should require the use of nonlethal control tools to reduce conflict with livestock.

Response 27: After delisting, we have determined that the States regulating wolves in the NRM DPS will not threaten the wolf population. However, we have no jurisdiction over the method or timing of State management or control of a delisted species. In Montana, Idaho, and Wyoming, wolves listed as trophy game can only be taken by the public as prescribed by State statute, usually fair chase hunting or regulated trapping. Wildlife listed as predatory animals are generally not covered by State anti-cruelty laws (e.g., Wyoming Title 6, Chapter 3, Article 2), so methods of take are not regulated. Wildlife agency professionals adhere to specific protocols when they capture, handle, or euthanize wildlife for research or management purposes. In the vast majority of situations, wolf control will be accomplished by regulated public hunting and trapping or agency control of problem wolves. State authorized wolf control may include, just as the federally authorized control program currently does, gunning from the air and ground, trapping, and, in a few cases, removing pups from dens. Deliberate poisoning of wolves will not be allowed due to current Environmental Protection Agency label restrictions on the use and application of all poisons (including M–44 devices) capable of killing wolves. Humane treatment of wolves in National Parks would be unaffected by delisting.

Hunting (and in some areas even unregulated hunting) has not threatened wolf populations (Boitani 2003). Hunting is a valuable, efficient, and cost-effective tool to help manage wildlife populations. Viable robust wolf populations in Canada, Alaska, and other parts of the world are hunted. The Service recognized (Service 1994, p. 1–13) and encouraged (Bangs *et al.* in press) State wolf management programs to incorporate regulated public hunting in their wolf conservation programs. Conservation programs to restore large predators such as mountain lions, black bears, and wolves succeeded because of the historic restoration of wild ungulates, such as elk and deer, by State fish and game agencies and hunter dollars and involvement (Geist *et al.* 2001, p. 175–181).

While not required by the Act, the States and Tribes will continue to use a combination of management options in order to reduce wolf/human conflicts including nonlethal forms of control (Bangs *et al.* 2006). However, these methods are effective in only some circumstances, and no single tool is a cure for every problem. Lethal control will still be required in many circumstances. Lethal control can also improve the overall effectiveness of nonlethal methods (Brietenmoser *et al.* 2005, p. 70).

Issue 28: Many people commented that the State regulatory frameworks, especially those of Idaho and Wyoming, were not adequate and should not have been approved. Commenters cited anti-wolf statements by public officials and county ordinances as evidence that persecution of wolves will resume if delisting occurs. Some expressed their opinion that Wyoming's 2003 State law and management plan were inadequate, while others argued we were wrong not to approve the measures as an adequate regulatory mechanism. Some felt that Wyoming's revised protections remained inadequate. Some were concerned the States would not honor their commitments or would change their laws to persecute wolves after delisting. Others maintained that none of the NRM DPS should be delisted until all States within the DPS (including Oregon, Washington, and Utah) had approved wolf management plans. Finally, some wanted the States to manage for breeding pairs rather than undefined packs.

Response 28: We recognize that human persecution of wolves was the primary reason for their wide-spread

extirpation across North America. We fully analyzed the nature and magnitude of this threat in Factors C and D below. Despite statements to the media by some public officials and some county ordinances that, if implemented, would be problematic for maintenance of a recovered wolf population, the official written policy and laws of the States, committing them to manage for a wolf population that always exceeds minimum recovery levels, supersede county rules and authorities and statements by politicians reported by the media.

Our evaluation of State regulatory mechanisms considered all the laws, regulations, ordinances, resolutions, memorials, statements by elected officials, and State plans for Montana, Idaho and Wyoming. The States of Idaho (2002) and Montana (2003) adopted State laws and management plans that meet the requirements of the Act and will conserve a recovered wolf population into the foreseeable future. While we continue to believe the 2003 Wyoming law and wolf management plan were not sufficient to maintain Wyoming's share of a recovered NRM DPS (Williams 2004, pp. 1–3; 71 FR 43410, August 1, 2006; 71 FR 6634, February 8, 2006; 72 FR 6106, February 8, 2007), we have determined that the 2007 Wyoming State law and wolf management plan meet the requirements of the Act and will conserve Wyoming's share of a recovered wolf population into the foreseeable future (assuming they are allowed to become effective; see discussion under Factor D below) (72 FR 36939, July 6, 2007; Hall 2007). We believe these regulatory mechanisms are adequate to ensure that the wolf population in the NRM DPS will remain well above recovery levels into the foreseeable future (Williams 2004, pp. 1–3; Hall 2007, p. 1). The discrepancy between breeding pairs and packs no longer appears relevant as all three States have committed to measure wolf recovery criteria by breeding pairs and numbers of wolves (Montana 2003; IDFG 2007; Wyoming 2007). We used peer review, public review during rulemaking, and our own expertise to assess whether the State plans provided adequate regulatory mechanisms to ensure a recovered wolf population into the foreseeable future.

Any wolf conservation by the Tribes and the States of Washington, Oregon, and Utah will be beneficial, but is not necessary to either achieving or maintaining a recovered wolf population in the NRM DPS. These areas contain little habitat suitable to support persistent wolf packs and any wolf breeding pairs that might occur there in the future would be too few and distant from the core recovery areas to affect the viability of the contiguous NRM wolf population. Still, Oregon and Utah have State wolf management plans/strategies and Washington is developing one (see Factor D). The Service has not approved these plans and we do not have any need to do so in order to finalize this delisting action. This is consistent with the recovery plan which considered parts of these States (Service 1987, p. 2).

State management will provide mechanisms for the control of problem wolves, including allowing landowners to take wolves in certain situations and allowing regulated public harvest of surplus wolves in the NRM DPS. This flexibility in wolf control is expected to increase public tolerance (Idaho 2007, Appendix A).

Montana, Idaho, and Wyoming have committed in their laws and plans to maintain the wolf population safely above recovery levels by regulating human-caused mortality. Mandatory post-delisting monitoring includes evaluating any threats to the NRM wolf population as well as its distribution and numbers. A decline of wolf populations below recovery goals due to failure of the States to honor their commitments or for other reasons could result in relisting under the Act.

Issue 29: Some suggested wolf management needs to be transferred to the States and Tribes.

Response 29: The Service agrees that a recovered wolf population is best managed by the respective States and Tribes. The States have relatively large and well-distributed professional fish and game agencies with demonstrated skills and experience that have successfully managed a diversity of resident species, including large carnivores, and will do a similarly outstanding job of managing a recovered wolf population. State management of wolves will be in alignment with the classic State-led North American model for wildlife management, which has been extremely successful at restoring, maintaining, and expanding the distribution of numerous populations of other wildlife species, including other large predators, throughout North America (Geist 2006, p. 1).

The Service delisted the WGL wolf population in early 2007, returning management of this population to the States and Tribes. Under cooperative agreements with us, Montana, Idaho, and the Nez Perce Tribe have successfully managed wolves in those States for the past 3 years. The Service worked closely with Montana, Idaho, and Wyoming as they developed their wolf management plans to ensure that they will always manage for a wolf population that exceeds recovery criteria. We are confident the States and Tribes will adequately manage wolves so the protections of the Act will not be required in the foreseeable future.

Issue 30: Some parties feared that State wolf management plans might not be implemented because funding for the plans is not guaranteed. Therefore, they concluded that the Service could not rely on them as adequate regulatory mechanisms, and delisting should not occur.

Response 30: Montana, Idaho, and Wyoming all recognize that implementation of their wolf management plans requires funding. The States have committed to secure the necessary funding to manage the wolf populations under the guidelines established by their Service-approved State wolf management plans (Idaho 2002; pp. 23–25; Montana 2003, pp. xiv; Idaho 2007, pp. 24, 47–48; Wyoming 2007, pp. 29–31). All have worked with their congressional delegations to secure Federal funding, but recognized that other sources of funding may eventually be required to implement their plans. In addition to State license fees or other forms of State funding, Federal funding could be available to help manage a delisted wolf population including in the form of directed appropriations, Pittman-Robinson Wildlife Restoration Act, other Federal grant programs, and private funding. The Service will continue to assist the States to secure adequate funding for wolf management. If wolf management by a State was to be completely unfunded or was inadequate to carry out the basic commitments of an approved State plan, then the promised management of threats by the States and the required monitoring of wolf populations might not be addressed. That scenario could trigger a status review for possible relisting under the Act.

Issue 31: Several parties suggested that we should have considered the risk to the wolf population from catastrophic events such as fire, climate change, drought, disease, and stochastic events.

Response 31: In response to these comments, we added a discussion of catastrophic events under Factor E below. Other potential catastrophic events are considered in other sections including our evaluation of habitat modification, diseases and parasites, human harassment and killing, genetic risks, climate change, and human attitudes.

Issue 32: Some suggested that the Service should consider the potential

effect of low genetic diversity on gray wolf recovery. They contend that 300 wolves and 30 breeding pairs is not high enough to maintain long-term genetic viability. These comments also suggest that the isolation of the GYA precluded a natural metapopulation dynamic for wolves in the NRM.

Response 32: Low genetic diversity and inbreeding is a concern for species with small populations or that have gone through a population bottleneck. We have fully analyzed this issue in Section E below. After careful consideration of all of the available information on this issue, we do not believe that low genetic diversity will threaten the NRM DPS in the foreseeable future.

Issue 33: Many pointed out that natural connectivity is an important consideration for the long-term conservation of the NRM wolf population. Some suggested that we should provide habitat protections for identified natural linkage zones between and within the GYA and central Idaho and northwestern Montana. It was also suggested that we should identify critical habitat for these linkage zones.

Response 33: Wolves have an unusual ability to disperse long distances rapidly across virtually any habitat and to select mates to maximize genetic diversity. Thus, connectivity issues are less likely to affect wolves than nearly any other species of land mammal (Paquet *et al.* 2006, p. 3). Although it is highly unlikely there would ever be a need, complications from a potential lack of natural habitat connectivity could be quickly resolved by agency management, such as relocations. Connectivity and genetics are discussed further below under factors A and E, respectively.

Additionally, connectivity for wildlife across the NRM remains an important and high-priority issue for the Service and our partner wildlife agencies. A process to identify, maintain, and improve wildlife movement areas between the large blocks of public land in the NRM is ongoing (Servheen *et al.* 2003, p. 3). This interagency effort involves 13 State and Federal agencies working on linkage facilitation across private lands, public lands, and highways (Interagency Grizzly Bear Committee 1994, 2001, pp. 1–2; Brown 2007, pp. 1–3). To date, this effort has included: (1) Development of a written protocol and guidance document on how to implement linkage zone management on public lands (Public Land Linkage Taskforce 2004, pp. 3–5); (2) production of several private land linkage management documents (Service 1997; Parker and Parker 2002, p. 2); (3) analyses of linkage zone management in relation to highways (Geodata Services Inc. 2005, p. 2; Waller and Servheen 2005, p. 998); and (4) a workshop in the spring of 2006 on implementing management actions for wildlife linkage (the proceedings of which are available online at: *http://www.cfc.umt.edu/linkage*). The objective of this work is to maintain and enhance movement opportunities for all wildlife species across the NRM. Although this linkage work is not directly associated with the wolf population, it may benefit wolves even after delisting.

No critical habitat was ever, nor required to be, designated in the NRM for wolves under Section 4 of the Act. Critical habitat can only be designated under the Act for threatened and endangered species. There is no legal basis to designate critical habitat for the delisted NRM DPS.

Issue 34: Some commenters stated that we failed to consider the impacts of State hunts on the social structure of wolf packs.

Response 34: This issue is now considered under Factor E below.

Issue 35: Some commenters encouraged us to investigate human dimensions with a protocol that would allow quantification of changes in the attitudes of the general public, farmers, hunters, and other stakeholders.

Response 35: We agree that the values people hold about wolves may provide valuable insight into successful management strategies (Peek *et al.* 1991, p. 15). The States have already conducted surveys about human values towards wolves (Idaho 2007, Appendix A; as one example) and will likely continue to do so in the future. We believe this information may be helpful to formulate State policies. However, such monitoring is not required by the Act in order to justify delisting.

Significant Portion of Range

Issue 36: Some commenters expressed dissenting views and interpretations of the Act's phrase ''significant portion of its range'' (SPR) in the definition of a threatened or an endangered species. Several believed that ''range'' should mean historical range and provided us with Vucetich *et al.* (2006) as support for their position. Others opined that our definition was the same used in our 2003 rule that was invalidated by the court (68 FR 15804, April 1, 2003). Still others suggested our consideration of SPR should consider all suitable or potential habitat.

Response 36: On March 16, 2007, the Solicitor of the Department of the Interior issued a memorandum opinion with an extensive evaluation of the meaning of ''in danger of extinction throughout all or a significant portion of its range'' (Department of the Interior, Office of the Solicitor 2007). As elaborated in this opinion, we believe the law is clear that ''range'' in this phrase refers to ''current range,'' not ''historical range'' and that the Service therefore must focus primarily on current range. Data about the historical range and how the species came to be extinct in a portion of its historical range may be relevant in understanding or predicting whether a species is ''in danger of extinction'' in its current range. The fact that a species has ceased to exist in what may have been portions of its historical range does not necessarily mean that it is ''in danger of extinction'' in a significant portion of the range where it currently exists. For the purposes of this rule, ''range'' includes all of the NRM DPS (as identified in Factor A below and illustrated in Figure 1). Thus, our five-factor analysis analyzed threats across all portions of the NRM DPS.

Public Involvement

Issue 37: Some thought that the Service should have provided additional opportunities to learn more about the proposal and to provide comments including additional public hearings. Specifically, we received requests for hearings in Denver, CO, Seattle, WA, Portland, OR, and Jackson, WY.

Response 37: We believe that we provided ample opportunity for public comment including public comment periods totaling 120 days and eight public hearings. Comments could be hand-delivered to us or submitted to us via e-mail, mail, the Federal e-Rulemaking Portal, fax, or public hearing testimony. We have provided public comment opportunities beyond the basic requirements of the Act and other Federal rulemaking procedures.

We also alerted interested parties to the details of public hearings and opportunities for public comment. Public hearing times and locations and other avenues to comment were announced in the **Federal Register**, posted on our Web site and in our weekly wolf reports, and publicized in local and national press releases. All comments, whether presented at a public hearing or provided in another manner, received the same review and consideration.

The Act requires that we hold one public hearing if requested; we held 8 public hearings. We selected locations that were within a reasonable driving distance of people who live near wolves

and in every State within the NRM DPS. Commenting via e-mail, hand delivery, or letter allowed unlimited space to express comments, as opposed to the public hearing format, which limited comments to three minutes in order to provide an opportunity for all attending to speak. More than 283,000 comments were received.

Scientific Analyses

Issue 38: Some suggested that the Service should conduct a population viability analysis (PVA) or other additional modeling exercises or analysis (e.g. International Union for the Conservation of Nature (IUCN) guidelines) before delisting.

Response 38: The Act requires that we use the best scientific data available when we make decisions to list, reclassify, or delist a species. PVAs can be valuable as a tool to help us understand the population dynamics of a rare species (White 2000). They can be useful in identifying gaps in our knowledge of the demographic parameters that are most important to a species' survival, but they cannot tell us how many individuals are necessary to avoid extinction. The difficulty of applying PVA techniques to wolves has been discussed by Fritts and Carbyn (1995) and Boitani (2003). Problems include: Our inability to provide accurate input information for the probability of occurrence of, and impact from, catastrophic events (such as a major disease outbreak or prey base collapse); Our inability to incorporate all the complexities and feedback loops inherent in wild systems and agency adaptive management strategies; our inability to provide realistic inputs for the influences of environmental variation (such as annual fluctuations in winter severity and the resulting impacts on prey abundance and vulnerability); temporal variation; selective outbreeding (vonHoldt *et al.* 2007); individual heterogeneity; and difficulty in dealing with the spatial aspects of extreme territoriality and the long-distance dispersals shown by wolves. Relatively minor changes in any of these input values into a theoretical model can result in vastly different outcomes.

Thus, we believe conducting a PVA type analysis on the effect of wolf population management would be of limited value in the NRM DPS. Instead, we relied upon an extensive body of empirical data on wolves and the NRM wolf population. We believe the State commitments for adaptive management preclude the usefulness of theorizing about the potential status of the NRM wolf population under fixed criteria. We also utilized models that employed PVA-like parameters and analysis to help identify potentially suitable wolf habitat in the NRM DPS now and into the future (Carroll *et al.* 2003, 2006; Carroll 2006). The IUCN Redlist (IUCN 2007; *http://www.iucnredlist.org*; Bangs and Smith in press) considers gray wolves in North America a species of least concern and does not list regional or local populations. Wolves in the NRM DPS are simply the southwestern tip of a biologically-secure contiguous North American wolf population containing tens of thousands of individuals.

While some suggested that we conduct a PVA based on maintenance of 30 breeding pairs and 300 wolves or capping a wolf population at an arbitrary level, we believe this would lead to an inaccurate and misleading conclusion. Any such analysis would ignore the fluctuating nature of wildlife populations, actual requirements of the recovery goal, and the States' commitments to manage well above that level and to adjust their management strategies should the wolf population ever appear not to be meeting the State's management objectives.

Issue 39: Some commenters felt that it was difficult to judge the scientific validity of the science we relied upon because some of the science and literature was gray literature, had not been peer reviewed, was in preparation, or was through personal communication.

Response 39: While we attempt to use peer-reviewed literature to the maximum extent possible, the Act requires us to make our decision based on the best scientific and commercial data available. Because we have so many ongoing research and monitoring projects, new data are constantly being collected, analyzed, peer reviewed, and published. Such information often represents the best scientific data available (Service *et al.* 2007, pp. 64, 114, 183, 213), which the Service cannot ignore. All citations are available upon request.

Relisting Criteria

Issue 40: Some comments suggested we develop a clear, unequivocal set of criteria for automatic relisting. Some comments argued that monitoring is not sufficient if the results of investigations are not promptly incorporated in policy and management, and this type of rapid response requires availability of contingency funds, clear roles and authorities, and the power to impose the necessary actions on all involved partners. They suggest, that because the effectiveness of the monitoring program depends ''* * * upon adequate funding to provide research results with scientifically acceptable confidence limits,'' the monitoring plan should have secure funding for at least 5 to 10 years before delisting occurs.

Response 40: Montana, Idaho, and Wyoming have committed to monitor the wolf population according to the breeding pair standard and to publish annual reports of their activities for at least the first 5 years after delisting. We will post this information and our analysis of it on our Web site annually.

We believe that our criteria for relisting are clear. Four scenarios could lead us to initiate a status review and analysis of threats to determine if relisting was warranted including: (1) If the wolf population for any one State falls below the minimum NRM wolf population recovery level of 10 breeding pairs of wolves and 100 wolves in either Montana, Idaho, or Wyoming; (2) if the wolf population segment in Montana, Idaho, or Wyoming falls below 15 breeding pairs or 150 wolves in any one of those States for 3 consecutive years; (3) if the wolf population in Wyoming outside of YNP falls below 7 breeding pairs for 3 consecutive years; or (4) if a change in State law or management objectives would significantly increase the threat to the wolf population. All such reviews would be made available for public review and comment, including peer review by select species experts.

Any such status review would analyze status relative to the definition of threatened or endangered considering the 5 factors outlined in section 4(a)(1). If, at any time, data indicate that protective status under the Act should be reinstated, we can initiate listing procedures, including, if appropriate, emergency listing. If emergency listing was instituted, we would then have 240 days to complete a conventional listing rule before the protections of the emergency rule would expire.

Funding for government programs is never certain at any level, but the funding to support wolf management activities of the various Federal and State agencies in the NRM has been consistently obligated for the past 20 years, and we have a high level of confidence that the resources necessary to carry out the monitoring and management programs will continue for the foreseeable future. We may provide Federal funding for Federal monitoring requirements.

Use of Section 6 Agreements for States Outside the NRM DPS

Issue 41: Our proposal solicited comments regarding our intention to use

ESA section 6 agreements to allow States outside the NRM DPS with Service-approved wolf management plans to assume management of listed wolves, including nonlethal and lethal control of problem wolves. Some comments suggested this approach was inappropriate while others applauded the idea.

Response 41: This issue is not directly related to delisting in the NRM DPS and has been removed from this final rule. We will work with adjacent States to evaluate the appropriate mechanisms for States to manage listed wolves, including control of problem wolves.

Miscellaneous Issues Not Germane to This Rulemaking

Issue 42: Some comments pointed out the positive and negative economic impacts of wolves, especially related to tourism in YNP, livestock depredation, and competition with hunters for surplus big game.

Response 42: Under the Act, listing decisions are not to consider economic factors. That said, we believe wolf-related tourism in places like YNP will not be affected by delisting. Additionally, State management will reduce economic losses caused by livestock depredation and competition with hunters for wild ungulates.

Issue 43: Many comments were made on issues that were not related to or affected by this rulemaking. Most often these issues involved strongly held personal opinions or perceptions about Federal, State, or Tribal government or authorities, property rights, methods of take, risks to human safety, negative affects to hunting, outfitting, livestock production, tourism, ecosystem restoration, the U.S. Constitution, wildlife management in general, wolves and wolf management, and modifications to the NRM experimental population special 10(j) rule.

Response 43: While we respect these personal values, they are beyond the scope of this rulemaking.

Summary of Factors Affecting the Species

Section 4 of the Act and its implementing regulations (50 CFR part 424) set forth the procedures for listing, reclassifying, or removing species from listed status. ''Species'' is defined by the Act as including any species or subspecies of fish, wildlife, or plant, and any distinct vertebrate population segment of fish or wildlife that interbreeds when mature (16 U.S.C. 1532(16)). Under 50 CFR 424.11(d), we may remove the protections of the Act if the best available scientific and commercial data substantiate that the species is neither endangered nor threatened for the following reasons: (1) The species is extinct; (2) the species has recovered; or (3) the original scientific data used at the time the species was classified were in error.

A species may be delisted as recovered only if the best scientific and commercial data available indicate that it is no longer endangered or threatened. Determining whether a species meets the recovered definition requires consideration of the five categories of threats specified in section 4(a)(1) of the Act. For species that are already listed as endangered or threatened, this analysis of threats is an evaluation of both the threats currently facing the species and the threats that are reasonably likely to affect the species in the foreseeable future following the delisting or downlisting and the removal or reduction of the Act's protections.

Under section 3 of the Act, a species is ''endangered'' if it is in danger of extinction throughout all or a ''significant portion of its range'' and is ''threatened'' if it is likely to become endangered within the foreseeable future throughout all or a ''significant portion of its range.'' The word ''range'' in the phrase ''significant portion of its range'' refers to the range in which the species currently exists. For the purposes of this rule, ''range'' includes all of the NRM DPS (as identified in Factor A below and illustrated in Figure 1).

Evaluating whether the species should be considered threatened or endangered in all or a significant portion of its range is a multiple-step analysis. If we determine that the species is endangered throughout all of its range, we list it as endangered throughout its range and no further analysis is necessary. If not, we then evaluate if the species meets the definition of threatened throughout all of its range. If the species is threatened in all of its range, we list the species as threatened and consider if any significant portions of its range warrant listing as endangered. If we determine that the species is not threatened or endangered in all of its range, we consider whether any significant portions of its range warrant consideration as threatened or endangered. If we determine that the species is threatened or endangered in a significant portion of its range, the provisions of the Act would only apply to the significant portion of the species' range where it is threatened or endangered.

Foreseeable future is defined by the Services on a case-by-case basis, taking into account a variety of species-specific factors such as lifespan, genetics, breeding behavior, demography, threat projection timeframes, and environmental variability. ''Foreseeable'' is commonly viewed as ''such as reasonably can or should be anticipated: such that a person of ordinary prudence would expect it to occur or exist under the circumstances'' (Merriam-Webster's Dictionary of Law 1996; *Western Watershed Project* v. *Foss* (D. Idaho 2005; CV 04–168–MHW). For the NRM DPS, the foreseeable future differs for each factor potentially impacting the DPS. For most factors impacting the NRM DPS, we believe a window of up to 30 years is foreseeable. We consider this to be a reasonable timeframe because: (1) It took approximately this long from listing for public attitudes and regulations to result in a social climate that promoted and allowed for wolf restoration in the WGL DPS and NRM DPS; (2) this timeframe represents about ten wolf generations (3 years each) which is about how long it took for wolves in both the NRM DPS and WGL DPS to expand numbers and achieve their biological recovery criteria; and (3) available habitat and potential future distribution models (Carroll *et al.* 2003, 536; Carroll *et al.* 2006, Figure 6) predict out about this far. For some threat factors, a longer time horizon may be appropriate. For example, in our consideration of genetics, we reviewed a paper that looked 100 years into the future (vonHoldt *et al.* 2007). When evaluating the available information, with respect to foreseeable future, we take into account reduced confidence as we forecast further into the future.

The following analysis examines all five factors currently affecting, or that are likely to affect, the NRM gray wolf DPS within the foreseeable future.

A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The NRM DPS is approximately 980,803 km^2 (378,690 mi^2) and includes 402,606 km^2 (155,447 mi^2) of Federal land (41 percent); 49,803 km^2 (19,229 mi^2) of State land (5 percent); 32,942 km^2 (12,719 mi^2) of Tribal land (3 percent); 427,998 km^2 (165,251 mi^2) of private land (44 percent) (the remaining area is either water or lands in Washington that were not categorized into ownership in the geographic information system (GIS) layers we analyzed). The NRM DPS contains large amounts of three Ecoregion Divisions—Temperate Steppe (prairie) (312,148 km^2 [120,521 mi^2]); Temperate Steppe Mountain (forest) (404,921 km^2 [156,341

mi²]); and Temperate Desert (high desert) (263,544 km² [101,755 mi²]) (Bailey 1995, p. iv). The following analysis focuses on suitable habitat within the NRM DPS and areas currently occupied by persistent wolf packs (i.e., core recovery areas) (which may include intermittent unsuitable habitat). Then, unsuitable habitat is examined. A number of threats to habitat are examined including climate change, increased human populations and development (including oil and gas), connectivity, ungulate populations, and livestock grazing.

Suitable Habitat—Wolves once occupied or transited all of the NRM DPS. However, much of the wolf's historical range within the NRM DPS has been modified for human use and is no longer suitable habitat. We have reviewed the quality, quantity, and distribution of habitat relative to the biological requirements of wolves. In doing so we reviewed two models, Oakleaf *et al.* (2006, pp. 555–558) and Carroll *et al.* (2003, pp. 536–548; 2006, pp. 27–31; Carroll 2005, p. 1–3), to help us gauge the current amount and distribution of suitable wolf habitat in the NRM DPS. Both models ranked areas as suitable habitat if they had characteristics that suggested they might have a 50 percent or greater chance of supporting wolf packs. Suitable wolf habitat in the NRM DPS was typically characterized in both models as public land with mountainous, forested habitat that contains abundant year-round wild ungulate populations, low road density, low numbers of domestic livestock that are only present seasonally, few domestic sheep, low agricultural use, and few people. Unsuitable wolf habitat was typically just the opposite (i.e., private land, flat open prairie or desert, low or seasonal wild ungulate populations, high road density, high numbers of year-round domestic livestock including many domestic sheep, high levels of agricultural use, and many people). Despite their similarities, these two models had substantial differences in the area analyzed, GIS data layers, inputs, and assumptions. As a result, the Oakleaf *et al.* (2006, p. 559) and Carroll *et al.* (2006, p. 33) models predicted different amounts of theoretically suitable wolf habitat in areas examined by both models (i.e., portions of Montana, Idaho, and Wyoming).

Oakleaf's model was a more intensive effort that only looked at potential wolf habitat in Idaho, Montana, and Wyoming (Oakleaf *et al.* 2006, p. 555). It used roads accessible to two-wheel and four-wheel vehicles, topography (slope and elevation), land ownership, relative ungulate density (based on State harvest statistics), cattle (*Bos sp.*) and sheep density, vegetation characteristics (ecoregions and land cover), and human density to comprise its GIS data layers. Oakleaf analyzed the characteristics of areas occupied and not occupied by NRM wolf packs through 2000 to predict what other areas in the NRM might be suitable or unsuitable for future wolf pack formation (Oakleaf *et al.* 2006, p. 555). In total, Oakleaf *et al.* (2006, p. 559) ranked 170,228 km² (65,725 mi²) as suitable habitat in Montana, Idaho, and Wyoming.

In contrast, Carroll's model analyzed a much larger area (all 12 western States and northern Mexico) in a less specific way (Carroll *et al.* 2006, pp. 27–31). Carroll's model used density and type of roads, human population density and distribution, slope, and vegetative greenness as ''pseudo-habitat'' to estimate relative ungulate density to predict associated wolf survival and fecundity rates (Carroll *et al.* 2006, p. 29). The combination of the GIS model and wolf population parameters were then used to develop estimates of habitat theoretically suitable for wolf pack persistence. In addition, Carroll predicted the potential effect on suitable wolf habitat of increased road development and human density expected by 2025 (Carroll *et al.* 2006, pp. 30–31). Within the NRM DPS, Carroll *et al.* (2006, pp. 27–31) ranked 277,377 km² (107,096 mi²) as suitable including 105,993 km² (40,924 mi²) in Montana; 82,507 km² (31,856 mi²) in Idaho; 77,202 km² (29,808 mi²) in Wyoming; 6,620 km² (2,556 mi²) in Oregon; 4,286 km² (1,655 mi²) in Utah; and 769 km² (297 mi²) in Washington. Approximately 96 percent of the suitable habitat (265,703 km² (102,588 mi²)) within the NRM DPS occurred in Montana, Idaho, and Wyoming. According to the Carroll model, approximately 28 percent of the NRM DPS would be ranked as suitable habitat (Carroll *et al.* 2006, pp. 27–31).

The Carroll *et al.* (2006, pp. 31–34) model tended to be more generous in identifying suitable wolf habitat under current conditions than the Oakleaf (*et al.* 2006, pp. 558–560) model or that our field observations indicate is realistic. But Carroll's model provided a valuable relative measure across the western U.S. upon which comparisons could be made. The Carroll model did not incorporate livestock density into its calculations as the Oakleaf model did (Carroll *et al.* 2006, pp. 27–29; Oakleaf *et al.* 2006, p. 556). Thus, the Carroll model did not consider those conditions where wolf mortality is high and habitat unsuitable because of chronic conflict with livestock. During the past 20 years, wolf packs have been unable to persist in areas intensively used for livestock production, primarily because of agency control of problem wolves and illegal killing.

Furthermore, many of the more isolated primary habitat patches that the Carroll model predicted as currently suitable were predicted to be unsuitable by the year 2025, indicating they were likely on the lower end of what ranked as suitable habitat in that model (Carroll *et al.* 2006, p. 32). Because these types of areas were typically too small to support breeding pairs and too isolated from the core population to receive enough dispersing wolves to overcome higher rates of human-caused mortality, we do not believe they are currently suitable habitat based upon our data on wolf pack persistence for the past 20 years (Bangs 1991, p. 9; Bangs *et al.* 1998, p. 788; Service *et al.* 1999–2007, Figure 1).

Despite the substantial differences in each model's analysis area, GIS data layers, inputs, and assumptions, both models predicted that most suitable wolf habitat in the NRM was in northwestern Montana, central Idaho, and the GYA, which is the area currently occupied by the NRM gray wolf DPS. Carroll's model also indicated that these three areas had suitable habitat between them and it would remain relatively intact in the future (Carroll *et al.* 2006, p. 25). However, northwest Montana and Idaho were much more connected to each other and the wolf population in Canada than to the GYA (Oakleaf *et al.* 2006, p. 554). Collectively the three core areas were surrounded by large areas of unsuitable habitat.

These models are useful in understanding the relative proportions and distributions of various habitat characteristics and their relationships to wolf pack persistence, rather than as predictors of absolute acreages or areas that can actually be successfully occupied by wolf packs. Additionally, both models generally support earlier Service predictions about wolf habitat suitability in the NRM (Service 1980, p. 9; 1987, p. 7; 1994, p. vii). Because theoretical models only define suitable habitat as those areas that have characteristics with a 50 percent or more probability of supporting wolf packs, it is impossible to give an exact acreage of suitable habitat that can actually be successfully occupied. It is important to note that these areas also have up to a 50 percent chance of not supporting wolf packs.

We considered data on the location of suitable wolf habitat from a number of

sources in developing our estimate of currently suitable wolf habitat in the NRM DPS. Specifically, we considered the recovery areas identified in the 1987 wolf recovery plan (Service 1987, p. 23), the primary analysis areas analyzed in the 1994 Environmental Impact Statement (EIS) for the GYA (63,700 mi^2 [24,600 mi^2]) and central Idaho (53,600 mi^2 [20,700 mi^2]) (Service 1994, p. iv), information derived from theoretical models by Carroll *et al.* (2006, p. 25) and Oakleaf *et al.* (2006, p. 554), our nearly 20 years of field experience managing wolves in the NRM, and locations of persistent wolf packs and breeding pairs since recovery has been achieved. Collectively, this evidence leads us to concur with the Oakleaf *et al.* (2006, p. 559) model's predictions that the most important habitat attributes for wolf pack persistence are forest cover, public land, high elk density, and low livestock density. Therefore, we believe that Oakleaf's calculations of the amount and distribution of suitable wolf habitat available for persistent wolf pack formation, in the parts of Montana, Idaho, and Wyoming analyzed, represent the most reasonable prediction of suitable wolf habitat in Montana, Idaho, and Wyoming.

The area we conclude that is suitable habitat is generally depicted in Oakleaf *et al.* (2006, p. 559). Generally, suitable habitat is located in: Western Montana west of I–15 and south of I–90; Idaho north of Interstate 84; and the northwest corner of Wyoming including those areas east of State highway 120, along the western border of the Wind River Reservation, and USDA Forest Service (USFS) lands north of Boulder, WY, to the Idaho border. A comparison of actual wolf pack distribution in 2006 (Service *et al.* 2007, Figure 1) and Oakleaf *et al.*'s (2006, p. 559) prediction of suitable habitat indicates that nearly all suitable habitat in Montana, Idaho, and Wyoming is currently occupied and areas predicted to be unsuitable remain largely unoccupied.

Although Carroll determined there may be some (4%) potentially suitable wolf habitat in the NRM DPS outside of Montana, Idaho, and Wyoming, we believe it is marginally suitable at best and is insignificant to wolf population recovery because it occurs in small isolated fragmented areas. While some areas predicted to be unsuitable habitat in Montana, Idaho, and Wyoming have been temporarily occupied and used by wolves or even packs, we still consider them as largely unsuitable habitat. Generally, wolf packs in such areas have failed to persist long enough to be categorized as breeding pairs and successfully contribute toward recovery. An example of this occurred in 2006 when wolf packs formed in the Bighorn Mountains and near Pinedale, Wyoming (Service *et al.* 2007). Neither area was classified as having a breeding pair in 2006 and by 2007 at least four packs had either disappeared from the areas or been controlled because of chronic conflicts with livestock. Therefore, while these areas are routinely used by dispersing wolves, we consider such areas as containing unsuitable habitat and believe that dispersing wolves attempting to colonize those areas are unlikely to form breeding pairs or contribute to population recovery.

Unoccupied Suitable Habitat—Habitat suitability modeling indicates that the three NRM DPS core recovery areas are atypical of other habitats in the western U.S. because suitable habitat in those core areas occurs in such large contiguous blocks (Service 1987, p. 7; Larson 2004, p. 49; Carroll *et al.* 2006, p. 35; Oakleaf *et al.* 2006, p. 559). It is likely that without core refugia areas, like YNP or the central Idaho wilderness, that provide a steady source of dispersing wolves, other potentially suitable wolf habitat would not be capable of sustaining wolf breeding pairs. Some habitat ranked by models as suitable adjacent to core refugia may be able to support wolf breeding pairs, while other habitat farther away from a strong source of dispersing wolves may not be able to support persistent packs. This fact is important when considering suitable habitat, as defined by the Carroll (*et al.* 2006, p. 30) and Oakleaf (*et al.* 2006, p. 559) models, because wolf populations can persist despite very high rates of mortality only if they have high rates of immigration (Fuller *et al.* 2003, p. 183). Therefore, model predictions regarding habitat suitability do not always translate into successful wolf occupancy and wolf breeding pairs.

Strips and smaller (less than 2,600 km^2 [1,000 mi^2]) patches of theoretically suitable habitat (Carroll *et al.* 2006, p. 34; Oakleaf *et al.* 2006, p. 559) (typically, isolated mountain ranges) often possess higher mortality risk for wolves because they are surrounded by, or in close proximity to, unsuitable habitat with a high mortality risk. In addition, pack territories often form along distinct geological features (Mech and Boitani 2003, p. 23), such as the crest of a rugged mountain range, so useable space for wolves in isolated, long, narrow mountain ranges may be reduced by half or more, and thus are often too small to support a wolf breeding pair. This phenomenon, in which the quality and quantity of suitable habitat is diminished because of interactions with surrounding less-suitable habitat, is known as an edge effect (Mills 1995, pp. 400–401). Edge effects are exacerbated in small habitat patches with high perimeter-to-area ratios (i.e., those that are long and narrow, like isolated mountain ranges) and in species with large territories, like wolves, because they are more likely to encounter surrounding unsuitable habitat (Woodroffe and Ginsberg 1998, p. 2128). Because of edge effects, some habitat areas outside the core areas may rank as suitable in models, but are unlikely to actually be successfully occupied by persistent wolf packs. For these reasons, we believe that the NRM DPS will remain anchored by the three core recovery areas. These areas will continue to provide a constant source of dispersing wolves into surrounding areas, supplementing wolf packs and breeding pairs in adjacent, but less secure suitable habitat.

Habitat Currently Occupied By Persistent Wolf Packs—The area in the NRM DPS currently occupied by persistent wolf packs was calculated by drawing a line around the outer points of radio-telemetry locations of all known wolf pack territories in 2006 (Service *et al.* 2007, Figure 1, minus 4 packs that did not persist). We defined the habitat currently occupied by persistent wolf packs as that area confirmed as being used by resident wolves to raise pups or that is used by two or more territorial wolves at the end of any year (Service 1994, pp. 6:5–6). Typically by the end of the year only 50 percent of packs meet the criteria to be classified as breeding pairs. The overall distribution of wolf packs has been similar since 2000, despite a wolf population that has more than doubled (Service *et al.* 2001–2007, Figure 1; Bangs *et al.* in press). Because the States have committed to maintain a wolf population above the minimum recovery levels (achieved in 2002), we expect this general distribution will be maintained. Habitat occupied by persistent wolf packs changed little from 2004 (275,533 km^2 [106,384 mi^2]); to 2005 (260,535 km^2 [100,593 mi^2]); to 2006 (minus four packs that did not persist in 2007—295,116 km^2 [113,949 mi^2]) or 2007 (Service *et al.* 2005, 2006, 2007, Figure 1; Service *et al.* 2008 in prep., Figure 1).

We included areas between the three core recovery areas as habitat occupied by persistent wolf packs, because they are important for connectivity between areas, even though wolf packs or breeding pairs did not persist in certain portions of these areas. While models ranked some of this habitat as unsuitable, these intervening areas are

important to maintaining the metapopulation structure, because dispersing wolves routinely travel through these areas and packs occasionally occupy them (Service 1994, pp. 6:5–6; Bangs 2002, p. 3; Jimenez *et al.* in prep.). This would include areas like the Flathead Valley and other smaller valleys intensively used for agriculture and a few of the smaller, isolated mountain ranges surrounded by agricultural lands in western Montana.

As of the end of 2006, we estimated that persistent wolf packs occupied approximately 295,116 km² (113,949 mi²) of habitat in parts of Montana (136,492 km² [52,702 mi²]), Idaho (118,554 km² [45,776 mi²]), and Wyoming (40,070 km² [15,472 mi²]) (Service *et al.* 2007, Figure 1—minus 4 packs that did not persist). Although habitat occupied by persistent wolf packs includes some prairie (4,488 km² [1,733 mi²]) and some high desert (24,478 km² [9,451 mi²]), wolf packs have not used these habitat types successfully (Service *et al.* 2007, Figure 1—minus 4 packs that did not persist). Since 1986, no persistent wolf pack has had a majority of its home range in high desert or prairie habitat. Landownership in the area occupied by persistent wolf packs is 191,473 km² (73,931 mi²) Federal (65 percent); 13,522 km² (5,225 mi²) State (4.6 percent); 6,594 km² (2,546 mi²) Tribal (2.2 percent); and 80,512 km² (31,087 mi²) private (27 percent) (Service *et al.* 2007, Figure 1—minus 4 packs that did not persist).

We determined that the current wolf population resembles a three-lobed metapopulation and that the overall area used by persistent wolf packs in the NRM DPS has not significantly expanded since the population achieved its recovery goal in 2002. Stagnant outer distribution patterns for the past 7 years indicate there is probably limited suitable habitat for the NRM wolf population to expand significantly beyond its current outer borders. Carroll's model predicted that 165,503 km² (63,901 mi²) of suitable habitat (62 percent) was within the area occupied by persistent wolf packs. However, the model's remaining potentially suitable habitat (38 percent) was often fragmented and in smaller, more isolated patches (Carroll *et al.* 2006, p. 35) and we have determined that such areas do not provide habitat suitable to support persistent wolf packs.

Montana, Idaho, and Wyoming each have committed to manage for at least 15 breeding pairs and 150 wolves while never letting the population fall below 10 breeding pairs and 100 wolves in mid-winter to ensure long-term viability of the NRM DPS. The NRM DPS occupies nearly 100 percent of the core recovery areas recommended in the 1987 recovery plan (i.e., central Idaho, the GYA, and northwestern Montana) (Service 1987, p. 23) and nearly 100 percent of the primary analysis areas (the areas where suitable habitat was predicted to exist and the wolf population would live) analyzed for wolf reintroduction in central Idaho and the GYA (Service 1994, p. 1:6). This pattern will continue, because management plans for public lands in the NRM DPS will result in forest cover, high ungulate densities, low to moderate road and livestock densities, and other factors critical to maintaining suitable wolf habitat.

Potential Threats Affecting Habitat or Range—Establishing a recovered wolf population in the NRM DPS did not require land-use restrictions or curtailment of traditional land-uses, because there was enough suitable habitat, enough wild ungulates, and sufficiently few livestock conflicts to allow wolves to recover under existing conditions (Bangs *et al.* 2004, pp. 95–96). We do not believe that any traditional land-use practices in the NRM DPS need be modified to maintain a recovered NRM DPS into the foreseeable future. We do not anticipate overall habitat changes in the NRM DPS occurring at a magnitude that will threaten wolf recovery in the foreseeable future, because 71 percent of the occupied habitat is in public ownership that is managed for multiple uses that are complementary with suitable wolf habitat and maintenance of viable wolf populations (Carroll *et al.* 2003, p. 542; Oakleaf *et al.* 2006, p. 560).

The GYA and central Idaho core recovery areas, 63,714 km² (24,600 mi²) and 53,613 km² (20,700 mi²), respectively, are primarily composed of public lands (Service 1994, p. iv) and are the largest contiguous blocks of suitable habitat within the NRM DPS. Public lands in National Parks, wilderness, roadless areas, and large blocks of contiguous mountainous forested habitat are largely unavailable or unsuitable for intensive development. Central Idaho and the GYA provide secure wolf habitat and abundant ungulate populations, with about 99,300 ungulates in the GYA and 241,400 in central Idaho (Service 1994, pp. viii–ix). These areas are considered secure because they are not available for development due to their land-use classifications, management guidelines for other species (e.g., grizzly bears), habitat, access, and geological characteristics (Service 1993, 1996, 2007c; Serhveen et al. 2003; USFS 2006). Thus, they will continue to provide suitable habitat for a resident wolf population and will be a dependable source of dispersing wolves to help maintain a viable wolf population in the NRM DPS (Service 1994, p. 1:4). The central Idaho recovery area has 24,281 km² (9,375 mi²) of designated wilderness at its core (Service 1994, p. 3:85). The core of the GYA recovery area includes over 8,094 km² (3,125 mi²) in YNP and about 16,187 km² (6,250 mi²) of designated wilderness (although these areas are less useful to wolves, except seasonally, due to high elevation) (Service 1994, p. 3:45). These areas are in public ownership and are not useful or available for human development at a scale that could affect their overall suitability for wolves. No foreseeable habitat-related threats would prevent these areas from supporting a wolf population that exceeds recovery levels.

While the northwestern Montana recovery area (basically west of I–15 and north of I–90 in Montana and Idaho) (84,800 km² (33,386 mi²)) also has a core of protected suitable habitat (Glacier National Park, the Bob Marshal Wilderness Complex, and extensive USFS lands), it is not as high quality or as contiguous as that in either central Idaho or GYA. The primary reason for this is that many ungulates do not winter in the Park or Wilderness areas because these are higher in elevation. Most wolf packs in northwestern Montana live west of the Continental Divide, where forest habitats are a fractured mix of private and public lands (Service *et al.* 1989–2007, Figure 1). This mix exposes wolves to high levels of human-caused mortality, and thus this area supports smaller and fewer wolf packs. Wolf dispersal into northwestern Montana from the more stable resident packs in the core protected area (largely the North Fork of the Flathead River along the eastern edge of Glacier National Park and the few large river drainages in the Bob Marshall Wilderness Complex) and the abundant National USFS lands largely used for recreation and timber production rather than livestock production helps to maintain that portion of the NRM DPS (Bangs *et al.* 1998, p. 786). Wolves also disperse into northwestern Montana (and central Idaho) from Canada and some packs have trans-boundary territories, helping to maintain the NRM DPS (Boyd *et al.* 1995, p. 136). Conversely, wolf dispersal from northwestern Montana into Canada, where wolves are much less protected, continues to draw some wolves into vacant or low-density

habitats in Canada where they are subject to liberal hunting and agency control (Bangs *et al.* 1998, p. 790). Despite mortalities that occur in Canada, the trans-boundary movements of wolves and wolf packs led to the original establishment of wolves in Montana, and will continue to have an overall positive effect on wolf genetic diversity and demography in the northwest Montana portion of the NRM DPS.

Sufficient suitable habitat exists so that the NRM DPS can be easily maintained above recovery levels. The most important suitable wolf habitat is in public ownership, and the State and Federal land-management agencies have been managing that habitat for several decades and plan to continue to manage it so it will continue to provide forage and security for high ungulate populations, sufficient cover for wolf security, moderate and seasonal livestock grazing, and low road density. Carroll *et al.* (2003, p. 541; 2006, p. 31) predicted future wolf habitat suitability under several scenarios through 2025, including increased human population growth and road development. Projections of human population growth, associated development, and road construction and other threats were not predicted to alter wolf habitat suitability in the NRM DPS enough to cause the wolf population to fall below recovery levels in the foreseeable future. Modeling also predicted that habitat suitability could be increased beyond current levels by simply reducing roads on public lands (Mech *et al.* 1988; 86–87), a process underway in the NRM (Service 1993, 1996, 2007; Serhveen *et al.* 2003; Carroll *et al.* 2006, p. 25; Brown 2006, 1–3).

The recovery plan (Service 1987, p. 13), the metapopulation structure recommended by the 1994 EIS (Service 1994, pp. 6:74–75), and subsequent investigations (Bangs 2002, p. 3) recognize the importance of habitat connectivity between northwestern Montana, central Idaho, and the GYA (See Factor E). There appears to be enough habitat connectivity between occupied wolf habitat in Canada, northwestern Montana, and Idaho to ensure exchange of sufficient numbers of dispersing wolves to maintain demographic and genetic diversity in the NRM DPS (Oakleaf *et al.* 2006, p. 559; Carroll *et al.* 2006, p. 32; Jimenez *et al.* in prep; vonHoldt *et al.* 2007, p. 19). To date, from radio-telemetry monitoring, we have documented routine wolf movement between Canada and northwestern Montana (Pletscher *et al.* 1991, p. 544; Boyd and Pletscher 1999, pp. 1095–1096; Sime 2007), routine wolf movement between Idaho and Montana, including several transborder packs, and at least five wolves have dispersed into the GYA. Because YNP is saturated with resident packs, only one individual is known to have dispersed into YNP itself (Boyd *et al.* 1995, pp. iii–3–1; Jimenez *et al.* in prep; vonHoldt *et al.* 2007; Service *et al.* 2007, Figure 1; Service 2007b, p. 1). Furthermore, because only about 30 percent of the wolf population has been radio-collared, additional dispersal (perhaps 3 times that documented or +1 migrant per year into the GYA) has undoubtedly occurred. The documented movement of wolves described above demonstrates that current habitat conditions allow dispersing wolves to occasionally travel from one recovery area to another. Finally, the Montana State wolf management plan (the key State regarding connectivity) commits to maintaining natural connectivity to ensure the genetic integrity of the NRM DPS by promoting land uses, such as traditional ranching, that enhance wildlife habitat and conservation. In addition, the Montana (Montana 2003, p. 35), Idaho (IDFG 2002, p. 18), and Wyoming (WYGF 2007, p. 17) State wolf management plans all commit to maintaining the meta-population structure of the NRM DPS and maintaining sufficient genetic diversity, by various methods including relocation if necessary, to ensure the long-term viability of the wolf population of the NRM DPS.

Other Components of Wolf Habitat—Another important factor in maintaining wolf populations is the native ungulate population. Wild ungulate prey in these three areas are composed mainly of elk, white-tailed deer, mule deer, moose, and (only in the GYA) bison. Bighorn sheep, mountain goats, and pronghorn antelope also are common but not important, at least to date, as wolf prey. In total, 100,000–250,000 wild ungulates are estimated in each State where wolf packs currently exist (Service 1994, pp. viii–ix). The States in the NRM DPS have managed resident ungulate populations for decades and maintain them at densities that would easily support a recovered wolf population; State ungulate management plans commit them to do so into the future (See Idaho 2007, pp. 1–2; Curtis 2007, pp. 14–21 as an examples of such plans). We know of no foreseeable condition that would cause a decline in ungulate populations significant enough to threaten the recovered status of the NRM DPS.

Cattle and sheep are at least twice as numerous as wild ungulates even on public lands (Service 1994, pp. viii). The only areas that lack livestock and that are large enough to support wolf packs are YNP, Glacier National Park, some adjacent USFS Wilderness Areas, and parts of Wilderness Areas in central Idaho and northwestern Montana. Consequently, every wolf pack outside these areas has interacted with some livestock, primarily cattle. Livestock and livestock carrion are routinely used by wolves, but management discourages chronic killing of livestock. Conflict between wolves and livestock has resulted in the annual removal of some wolves (Bangs *et al.* 1995, p. 131; 2004, p. 92; 2005, pp. 342–344; Service *et al.* 2007, Table 5a). See Factors D and E.

Human growth and development will continue in the NRM, including increased development and conversion of private low-density rural lands to higher density urban developments, road development and transportation facilities (pipelines and energy transmission lines), resource extraction (primarily oil and gas, coal, and wind development in certain areas), and more recreationists on public lands (Robbins 2007). Despite efforts to minimize impacts to wildlife (Brown 2006, pp. 1–3), some of this development will make some areas of the NRM DPS less suitable for wolf occupancy. However, none of these developments and increased human presence will threaten wolf recovery or meaningfully impact the amount of suitable wolf habitat in the NRM in the foreseeable future. Wolves are a habitat generalist and one of the most adaptable large predators in the world, and only became extirpated because of deliberate human persecution (Fuller *et al.* 2003, p. 163; Boitani 2003, pp. 328–330). Land-use restrictions on human development were not necessary to recover the wolf population. Even active wolf dens can be quite resilient to nonlethal disturbance by humans (Frame *et al.* 2007, p. 316). The vast majority of suitable wolf habitat and the current wolf population are secure in mountainous forested Federal public land (National Parks, wilderness, roadless areas, and lands managed for multiple uses primarily by the USFS but some by the Bureau of Land Management) that will not be legally available for or suitable to intensive levels of human development. Nearly all oil and gas and coal leases that are being developed or are likely to be developed in the foreseeable future in the NRM DPS are to the south or east of the areas suitable for and currently occupied by persistent wolf packs (Robbins 2007; Environmental Working Group 2007). Habitat quality for wolves is based

almost solely on adequate prey and security from excessive human-caused mortality.

Most types of intensive human development predicted in the future will occur in areas that have already been extensively modified by human activities in the past and are already unsuitable wolf habitat (Wyoming 2005, Appendix III). Furthermore, such development is likely to continue to be focused at lower elevations, on private lands and in open habitats, and outside of currently suitable and currently occupied wolf habitat (Robbins 2007). Given the nature, location, and very small scale of oil and gas and coal development within the NRM DPS this type of development will not affect wolf habitat. Oil and gas and coal reserves and leases are not located in the mountainous areas that comprise suitable wolf habitat in the NRM DPS (Robbins 2007). In addition, State regulatory mechanisms in Wyoming, Montana, and Idaho, and Federal land management practices/guidelines (see a USFS Management Plan as an example; USFS 2006) in the NRM DPS restrict the location and extent of development associated with them on public lands so we do not believe these activities will substantially impact prey or wolf security in suitable habitat.

Development on private land near suitable habitat will continue to expose wolves to more conflicts and higher risk of human-caused mortality. However, we believe the rate of conflict is well within the wolf population's biological mortality threshold (generally between 34%–50% annually), especially given the large amount of secure habitat that will support a recovered wolf population and will provide a reliable and constant source of dispersing wolves (Mech 1989, pp. 387–8). Wolf populations persist in many areas of the world that are far more developed than the NRM currently is or is likely to be in the foreseeable future (Boitani 2003, pp. 322–23). Habitat connectivity in the NRM may be reduced below current levels, but wolves have exceptional abilities to disperse through even unsuitable habitats and such impacts would still not threaten the wolf population. (See discussions of connectivity and genetics in Factor E). Current habitat conditions are adequate to support a wolf population of 1,500 individuals, and model predictions indicate that development in the NRM over the next 25 years is unlikely to change habitat in a manner that would threaten the NRM DPS (Carroll *et al.* 2003, p. 544). The ranges of wolves and grizzly bears overlap in many parts of Montana, Idaho, and Wyoming, and mandatory habitat guidelines on public lands for grizzly bear conservation guarantee and far exceed necessary criteria for maintaining suitable habitat for wolves (Service 2007c as one example).

Given the large number of wolves in each recovery area of the nearly contiguous NRM DPS, natural habitat connectivity may be important only as it relates to theoretical long-term genetic isolation in the GYA without management intervention. The wolf population and suitable habitat in the GYA may become more isolated and dispersal into the GYA from central Idaho or northwestern Montana less common due to future habitat development (Carroll et al 2003, p. 543; Oakleaf *et al.* 2006; vonHoldt *et al.* 2007). In addition, higher rates of human-caused mortality are anticipated under State management. Increased rates of human-caused mortality may result in more social openings (vacancies created when individuals die or disperse) within wolf packs within the core recovery areas of northwestern Montana, and central Idaho, creating local space for wolves that might otherwise disperse into the GYA to search out breeding opportunities or to join existing packs. Higher mortality rates will also be more likely to remove individuals that might disperse into the outer edges of the GYA because mortality rates are already highest along the edges of the core recovery areas (Smith 2007a). In contrast, increased rates of human-caused mortality in the GYA might create more social openings in existing packs that could be filled by wolves dispersing from northwestern Montana and central Idaho.

We believe the former scenario is more likely than the latter and that the cumulative result of increased human-caused mortality will likely be more genetic isolation of wolves in the GYA. However, some level of natural connectivity will continue because of the large amount of public land and low human density between the GYA and central Idaho and the ability of wolves to disperse rapidly over long distances through otherwise unsuitable habitat (Carroll 2006, p. 376). Also the GYA will contain more wolves than just those in YNP, including 7 or more breeding pairs to be maintained in Wyoming outside of YNP, wolves in southwestern Montana (73 wolves in 13 packs comprising 5 breeding pairs in 2006), and southeastern Idaho (6 wolves in 1 breeding pair in 2006). Furthermore, each State has committed to maintain genetic diversity at a level that does not threaten wolf population viability in the GYA (Idaho 2002, p.18; Montana 2003, p.27; WGFD 2007, p.17), which completely addresses this theoretical issue. Regardless, wolves in the GYA portion of the NRM DPS would still not become threatened by a potential worse-case decrease in genetic diversity in the next 100 years because other wolf populations have persisted for decades or even centuries with even lower genetic diversity (Boitani 2003).

We recognize the theoretical concerns over the future potential impact of natural habitat connectivity and genetic isolation in the GYA, and possibly other recovery areas. The States will be required to evaluate the wolf population status annually for the first 5 years after delisting. If this analysis indicates the wolf population might become threatened under a continuation of that same State management strategy in the foreseeable future, the States would either adjust their management strategies to resolve those issues, or the process to evaluate listing all or parts of the NRM DPS under the Act would begin.

While lone wolves will continue to occasionally disperse outside of the NRM DPS core recovery area, it is unlikely that many breeding pairs will persist outside of this area, except possibly in parts of eastern Washington and northeastern Oregon that abut the large Idaho wolf population and where some suitable habitat exists. However, we anticipate the establishment of breeding pairs in that portion of the NRM DPS will be sporadic because suitable habitat is limited and fragmented. The combination of limited suitable habitat and high rates of human-caused mortality that will be associated with predatory animal status in eastern and southern Wyoming will further reduce the already extremely low probability of dispersing wolves successfully recolonizing Colorado, Utah, South Dakota, or Nebraska. Likewise, increased rates of human-caused mortality in Idaho and Montana will likely further inhibit the already low potential for successful wolf recolonization of Nevada and the Dakotas, respectively. However, while any dispersing wolves in these areas would remain listed as endangered, should breeding pairs become established, they will not affect the viability of the NRM DPS. Any suitable habitat adjacent to the NRM DPS is too fragmented and too far from the NRM DPS core recovery areas to provide dispersing wolves back into it to supplement it either genetically or demographically.

The large amount of public lands that cannot or will not be developed within the core recovery areas within the NRM

DPS assures that adequate suitable habitat for wolves will exist into the foreseeable future. Even though some habitat degradation will occur in the smaller areas of suitable habitat between the core recovery areas, the quantity and quality of habitat that will remain will be sufficient to maintain some level of natural connectivity into the foreseeable future (Carroll *et al.* 2003 p.32). However, the GYA is the most isolated area, and development around its edges is likely to continue in the future. The level of development predicted in this area is not expected to threaten wolves because habitat in protected public lands would remain secure.

Human populations in the GYA, and the rest of the U.S., are expected to increase (Carroll 2006). In the six GYA Wyoming counties where wolf breeding pairs will be maintained, the human population is projected to increase by roughly 15,000 residents between 2000 and 2020 (from 105,215 in 2000 to 120,771 by 2020) (Wyoming Department of Administration and Information Economic Analysis Division 2005). The Montana GYA counties are expected to increase by roughly 35,000 people during this same time (from 120,934 in 2000 to 154,800 by 2020) (NPA Data Services 2002). We anticipate similar levels of population growth in the remaining portions of the NRM DPS given that the West, as a region, is projected to increase at rates faster than any other region of the U.S. (U.S. Census Bureau Population Division 2005).

Increasing human populations do not necessarily lead to declining predator populations. Mortality can be limited with adequate management programs (Linnell *et al.* 2001, p. 348), research and monitoring, and outreach and education about living with wildlife. In addition, conservation groups, on a willing seller basis, have been retiring Federal grazing allotments in areas with chronic large-predator/livestock conflict to benefit large carnivore conservation efforts (Fischer 2007). The States, of Montana, Idaho, and Wyoming, Federal land management agencies, Tribes, and private ranch lands in Montana, Idaho, and Wyoming already conserve habitat for large populations of mountain lions, black bears, and grizzly bears and wolf prey such as elk and deer.

The Service has no need or authority to limit future human population growth for wolf conservation in the NRM DPS. The management plans of appropriate land management agencies and governments manage public lands to limit resource impacts from human use of those lands, and these plans are more than adequate to support a recovered wolf population (see USDA 2006 as one example). Habitat suitability for wolves will change over time with human development, activities, and attitudes, but not to the extent that it is likely to threaten wolf recovery.

Summary of Threats to Wolf Habitat—We do not foresee that impacts to suitable and potentially suitable habitat will occur at levels that will significantly affect wolf numbers or distribution or affect population recovery and long-term viability in the NRM DPS. Suitable habitat, occupied by persistent wolf packs, is secured by core recovery areas in northwestern Montana, central Idaho, and the GYA, including northwestern Wyoming. These areas include Glacier National Park, Grand Teton National Park, YNP, numerous USFS Wilderness Areas, and other State and Federal public lands. These areas will continue to be managed for high ungulate densities, moderate rates of seasonal livestock grazing, moderate-to-low road densities associated with abundant native prey, low potential for livestock conflicts, and security from excessive unregulated human-caused mortality. The core recovery areas also are within proximity to one another and have enough public land between them to ensure enough natural connectivity for wolf dispersal into the foreseeable future. The possible exception is the GYA, where some believe human-induced genetic connectivity might be required within 100 years (vonHoldt *et al.* 2007, p. 1). We do not share this view and explain why in detail under Factor E.

No significant threats to the suitable habitat in Idaho, Montana, and Wyoming are known to exist in the foreseeable future. These areas currently support nearly 1,500 wolves and over 100 breeding pairs and have long been recognized as the most likely areas to successfully support 30 or more breeding pairs of wolves, comprising 300 or more individuals in a metapopulation with some dispersal between subpopulations (Service 1980, pp. 1–4; 1987, p. 23; 1994, pp. 6, 74–75; 71 FR 6634, February 8, 2006). Unsuitable habitat and small fragmented areas of suitable habitat away from these core recovery areas largely represent geographic locations where wolf breeding pairs are likely to persist only in low numbers, if at all. Although such areas may historically have contained suitable habitat (and may contribute to a healthy wolf population in the NRM DPS by facilitating dispersal between core areas), wolf packs in these areas are not important or necessary for maintaining a viable, self-sustaining, and evolving (Geffen *et al.* 2004, p. 2481) representative wolf population in the NRM DPS into the foreseeable future.

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

As detailed below, overutilization for commercial, recreational, scientific, or educational purposes has not been a significant threat to the NRM DPS. Mortality rates caused by commercial, recreational, scientific, or educational purposes are not anticipated to exceed sustainable levels following delisting. These activities have not been a threat to the viability of the wolves in the past, and we have no reason to believe that they would become a threat to the viability of the wolves in the foreseeable future.

Since their listing under the Act, no gray wolves have been deliberately and legally killed or removed from the wild in the NRM for commercial, recreational (hunting, trapping), or educational purposes. In the NRM, about 3 percent of the wolves captured for scientific research, nonlethal control, and monitoring have been accidentally killed (Bangs *et al.* in press). Some wolves may have been illegally killed for commercial use of the pelts and other parts, but we believe illegal commercial trafficking in wolf pelts or wolf parts is rare. Illegal capture of wolves for commercial breeding purposes also is possible, but we have no evidence that it occurs in the NRM. We believe the prohibition against ''take'' provided for by Section 9 of the Act has discouraged and minimized the illegal killing of wolves for commercial or recreational purposes. Although Federal penalties under Section 11 of the Act will not apply once delisting is finalized, other Federal laws will still protect wildlife in National Parks and on other Federal lands (Service 1994, pp. 1:5–9). In addition, the States and Tribes have similar laws and regulations that protect game or trophy animals from overutilization for commercial, recreational, scientific, and educational purposes (See Factor D for a more detailed discussion of this issue). We believe these laws will continue to provide a strong deterrent to illegal killing of wolves by the public, as they have been effective in State-led conservation programs for other resident wildlife such as black bears, mountain lions, elk, and deer. In addition, the State fish and game agencies, National Parks, other Federal agencies, and most Tribes have well-distributed experienced professional law enforcement officers to help enforce

State, Federal, and Tribal wildlife regulations (See Factor D).

Scientific Research and Monitoring—From 1984 to 2007, the Service and our cooperating partners captured over 940 NRM wolves for monitoring, nonlethal control, and research purposes with 23 accidental deaths. With delisting of gray wolves in the NRM DPS, the States, National Parks, and Tribes will continue to capture and radio-collar wolves in the NRM DPS for monitoring and research purposes in accordance with their State wolf management plans (See ''Factor D'' and ''Post-Delisting Monitoring'' sections). We expect that capture-caused mortality by Federal, State, and Tribal agencies, and universities conducting wolf monitoring, nonlethal control, and research will remain below 3 percent of the wolves captured, and will be an insignificant source of mortality to the wolf population.

Education—We are unaware of any wolves that have been removed from the wild for solely educational purposes in recent years. Wolves that are used for such purposes are typically privately-held captive-reared offspring of wolves that were already in captivity for other reasons and are not protected by the Act. However, States may get requests to place wolves that would otherwise be euthanized in captivity for research or educational purposes. Such requests have been, and will continue to be, rare; would be closely regulated by the State wildlife management agencies through the requirement for State permits for protected species; and would not substantially increase human-caused wolf mortality rates.

Commercial and Recreational Uses—In Montana, Idaho, and Wyoming, any legal take after delisting (primarily hunting and trapping) will be regulated by State or Tribal law so that such take would not threaten each State's share of the NRM DPS (See Factor D). The exception would be in Wyoming where there will be no regulation of wolf take in the area where wolves are designated as predatory animals. However, we have determined that the area of Wyoming where wolves are designated as predatory animals is outside of the GYA and is not important to maintaining recovery in the Wyoming portion of the NRM wolf population (See discussion in Boundaries of the DPS).

Because wolves are highly territorial, wolf populations in saturated habitat naturally limit further population increases through wolf-to-wolf conflict or dispersal to unoccupied habitat. Wolf populations can maintain themselves despite sustained human-caused mortality rates of 30 to 50 percent per year (Keith 1983; Fuller *et al.* 2003, pp. 182–184). In addition, human-caused mortality can take the place of up to 70 percent of wolf mortality that would have occurred naturally [e.g., wolf population/social pressures were relieved because a wolf was killed in a vehicle collision that would have otherwise been killed by other wolves] (Fuller *et al.* 2003, p. 186). Wolf pups can be successfully raised by other pack members and breeding individuals can be quickly replaced by other wolves (Brainerd *et al.* 2008, p. 1). Collectively, these factors mean that wolf populations are quite resilient to human-caused mortality if it can be regulated.

Montana, Idaho, and Wyoming will regulate human-caused mortality to manipulate wolf distribution and overall population size to help reduce conflicts with livestock and, in some cases, human hunting of big game, just as they do for other resident species of wildlife. Montana, Idaho, Wyoming, and some Tribes in those States will allow regulated public harvest of surplus wolves in the NRM DPS for commercial and recreational purposes by regulated private and guided hunting and trapping. Such take and any commercial use of wolf pelts or other parts will be regulated by State or Tribal law (see discussion of State laws and plans under Factor D). The regulated take of those wolves will not affect wolf population recovery or viability in the NRM DPS because Montana, Idaho, and Wyoming will allow such take only for wolves that are surplus to achieving the State's commitment to maintaining a recovered population. Take of wolves in eastern and southern Wyoming will be unregulated. However, those areas of Wyoming and any wolves that may be present are not necessary to sustain a recovered wolf population in the NRM DPS because they would be so few, scattered, and temporary.

State laws in Washington, Oregon, and Utah do not currently allow public take of wolves for recreational or commercial purposes. Regulated hunting and trapping are traditional and effective wildlife management tools that may be applied to help achieve State and Tribal wolf management objectives as needed and may be authorized at some point in the future. However, any wolf breeding pairs in those portions of the NRM DPS would not be necessary to sustain wolf population recovery in the NRM DPS and no threats, including high rates of human-caused mortality, in these States would affect the wolf population in Montana, Idaho, or Wyoming. Wolf packs that formed outside the core recovery areas would be limited in number, scattered, temporary, experience high mortality rates, and consequently would not persist long enough to produce many dispersal-aged individuals. Wolves typically do not disperse from their natal pack until they are at least 1.5 years old so these types of packs would produce very few dispersers that could supplement the wolf population in the core recovery areas.

In summary, the States have organizations and regulatory and enforcement systems in place to limit human-caused mortality of wolves in all areas of the NRM DPS where regulated take will be important to maintaining the recovered wolf population into the foreseeable future. The Montana, Idaho, and Wyoming State plans commit these States to regulate all take of wolves in their part of the NRM DPS. These plans include regulation of take for commercial, recreational, scientific, and educational purposes. The States will incorporate any Tribal harvest as part of the overall level of allowable take to ensure that the wolf population does not fall below the NRM DPS's numerical and distributional recovery levels (Idaho 2007, p. 16–17). The States and Tribes have humane and professional animal handling protocols and trained personnel that will ensure that population monitoring and research results in few unintentional mortalities. Furthermore, the States' permitting process for captive wildlife and animal care will ensure that few, if any, wolves will be removed from the wild solely for educational purposes (Idaho 2002, 2007; Montana 2003; Wyoming 2007). We conclude that potential wolf take resulting from commercial, scientific, or educational purposes in the NRM DPS will be regulated so that it will not threaten wolf population recovery for the foreseeable future.

C. Disease or Predation

As discussed in detail below, a wide range of diseases may affect wolves in the NRM DPS. However, no diseases or parasites, even in combination, are of such magnitude that the population is likely to become in danger of extinction in the foreseeable future. Similarly, predation does not pose a significant threat to the NRM DPS. The rates of mortality caused by disease and predation are well within acceptable limits, and we do not expect those rates to change appreciably if the NRM DPS is delisted. Montana, Idaho, and Wyoming State plans commit to monitoring wolf health to ensure any new impacts caused by diseases or parasites are quickly detected. Natural predation on wolves is rare, but predation by humans can be a significant issue if not regulated. More

information on disease and predation (including by humans) is provided below.

Disease—Wolves in the NRM DPS are exposed to a wide variety of diseases and parasites that are common throughout North America. Many diseases (viruses and bacteria, many protozoa and fungi) and parasites (helminthes and arthropods) have been reported for the gray wolf, and several of them have had significant, but temporary impacts during wolf recovery in the 48 conterminous States (Brand *et al.* 1995, p. 428; Kreeger 2003, pp. 202–214). The EIS on gray wolf reintroduction identified disease impact as an issue, but did not evaluate it further, as it appeared to be insignificant (Service 1994, pp. 1:20–21).

Infectious disease induced by parasitic organisms is a normal factor in the life of wild animals, and the typical wild animal hosts a broad multi-species community of potentially harmful parasitic organisms (Wobeser 2002, p. 160). We fully anticipate that these diseases and parasites will follow the same pattern seen in other areas of North America (Brand *et al.* 1995, pp. 428–429; Bailey *et al.* 1995, p. 445; Johnson 1995a, b; Kreeger 2003, pp. 202–204; Atkinson 2006, pp. 1–7; Smith and Almberg 2007, pp. 17–19) and will not significantly threaten wolf population viability. Nevertheless, because these diseases and parasites, and perhaps others, have the potential to impact wolf population distribution and demographics, careful monitoring (as per the State wolf management plans) will track such events (Atkinson 2006, pp. 1–7). Should such an outbreak occur, human-caused mortality would be regulated by the States over an appropriate area and time period to ensure wolf population numbers in the NRM DPS are maintained above recovery levels in those portions of the NRM DPS.

Canine parvovirus (CPV) infects wolves, domestic dogs (*Canis familiaris*), foxes, coyotes, skunks (*Mephitis mephitis*), and raccoons (*Procyon lotor*). The population impacts of CPV occur via diarrhea-induced dehydration leading to abnormally high pup mortality (Wisconsin Department of Natural Resources 1999, p. 61). Clinical CPV is characterized by severe hemorrhagic diarrhea and vomiting; debility and subsequent mortality is a result of dehydration, electrolyte imbalances, and shock. The CPV has been detected in nearly every wolf population in North America including Alaska (Bailey *et al.* 1995, p. 441; Brand *et al.* 1995, p. 421; Kreeger 2003, pp. 210–211; Johnson *et al.* 1994), and exposure in wolves is thought to be almost universal. Currently, nearly 100 percent of the wolves handled by Montana Fish, Wildlife and Parks (MFWP) (Atkinson 2006) and YNP (Smith and Almberg 2007, p. 18) had blood antibodies indicating nonlethal exposure to CPV. The CPV contributed to low pup survival in the northern range of YNP in 1999, and was suspected to have done so again in 2005 (Smith *et al.* 2006, p. 244). However, monitoring data show 2006 and 2007 pup production and survival in YNP returned to normal levels (Smith and Almberg 2007, pp. 18–19). The impact of such disease outbreaks to the overall NRM DPS of the gray wolf has been localized and temporary, as has been documented elsewhere (Bailey *et al.* 1995, p. 441; Brand *et al.* 1995, p. 421; Kreeger 2003, pp. 210–211).

Canine distemper (CD) is an acute, fever-causing disease of carnivores caused by a virus (Kreeger 2003, p. 209). It is common in domestic dogs and some wild canids, such as coyotes and foxes in the NRM (Kreeger 2003, p. 209). The prevalence of antibodies to this disease in samples of wolf blood in North American wolves is about 17 percent (Kreeger 2003, p. 209). Nearly 85 percent of Montana wolf blood samples analyzed in 2005 indicated nonlethal exposure to CD (Atkinson 2006). Similar results were found in YNP (Smith and Almberg 2007, p. 18). Mortality in wolves has been documented in Canada (Carbyn 1982, p. 109), Alaska (Peterson *et al.* 1984, p. 31; Bailey *et al.* 1995, p. 441), and in a single Wisconsin pup (Wydeven and Wiedenhoeft 2003, p. 7). Canine distemper is not a major mortality factor in wolves, despite high exposure to the virus, because affected wolf populations demonstrate good recruitment (Brand *et al.* 1995, pp. 420–421). Mortality from CD has been confirmed only once in gray wolves of the NRM DPS despite their high exposure to it, but we suspect it contributed to the high pup mortality documented in the northern GYA in spring 2005.

Lyme disease, caused by a spirochete bacterium, is spread primarily by deer ticks (*Ixodes dammini*). Host species include humans, horses (*Equus caballus*), dogs, white-tailed deer, mule deer, elk, white-footed mice (*Peromyscus leucopus*), eastern chipmunks (*Tamias striatus*), coyotes, and wolves. In WGL populations, it does not appear to cause adult mortality, but might be suppressing population growth by decreasing wolf pup survival (Wisconsin Department of Natural Resources 1999, p. 61). Lyme disease has not been reported from wolves beyond the Great Lakes region (Wisconsin Department of Natural Resources 1999, p. 61).

Mange is caused by a mite (*Sarcoptes scabeii*) that infests the skin. The irritation caused by feeding and burrowing mites results in intense itching, resulting in scratching and severe fur loss, which can lead to mortality from exposure during winter weather or secondary infections (Kreeger 2003, pp. 207–208). Advanced mange can involve the entire body and can cause emaciation, decreased wariness, staggering, and death (Kreeger 2003, p. 207). In a long-term Alberta wolf study, higher wolf densities were correlated with increased incidence of mange, and pup survival decreased as the incidence of mange increased (Brand *et al.* 1995, pp. 427–428). Mange has been shown to temporarily affect wolf population growth rates and perhaps wolf distribution (Kreeger 2003, p. 208).

Mange has been detected in, and caused mortality to, wolves in the NRM DPS, but almost exclusively in the GYA, and primarily east of the Continental Divide (Jimenez *et al.* 2007a; Atkinson 2006, p. 5; Smith and Almberg 2007, p. 19). Those wolves likely contracted mange from coyotes or fox whose populations experience occasional outbreaks. In Montana, 3 percent of 38 packs in 2003, 10 percent of 40 packs in 2004, 24 percent of 46 packs in 2005, 10 percent of 60 packs in 2006, and 4 percent of 71 packs in 2007 showed evidence of mange, although not all members of every pack appeared infested. In Wyoming, including YNP, mange affected 5 percent of 22 packs in 2002, 8 percent of 26 packs in 2003, 12 percent of 26 packs in 2004, 3 percent of 29 packs in 2005, 9 percent of 40 packs in 2006, and 15 percent of 33 packs in 2007. Mange has not been confirmed in wolves in Idaho (Jimenez *et al.* 2007a).

In packs with the most severe infestations, pup survival appeared low, and some adults died (Jimenez *et al.* 2007a). In addition, we euthanized approximately 4 wolves with severe mange for humane reasons and because of their abnormal behavior. We predict that mange in the NRM DPS will act as it has in other parts of North America (Brand *et al.* 1995, pp. 427–428; Kreeger 2003, pp. 207–208) and not threaten wolf population viability. Evidence suggests that wolves in the NRM DPS will not be infested on a chronic population-wide level given the recent response of wolves that naturally overcame a mange infestation (Jimenez *et al.* 2007a).

Dog-biting lice (*Trichodectes canis*) commonly feed on domestic dogs, but can infest coyotes and wolves (Schwartz *et al.* 1983, p. 372; Mech *et al.* 1985, p. 404). The lice can attain severe infestations, particularly in pups. The worst infestations can result in severe scratching, irritated and raw skin, substantial hair loss particularly in the groin, and poor condition. While no wolf mortality has been confirmed, death from exposure and/or secondary infection following self-inflicted trauma, caused by inflammation and itching, appears possible. Dog-biting lice were first confirmed in wolves in the NRM DPS on two pups in the Battlefield pack in the Big Hole Valley of southwestern Montana in 2005. In 2006, 3 pups the Battlefield pack were infested. In 2006 and 2007 lice were documented on 9 wolves from 8 packs in south-central Idaho. None of these infestations were severe (Service *et al.* 2006, p. 15; Atkinson 2006, p. 5; Jimenez *et al.* 2007b). Based on epizootics of lice infestations reported in other areas in North America, lice may contribute to higher morbidity in individual wolves, but will not be a significant cause of mortality that would threaten the regional wolf population (Kreeger 2003, p. 208). The source of the lice infestation is unknown, but was likely domestic dogs.

Rabies, canine heartworm (*Dirofilaria immitus*), blastomycosis, brucellosis, neosporsis, leptospirosis, bovine tuberculosis, canine coronavirus, viral papillomatosis, hookworm, tapeworm, coccidiosis, and canine adenovirus/hepatitis have all been documented in wild gray wolves, but their impacts on future wild wolf populations are not likely to be significant (Brand *et al.* 1995, pp. 419–429; Johnson 1995a, pp. 5–73, 1995b, pp. 5–49; Mech and Kurtz 1999, p. 305; Wisconsin Department of Natural Resources 1999, p. 61; Kreeger 2003, pp. 202–214; Atkinson 2006, p. 1–7). Canid rabies caused local population declines in Alaska (Ballard and Krausman 1997, p. 242) and may temporarily limit population growth or distribution where another species, such as arctic foxes (*Alopex lagopus*), act as a reservoir for the disease. Range expansion could provide new avenues for exposure to several of these diseases, especially canine heartworm, rabies, bovine tuberculosis, and possibly new diseases such as chronic wasting disease and West Nile virus, further emphasizing the need for vigilant disease monitoring programs.

Because several of the diseases and parasites are known to be spread by wolf-to-wolf contact, their incidence may increase if wolf densities increase. However, because wolf densities are already high (Service *et al.* 2007, Table 1 & Figure 1), wolf-to-wolf contacts will not likely lead to a continuing increase in disease prevalence. The wolves' exposure to these types of organisms may be most common outside of the core population areas, where domestic dogs are most common, and lowest in the core population areas because wolves tend to flow out of, not into, saturated habitats. Despite this dynamic, we assume that most wolves in the NRM DPS will continue to have exposure to most diseases and parasites in the system. Diseases or parasites have not been a significant threat to wolf population recovery in the NRM DPS to date, and we have no reason to believe that they will become a significant threat to their viability in the foreseeable future.

In terms of future monitoring, each State has committed to monitor the gray wolf NRM DPS for significant disease and parasite problems (Atkinson 2006, p. 1; Idaho 2007, pp. 36–7; Wyoming 2007, p. 7, 39). These State wildlife health programs often cooperate with Federal agencies and universities and usually have both reactive and proactive wildlife health monitoring protocols. Reactive strategies consist of periodic intensive investigations after disease or parasite problems have been detected through routine management practices, such as pelt examination, reports from hunters, research projects, or population monitoring. Proactive strategies often involve ongoing routine investigation of wildlife health information through collection and analysis of blood and tissue samples from all or a sub-sample of wildlife carcasses or live animals that are handled. We do not believe that diseases or changes in disease monitoring by the States or Tribes will threaten wolf population recovery in the NRM DPS.

Natural Predation—No wild animals routinely prey on gray wolves (Ballard *et al.* 2003, pp. 259–260). Occasionally wolves have been killed by large prey such as elk, deer, bison, and moose (Mech and Nelson 1989, p. 207; Mech and Peterson 2003, p. 134; Smith *et al.* 2006, p. 247), but those instances are few. Since the 1980s, we know of wolves in the NRM have died from wounds they received while attacking prey on about a dozen occasions (Smith *et al.* 2006, p. 247). That level of mortality could not significantly affect wolf population viability or stability.

Since wolves in the NRM DPS have been monitored, only three wolves have been confirmed killed by other large predators. Two adults were killed by mountain lions, and one pup was killed by a grizzly bear (Jimenez *et al.* 2006). Wolves in the NRM DPS inhabit the same areas as mountain lions, grizzly bears, and black bears, but conflicts rarely result in the death of either species. Wolves evolved with other large predators, and no other large predators in North America, except humans, have the potential to significantly impact wolf populations.

Other wolves are the largest cause of natural predation among wolves. Numerous mortalities have resulted from territorial conflicts between wolves, and about 7 percent of wolf deaths are caused by territorial conflict in the NRM gray wolf DPS (Smith 2007a). Wherever wolf packs occur, including the NRM, some low level of wolf mortality will result from territorial conflict. Wolf populations tend to regulate their own density; consequently, territorial conflict is highest in saturated habitats. That cause of mortality is infrequent and does not result in a level of mortality that would significantly affect a wolf population's viability in the NRM (Smith 2007a).

Human-caused Predation—Wolves are susceptible to human-caused mortality, especially in open habitats such as those that occur in the western U.S. (Bangs *et al.* 2004, p. 93). An active eradication program is the sole reason that wolves were extirpated from the NRM (Weaver 1978, p. i). Humans kill wolves for a number of reasons. In all locations where people, livestock, and wolves coexist, some wolves are killed to resolve conflicts with livestock (Fritts *et al.* 2003, p. 310; Woodroffe *et al.* 2005, pp. 86–107, 345–7). Occasionally, wolf killings are accidental (*e.g.*, wolves are hit by vehicles, mistaken for coyotes and shot, or caught in traps set for other animals) (Bangs *et al.* 2005, p. 346), and some are reported to State, Tribal, and Federal authorities.

However, many wolf killings are intentional, illegal, and are never reported to authorities. Wolves may become unwary of people or human activity, and that can make them vulnerable to human-caused mortality (Mech and Boitani 2003, pp. 300–302). In the NRM DPS, mountain topography concentrates both wolf and human activity in valley bottoms (Boyd and Pletscher 1999, p. 1105), especially in winter, which increases wolf exposure to human-caused mortality. The number of illegal killings is difficult to estimate and impossible to accurately determine because they generally occur in areas with few witnesses. Often the evidence has decayed by the time the wolf's carcass is discovered or the evidence is destroyed or concealed by the perpetrators. While human-caused

mortality, including illegal killing, has not prevented population recovery, it has affected NRM wolf distribution (Bangs *et al.* 2004, p. 93). In the past 20 years and despite repeated dispersal of lone wolves into such areas, no wolf packs have successfully established and persisted solely in open prairie or high desert habitats that are used for intensive agriculture production (Bangs *et al.* 1998, p. 788; Service *et al.* 1989–2007, Figure 1).

As part of the interagency wolf monitoring program and various research projects, about 30 percent of the wolves in the NRM DPS have been monitored with radio telemetry since the 1980s (Smith 2007a). The annual survival rate of mature wolves in northwestern Montana and adjacent Canada from 1984 through 1995 was 80 percent (Pletscher *et al.* 1997, p. 459); 84 percent for resident wolves and 66 percent for dispersers. That study found 84 percent of wolf mortality to be human-caused. Bangs *et al.* (1998, p. 790) found similar statistics, with humans causing most of the wolf mortality in the NRM DPS. Radio-collared wolves in the largest blocks of remote habitat without livestock, such as central Idaho or YNP, had annual survival rates around 80 percent (Smith *et al.*, 2006 p. 245). Wolves outside of large remote areas had survival rates as low as 54 percent in some years (Smith *et al.* 2006, p. 245). This percentage is at the lower end of adult wolf survival rates that an isolated population can sustain (Fuller *et al.* 2003, p. 185).

These survival rates may be biased. Wolves are more likely to be radio-collared if they are likely to come into conflict with people, so the proportion of mortality caused by agency depredation control actions could be overestimated by radio-telemetry data. People who illegally kill wolves may destroy the radio-collar, so the proportion of illegal mortality could be underestimated. Wolves that disperse long distances are much more difficult to locate than resident wolves, so their survival may be even lower than telemetry data indicate. The high proportion of wolves radio-collared in National Parks for research purposes can result in underestimating the overall rate of human-caused mortality in the NRM DPS. However, wolf numbers have increased at rate of about 24% annually in the face of ongoing levels of human-caused mortality.

A preliminary analysis of the survival data among NRM DPS radio-collared wolves (n=940) (Hensey & Fuller 1983; Smith 2007a) from 1984 through 2006 indicates that about 26 percent of adult-sized wolves die every year, so annual adult survival averages about 74 percent, which typically allows wolf population growth (Keith 1983, p. 66; Fuller *et al.* 2003, p. 182). Humans caused just over 75 percent of all known radio-collared wolf deaths (Smith 2007a). This type of analysis does not estimate the cause or rate of survival among pups younger than 7 months of age, because they are too small to radio-collar. Agency control of problem wolves and illegal killing are the two largest causes of wolf death; combined these causes remove nearly 20 percent of the population annually and are responsible for a majority of all known wolf deaths (Smith *et al.* 2006, p. 245).

Wolf mortality from agency control of problem wolves (which includes legal take by private individuals under defense of property regulations in rules promulgated under section 10(j) of the Act) is estimated to remove around 10 percent of adult radio-collared wolves annually. From 1995 through 2007, 60 wolves were legally killed by private citizens under Federal defense of property regulations (50 CFR 17.84(i) and (n)) that are similar to Montana, Idaho, and Wyoming State laws for resident game animals that would take effect and direct take of problem wolves by both the public and agencies if wolves were delisted. Agency control removed over 672 problem wolves from 1987 through 2007 (Service *et al.* 2007, Table 4; Service 2007a), indicating that private citizen take (about 8 percent) under State defense of property laws would not significantly increase the overall rate of problem wolf removal (Bangs *et al.* in press, pp. 19–20).

Of radio-collared wolves that died from 1984–2005, 21% were killed by natural causes (including 7% wolf-to-wolf conflict), 15% died from human-caused mortality other than agency control (vehicles, capture-related, incidental trapping, accidents, and legal harvest of wolves that range into Canada), 28% were killed in control actions, 21% were illegally killed, and for 15% the cause of death was unknown (Smith 2007a).

A comparison of the overall wolf population and the number of problem wolves killed indicates agency control removes, on average, about 9 percent of the overall wolf population annually (Service *et al.* 2007, Table 5). Wolf mortality under State and Tribal defense of property regulations that is incidental to other legal activities, agency control of problem wolves, and legal hunting and trapping will be regulated by Montana, Idaho, and Wyoming and Tribes when the Act's protections are removed. This issue is discussed further below under Factor D.

The overall causes and rates of annual wolf mortality are affected by several variables. Wolves in higher quality suitable habitat, such as remote, forested areas with few livestock (like National Parks or central Idaho wilderness), have high survival rates (80%). Wolves in unsuitable habitat or in suitable habitat without substantial refugia have survival rates approaching 60% (Smith 2007a). Mortality rates also vary depending on whether the wolves are resident pack members or dispersers, if they have a history with livestock depredation, or have been relocated (Bradley *et al.* 2005, p. 1506). However, the overall rate of wolf mortality has been low enough since 1987 that the wolf population in the NRM DPS has steadily increased. The wolf population is now nearly three times as numerous as needed to meet minimum recovery levels and is distributed throughout most suitable habitat within the NRM DPS (Service 1987, p. 23; Service 1994, p. 1:6).

When the NRM DPS of the gray wolf is delisted, State management will likely increase the mortality rate outside National Parks and National Wildlife Refuges from its current level of about 26 percent annually (Smith 2007a). Wolf mortality, as high as 50 percent annually, may be sustainable under some conditions (Fuller *et al.* 2003, p. 185). Montana, Idaho, and Wyoming have the regulatory authorization and commitment to regulate human-caused mortality so that the wolf population remains above its numerical and distributional recovery goals. This issue is discussed further below under Factor D.

In summary, human-caused mortality to adult radio-collared wolves in the NRM DPS, averaging over 20 percent per year (Smith 2007a), still allows for rapid wolf population growth. The protection of wolves under the Act promoted rapid initial wolf population growth in suitable habitat. Montana, Idaho, and Wyoming have committed to continue to regulate human-caused mortality so that it does not reduce numbers of wolves in the NRM DPS below recovery levels. Montana, Idaho, Wyoming, Oregon, Washington, and Utah have adequate laws and regulations to ensure that the NRM DPS remains above recovery levels (see Factor D). Each post-delisting management entity (State, Tribal, and Federal) has experienced and professional wildlife staff to ensure those commitments can be accomplished.

D. The Adequacy or Inadequacy of Existing Regulatory Mechanisms

To address this factor, we compare the current regulatory mechanisms within the NRM DPS to the future mechanisms that would provide the framework for wolf management after delisting. These regulatory mechanisms are and will be implemented by the State governments included in the NRM DPS. Montana, Idaho, and Wyoming's wolf management programs are designed to maintain a recovered wolf population while minimizing the damage it causes by allowing for removal of wolves in areas of chronic conflict or in unsuitable habitat. The three States with habitat occupied by persistent wolf packs have adopted wolf management plans that will govern how wolves will be managed when delisted. As discussed below, we have determined that Montana's, Idaho's, and Wyoming's plans will provide adequate regulatory mechanisms because these States have management plans that would maintain at least 10 breeding pairs and 100 wolves per State by managing for a safety margin of at least 15 breeding pairs and at least 150 wolves in each State.

While it is unknown at this time what levels the wolf population would ultimately achieve, other than above the minimum management objectives, Montana's plan states ''approximately 328–657 wolves (or 27–54 breeding pairs) would be present in Montana in 2015'' (Montana 2003, p. 132); Idaho intends to manage well above 20 breeding pairs to maintain opportunities for regulated public hunting of wolves only above that level, and ≤2003 levels of livestock and big game conflict (in 2003 there were 345 wolves in 25 breeding pairs in Idaho) (Idaho 2007, pp. 16, 20–21; Idaho 2007 pp. 20–21; Service *et al.* 2007, Table 4); and Wyoming has committed to manage for 7 breeding pairs outside the National Parks (historically representing 70–98 wolves) in addition to those in YNP (since 2000 YNP annually averaged 140 wolves in 10 breeding pairs) that could result in Wyoming, including those in YNP, maintaining at least 210–238 wolves and 17 breeding pairs (Wyoming 2007, p. 1; Service *et al.* 2000–2007, Table 2). Based on these State projections, the entire NRM wolf population will likely be managed around 883–1240 wolves in 69–96 breeding pairs, roughly two to four times higher than minimum recovery levels but slightly below the 2007 estimate of around 1,500 wolves (Service 2007a). Any wolf conservation by the Tribes and the States of Washington, Oregon, and Utah will be beneficial, but is not necessary to either achieving or maintaining a recovered wolf population in the NRM DPS.

Current Wolf Management—The 1980 and 1987 NRM wolf recovery plans (Service 1980, p. 4; 1987, p. 3) recognized that conflict with livestock was the major reason that wolves were extirpated and that management of conflicts was a necessary component of wolf restoration. The plans also recognized that control of problem wolves was necessary to maintain local public tolerance of wolves and that removal of some wolves would not prevent the wolf population from achieving recovery. In 1988, the Service developed an interim wolf control plan that applied to Montana and Wyoming (Service 1988, p. 1); the plan was amended in 1990 to include Idaho and eastern Washington (Service 1990, p. 1). We analyzed the effectiveness of those plans in 1999, and revised our guidelines for management of problem wolves listed as endangered (Service 1999, p. 1). Evidence showed that most wolves do not attack livestock, especially larger livestock such as adult horses and cattle, but wolf presence around livestock will result in some level of depredation (Bangs and Shivik 2001; Bangs *et al.* 2005, pp. 348–350). Therefore, we developed a set of guidelines under which depredating wolves could be harassed, moved, or killed by agency officials (Service 1999, pp. 39–40). The control plans were based on the premise that agency wolf control actions would affect only a small number of wolves, but would sustain public tolerance for non-depredating wolves, thus enhancing the chances for successful population recovery (Mech 1995, pp. 276–276). Our assumptions have proven correct, as wolf depredation on livestock and subsequent agency control actions have remained at low levels (annually averaging about 64 cattle, 135 sheep, 8 dogs, and 3 other forms of livestock from 1995–2006) (Service *et al.* 2007, Table 5), and the wolf population has expanded its distribution and numbers far beyond, and more quickly than, earlier predictions (Service 1994, p. 2:12; Service *et al.* 2007, Table 4).

The conflict between wolves and livestock has resulted in the average annual removal of 8–10 percent of the wolf population (Bangs *et al.* 1995, p. 130; Bangs *et al.* 2004, p. 92; Bangs *et al.* 2005, pp. 342–344; Service *et al.* 2007, Tables 4, 5; Smith 2007a). We estimate that each year illegal killing removed another 10 percent of the wolf population, and accidental and unintentional human-caused deaths have removed another 3 percent (Smith 2007a). Even with this level of mortality, populations have expanded rapidly (Service *et al.* 2007, Table 5). Despite liberal regulations regarding wolf removal, all suitable areas for wolves are being occupied by resident packs (Service *et al.* 2007, Figure 1). Wolf pack distribution has remained largely unchanged since the end of 2000 (Service *et al.* 2001–2007, Figure 1), indicating that wolf packs are simply filling the areas with suitable habitat, not successfully expanding their range into unsuitable habitat.

Because wolf populations continually try to expand, wolves will increasingly disperse into unsuitable areas that are intensively used for livestock production. A higher percentage of wolves in those areas will result in wolf conflicts with livestock, and a larger number of those wolves will be removed to reduce future livestock damage. In 2006 about 12 percent of the NRM wolf population was removed because of conflicts with livestock but the population still increased over 20 percent. In 2007 the rate of removal was even higher and the wolf population still increased by nearly 20 percent (Service 2007a). Human-caused mortality would have to remove 34 to as much as 50 percent of the wolf population annually before population growth would cease (Fuller *et al.* 2003, pp. 184–185). Preliminary wolf survival data from radio-telemetry studies suggests that adult wolf mortality resulting from conflict with people could nearly be doubled beyond the current 23 percent annual rate and still not significantly impact wolf population recovery (Smith 2007a). Wolf populations are quite resilient to human-caused mortality, and compensate for it in part by lower rates of natural mortality and lower dispersal rates. In addition, wolf packs quickly adapt to social vacancies by replacing breeders or adopting orphaned pups, thus maintaining breeding pairs. The State management laws and plans intend to balance the level of wolf mortality by regulating human-caused mortality with the wolf population growth rate to achieve population objectives in each State.

Regulatory Assurances Within the NRM DPS—In 1999, the Governors of Montana, Idaho, and Wyoming agreed that regional coordination in wolf management planning among the States, Tribes, and other jurisdictions would be necessary to ensure timely delisting. They signed a Memorandum of Understanding to facilitate cooperation among the three States in developing adequate State wolf management plans

so that delisting could proceed. In this agreement, all three States committed to maintain at least 10 breeding pairs and 100 wolves per State. The States were to develop their pack definitions to approximate the current breeding pair definition. Governors from the three States renewed that agreement in April 2002.

The wolf population in the NRM achieved its numerical and distributional recovery goals at the end of 2000. The temporal portion of the recovery goal (maintaining numerical and distributional recovery goals for 3 consecutive years) was achieved at the end of 2002. Because the primary threat to the wolf population (human-caused mortality) still has the potential to significantly impact wolf populations if not adequately managed, under the Act there must be regulatory assurances that the States will manage for sustainable mortality levels before we can remove the Act's protections. Therefore, we requested that the States of Montana, Idaho, and Wyoming prepare State wolf management plans to demonstrate how they would manage wolves after the protections of the Act were removed. Wolf management by the Tribes and the States of Washington, Oregon, and Utah might result in a few wolf breeding pairs, but they would not be necessary to either achieving or maintaining a recovered wolf population in the NRM DPS, because habitat in those areas is limited and often distant from the core recovery areas. Likewise, no threats in those States or on Tribal lands could be significant enough to affect wolf population recovery in Montana, Idaho, or Wyoming. The Service provided varying degrees of funding and assistance to the States while they developed their wolf management plans. Several issues key to our approval of State plans include regulations that would provide for regulatory control of take, a pack definition biologically consistent with the Service's definition of a breeding pair, the ability to realistically manage State wolf populations, agency monitoring of the wolf population and any impacts to it, and the number of breeding pairs and wolves the States agree to manage for above minimum recovery levels.

The final Service determination of the adequacy of those three key State management plans was based on the combination of Service knowledge of State law, the State management plans, wolf biology, our experience managing wolves for the last 20 years, peer review of the State plans, and the State's response to peer review. Those State plans can be viewed at *http://westerngraywolf.fws.gov/*.

After our analysis of the State laws, the State plans, and other factors, the Service determined that State laws and wolf management plans were adequate to assure the Service that each State's share of the NRM wolf population would be maintained above recovery levels following delisting. Therefore, we determined those regulatory mechanisms met the requirements of the Act. State and Tribal wolf management plans in the NRM DPS are discussed below.

Montana—The gray wolf was listed under the Montana Nongame and Endangered Species Conservation Act of 1973 (87–5–101 MCA). Senate Bill 163, passed by the Montana Legislature and signed into law by the Governor in 2001, establishes the current legal status for wolves in Montana. Upon Federal delisting, wolves will be classified and protected under Montana law as a ''Species in Need of Management'' (87–5–101 to 87–5–123). Such species are primarily managed through regulation of all forms of human-caused mortality in a manner similar to trophy game animals like mountain lions and black bears. The MFWP and the Commission would then finalize more detailed administrative rules, as is typically done for other resident wildlife, but they must be consistent with the Service-approved Montana wolf management plan and State law. Classification as a ''Species in Need of Management'' and the associated administrative rules under Montana State law create the legal mechanism to protect wolves and regulate human-caused mortality beyond the immediate defense of life/property situations. Some illegal human-caused mortality would still occur, but is to be prosecuted under State law and Commission regulations.

In 2001, the Governor of Montana appointed the Montana Wolf Management Advisory Council to advise MFWP regarding wolf management after the species is removed from the lists of Federal and State-protected species. In August 2003, MFWP completed a Final EIS pursuant to the Montana Environmental Policy Act and recommended that the Updated Advisory Council alternative be selected as Montana's Final Gray Wolf Conservation and Management Plan (Montana 2003, p. 131). See *http://www.fwp.State.mt.us* to view the MFWP Final EIS and the Montana Gray Wolf Conservation and Management Plan.

Under the management plan, the wolf population will be maintained above the recovery level of 10 breeding pairs by managing for a safety margin of at least 15 breeding pairs. MFWP will manage problem wolves in a manner similar to the control program currently being implemented in the experimental population area in southern Montana, whereby landowners and livestock producers on public land can shoot wolves seen attacking livestock or dogs, and agency control of problem wolves is incremental and in response to confirmed depredations. State management of conflicts would become more protective of wolves, and no public hunting would be allowed if there are fewer than 15 packs. Wolves will not be deliberately confined to any specific areas of Montana, but their distribution and numbers will be managed adaptively based on ecological factors, wolf population status, conflict mitigation, and human social tolerance. The MFWP plan commits to implement its management framework in a manner that encourages connectivity among wolf populations in Canada, Idaho, GYA, and Montana to maintain the overall metapopulation structure. Wolf management will include population monitoring, routine analysis of population health, management in concert with prey populations, law enforcement, control of domestic animal/human conflicts, consideration of a wolf-damage compensation program, research, and information and public outreach. Montana's plan (Montana 2003, p. 132) predicts that under State management, the wolf population will increase to between 328 and 657 wolves with approximately 27 to 54 breeding pairs by 2015.

An important ecological factor determining wolf distribution in Montana is the availability and distribution of wild ungulates. Montana has a rich, diverse, and widely distributed prey base on both public and private lands. The MFWP has and will continue to manage wild ungulates according to Commission-approved policy direction and species management plans. The plans typically describe a management philosophy that protects the long-term sustainability of the ungulate populations, allows recreational hunting of surplus game, and aims to keep the population within management objectives based on ecological and social considerations. The MFWP takes a proactive approach to integrate management of ungulates and carnivores. Ungulate harvest is to be balanced with maintaining sufficient prey populations to sustain Montana's segment of a recovered wolf population. Ongoing efforts to monitor populations of both ungulates and wolves will

provide credible, scientific information for wildlife management decisions.

State regulations will allow agency management of problem wolves by MFWP and USDA-Wildlife Services (WS); take by private citizens in defense of private property; and, when the population is above 15 packs, regulated hunting of wolves. Montana wildlife regulations allowing take in defense of private property are similar to the 2005 experimental population regulations, whereby landowners and livestock grazing permittees can shoot wolves seen attacking or molesting livestock or pets as long as such incidents are reported promptly and subsequent investigations confirm that livestock were being attacked by wolves. The MFWP has enlisted and directed USDA–WS in problem wolf management, just as the Service has done since 1987.

When the Service reviewed and determined that the Montana wolf management plan met the requirements of the Act, we stated that Montana's wolf management plan would maintain a recovered wolf population and minimize conflicts with other traditional activities in Montana's landscape. The Service has every confidence that Montana will implement the commitments it has made in its current laws, regulations, and wolf plan. In June 2005, MFWP signed a Cooperative Agreement with the Service, and it now manages all wolves in Montana subject to general oversight by the Service. The State's oversight has proven to be successful, as Montana's wolf population estimate increased from 152 wolves in 15 breeding pairs in late 2004 (Service *et al.* 2007, Table 4) to about 394 wolves in 37 breeding pairs in 2007 (Service 2007a) since the 2005 agreement.

Idaho—The Idaho Fish and Game Commission (Idaho Commission) has authority to classify wildlife under Idaho Code 36–104(b) and 36–201. The gray wolf was classified as endangered by the State until March 2005, when the Idaho Commission reclassified the species as a big game animal under Idaho Administrative Procedures Act (13.01.06.100.01.d). The big game classification will take effect upon Federal delisting, and until then, wolves will be managed under Federal status. Wolves are a big game animal, and State regulations will adjust human–caused wolf mortality to ensure that recovery levels are exceeded. Title 36 of the Idaho statutes currently has penalties associated with illegal take of big game animals. These rules are consistent with the legislatively adopted Idaho Wolf Conservation and Management Plan (IWCMP) (Idaho 2002) and big game hunting restrictions currently in place. The IWCMP states that wolves will be protected against illegal take as a big game animal under Idaho Code 36–1402, 36–1404, and 36–202(h).

The IWCMP was written with the assistance and leadership of the Wolf Oversight Committee established in 1992 by the Idaho Legislature. Many special interest groups, including legislators, sportsmen, livestock producers, conservationists, and IDFG personnel, were involved in the development of the IWCMP. The Service provided technical advice to the Committee and reviewed numerous drafts before the IWCMP was finalized. In March 2002, the IWCMP was adopted by joint resolution of the Idaho Legislature. The IWCMP can be found at: *http://www.fishandgame.idaho.gov/cms/wildlife/wolves/wolf_plan.pdf.*

The IWCMP calls for IDFG to be the primary manager of wolves after delisting; to maintain a minimum of 15 packs of wolves as a substantial margin of safety over the 10 breeding pair minimum; and to manage them as a viable self-sustaining population that will never require relisting under the Act. Wolf take will be more liberal if there are more than 15 packs and more conservative if there are fewer than 15 packs in Idaho. The wolf population will be managed by defense of property regulations similar to those now in effect under the Act. Public harvest will be incorporated as a management tool when there are 15 or more packs in Idaho to help mitigate conflicts with livestock producers or big game populations that outfitters, guides, and others hunt. The IWCMP allows IDFG to classify the wolf as a big game animal or furbearer, or to assign a special classification of predator, so that human-caused mortality can be regulated. In March 2005, the Idaho Commission proposed that, upon delisting, the wolf would be classified as a big game animal with the intent of managing wolves similar to black bears and mountain lions, including the opportunity for regulated public hunting when populations are above 15 packs. The IWCMP calls for the State to coordinate with USDA–WS to manage depredating wolves depending on the number of wolves in the State. It also calls for a balanced educational effort.

In November 2007, Idaho released its Wolf Population Management Plan for public review and comment (Otter 2007, p. 1; Idaho 2007). That plan is a more detailed step-down management plan compared to the general guidance given in the plan Idaho adopted in 2002 and discusses how the population will likely be managed well above 20 breeding pairs to provide hunting opportunities for wolves surplus to that goal (Idaho 2007, p. 16). The 2007 plan details how wolf populations will be managed to assure their niche in Idaho's wild places into the future (Otter 2007). It should be finalized in March 2008.

Elk and deer populations are managed to meet biological and social objectives for each herd unit according to the State's species management plans. The IDFG will manage both ungulates and carnivores, including wolves, to maintain viable populations of each. Ungulate harvest would be focused on maintaining sufficient prey populations to sustain viable wolf and other carnivore populations and hunting. IDFG has conducted research to better understand the impacts of wolves and their relationships to ungulate population sizes and distribution so that regulated take of wolves can be used to assist in management of ungulate populations and vice versa.

The Mule Deer Initiative in southeast Idaho was implemented by IDFG in 2005, to restore and improve mule deer populations. Though most of the initiative lies outside current wolf range and suitable wolf habitat in Idaho, improving ungulate populations and hunter success will decrease negative attitudes toward wolves. When mule deer increase, some wolves may move into the areas that are being highlighted under the initiative. Habitat improvements within much of southeast Idaho would focus on improving mule deer conditions. The Clearwater Elk Initiative also is an attempt to improve elk numbers in the area of the Clearwater Region in north Idaho where currently IDFG has concerns about the health of that once-abundant elk herd (Idaho 2006).

As stated previously, in March 2005 the gray wolf was reclassified by the Idaho Commission as a big game animal and this classification will take effect upon Federal delisting. Human-caused mortality will be regulated as directed by the IWCMP to maintain a recovered wolf population. The Service has every confidence that Idaho will implement the commitments it has made in its current laws, regulations, and wolf plan. In January 2006, the Governor of Idaho signed a Memorandum of Understanding with the Secretary of the Interior that provided the IDFG the authority to manage all Idaho wolves while they remain listed. The State's oversight has proven to be successful. Since the 2006 agreement, Idaho's wolf population estimate increased from 512 wolves in 36 breeding pairs in late 2005 (Service *et al.* 2007, Table 4) to about

788 wolves in 41 breeding pairs in 2007 (Service 2007a.)

Wyoming—In 2007, the Wyoming legislature passed a State statute that would permit designation of wolves as ''trophy game'' in an area totaling just over 12,000 square miles in northwestern Wyoming, including YNP, Grand Teton National Park, John D. Rockefeller Memorial Parkway, adjacent USFS-designated Wilderness Areas, and adjacent public and private lands, once the wolf is delisted from the Act. Following the change in State law, Wyoming drafted a revised wolf management plan (Wyoming 2007). On November 16, 2007, the WGFC unanimously approved the 2007 Wyoming Plan (Cleveland 2007, p. 1). The Service has determined that this plan, if implemented, will provide adequate regulatory protections to conserve Wyoming's portion of a recovery wolf population into the foreseeable future (Hall 2007, p. 1–3). The plan automatically goes into effect upon the Governor's certification to the Wyoming Secretary of State that all of the provisions found in the 2007 Wyoming wolf management law have been met (Freudenthal 2007b, p. 1–3). Thus, our determination is conditional upon the 2007 Wyoming wolf management law being fully in effect within 20 days of publication of this rule and the wolf management plan being legally authorized by Wyoming statutes (Hall 2007).

Implementation of that law and the trophy game area of northwestern Wyoming is premised on Wyoming's Governor certifying to the Wyoming Secretary of State that (1) the Service published a delisting rule that includes the entire State of Wyoming prior to February 28, 2007; (2) the Service modified the 2005 special rule [(10(j)] for the experimental population that addressed Wyoming's concerns about wolf management to maintain ungulate herds above State management objectives; and (3) settlement or resolution of the claims relating to the Service not approving Wyoming's 2003 wolf management law and wolf plan. This action satisfies the first criterion above. The second criterion was satisfied on January 29, 2008 when the Wyoming Governor certified that the 10(j) rule modification satisfied Wyoming's law (Freudenthal 2008). Wyoming has indicated that they will deem the claims in the pending litigation settled and will request that the court dismiss the litigation upon publication of this final rule by February 28, 2008 (Freudenthal 2007b). Dismissal of the case is not needed for the 2007 wolf management plan and law to become effective (Freudenthal 2007b). Additionally, on November 19, 2007, the Governor certified that the provisions in the Wyoming wolf management law, § 11–6–302(b) and 23–1–101(b), relating to the trophy game area boundary had been changed. We anticipate final certification will be issued within 20 days of publication of this rule.

If the provisions in the Wyoming wolf law are not fulfilled and the final certifications are not made within 20 days of publication of this rule, we will withdraw this final rule before its effective date. In that case, the 2003 Wyoming State law and wolf management plan will be the regulatory mechanisms in Wyoming. As previously determined, these mechanisms do not provide the necessary regulatory mechanisms to ensure that Wyoming's numerical and distributional share of a recovered NRM wolf population will be conserved (Williams 2004; 71 FR 43410, August 1, 2006). In such situation, we will replace this final rule with an alternate final rule that retains the Act's protections in much of northwestern Wyoming, outside the National Parks, while wolves would be delisted in all other portions of the NRM DPS (72 FR 6106, February 8, 2007). We are moving forward with delisting the entire NRM DPS because we fully expect the requirements of the 2007 Wyoming statute will be satisfied, allowing the approved wolf management plan to be fully implemented. Thus, the following analysis considers the adequacy of the 2007 Wyoming State law and wolf management plan.

''Trophy game'' status allows the Wyoming Game and Fish Commission (WYGFC) and Wyoming Game and Fish Department (WGFD) to regulate methods of take, hunting seasons, types of allowed take, and numbers of wolves that could be killed. Wyoming's management objective is to maintain at least 15 breeding pairs and 150 wolves in the trophy area of northwestern Wyoming (Freudenthal 2007a). Wyoming will manage to maintain 7 of these breeding pairs outside the National Parks in northwestern Wyoming. Wyoming would manage wolves as it does other resident trophy game, including routine wolf population and health monitoring, regulation of take by the public, including defense of property, and agency control of problem wolves (Wyoming 2007). The Trophy Game Area in northwestern Wyoming (Freudenthal 2007a) encompasses 70% of the suitable wolf habitat in Wyoming (Oakleaf 2007) and 91% of the area is secure public land. In 2006 this area, excluding the National Parks, supported at least 25 packs, 15 breeding pairs, and 175 wolves (Service *et al.* 2007, Table 2). The Trophy Game Area designated by Wyoming is clearly large enough to support 15 breeding pairs and 150 wolves even if Yellowstone Park had none (a very unlikely scenario). Therefore the Trophy Game Area is large enough to maintain Wyoming's commitment to the NRM wolf metapopulation on its own.

Wolves occurring in the portion of the State outside of the Trophy Game Area, which consists largely of habitat unsuitable for wolf pack establishment and persistence, will be designated as ''predatory animals'' and will be subject to unregulated human-caused mortality. Areas in Wyoming outside the trophy game area have not supported persistent wolf packs since 1995 (Service *et al.* 1999–2007, Figure 1, 3). Wolves are unlike coyotes in that wolf behavior and reproductive biology results in wolves being extirpated in the face of extensive human-caused mortality. These types and levels of take would most likely prevent wolf packs from persisting in areas of Wyoming where they are classified as predatory animals.

Wyoming regulations ensure that wolves will be managed to prevent the need for relisting in the future. The State of Wyoming has designated wolves as a Trophy Game Species within an area which is capable of supporting at least 15 breeding pairs (USFWS *et al.* 2007, Figure 3; Wyoming 2007, p. 1). The area includes: northwest Wyoming beginning at the junction of Wyoming Highway 120 and the Wyoming-Montana State line; southerly along Wyoming Highway 120 to the Greybull River; southwesterly up said river to the Wood River; southwesterly up said river to the Shoshone National Forest boundary; southerly along said boundary to the Wind River Indian Reservation boundary; westerly, then southerly along said boundary to the Continental Divide; southeasterly along said divide to the Middle Fork of Boulder Creek; westerly down said creek to Boulder Creek; westerly down said creek to the Bridger-Teton National Forest boundary; northwesterly along said boundary to its intersection with U.S. Highway 189–191; northwesterly along said highway to the intersection with U.S. Highway 26–89–191; northerly along said highway to Wyoming Highway 22 in the town of Jackson; westerly along said highway to the Wyoming-Idaho State line; north along said State line to the Wyoming-Montana State line; north, then east along said State line to Wyoming Highway 120. As stated above, the Trophy Game Area is

approximately 91% secure public lands and represents only about 12 percent of Wyoming, but contains approximately 70 percent of the suitable wolf habitat in Wyoming (Oakleaf 2007). Conversely, the area of Wyoming outside the Trophy Game Area is not considered significant to the recovery of gray wolves in the Northern Rocky Mountains (72 FR 6118; February 8, 2007; Oakleaf *et al.* 2006); nearly all wolves that have attempted to occupy the portion of Wyoming outside the Trophy Game Area have been involved in conflicts and lethally removed under Service management; and the stagnant distribution patterns since recovery objectives were achieved indicate there is limited suitable habitat in Wyoming for the NRM DPS wolf population to expand significantly beyond the three core recovery areas (72 FR 6120, February 8, 2007).

Within the Trophy Game Area, the WYGFC through the WYGF will have management authority over wolves outside the National Parks and will manage wolves and set harvest regulations in such a way as to assure that the management targets of at least 15 breeding pairs and at least 150 wolves for the State, with at least 7 of these breeding pairs in Wyoming outside the National Park Units, are met. The maintenance of wolf breeding pairs outside the National Parks is important to supplement those in the National Parks that, according to YNP policy, will fluctuate naturally and possibly widely, and to ensure the GYA is maintained at a level and distribution (71 FR 43410, August 1, 2006) that encourages the incorporation of naturally dispersing wolves into the GYA system, and that suitable habitat in northwestern Wyoming is occupied by wolf packs. The State of Wyoming will also monitor wolves under the State's predatory animal status, including the number and location of all wolves that are taken (Wyoming 2007).

This regulatory framework provides assurance that Wyoming's share of the NRM DPS will be maintained above recovery levels into the foreseeable future and that most suitable wolf habitat in Wyoming will be occupied by at least 150 wolves in at least 15 wolf breeding pairs. This type of management framework is consistent in its general principles with the frameworks in the States of Minnesota, Michigan, Wisconsin, Montana, and Idaho that have been accepted as adequate regulatory frameworks for wolves after de-listing. The Wyoming regulatory framework provides adequate assurances that a viable wolf population will be maintained in the NRM DPS.

Washington—Wolves in Washington are listed as endangered under the State's administrative code (WAC 232.12.014; these provisions may be viewed at: *http://apps.leg.wa.gov/wac/*). Under Washington's administrative code (WAC 232.12.297), ''endangered'' means any wildlife species native to the State of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the State. Endangered species in the State of Washington are protected from hunting, possession, and malicious harassment, unless such taking has been authorized by rule of the Washington Fish and Wildlife Commission (RCW 77.15.120; these provisions can be viewed at: *http://apps.leg.wa.gov/rcw/*). Following the delisting of the NRM DPS, those areas in Washington included in the NRM DPS will remain listed as endangered by Washington State. The areas in Washington not included in the NRM DPS will remain listed as endangered under both State and Federal law.

Although we have received reports of individual and wolf family units in the North Cascades of Washington (Almack and Fitkin 1998), agency efforts to confirm them were unsuccessful and to date, no individual wolves or packs have ever been documented there (Boyd and Pletscher 1999; Jimenez *et al.* in prep). Intervening unsuitable habitat makes it highly unlikely that wolves from the NRM DPS have dispersed to the North Cascades of Washington in recent history.

Washington State does not currently have a recovery or management plan for wolves, but the State has established a wolf working group advisory committee and is preparing a State gray wolf conservation and management plan (see *http://wdfw.wa.gov/wlm/diversty/soc/gray_wolf/*). Interagency Wolf Response Guidelines have been developed by the Service, WDFW, and USDA WS to provide a checklist of response actions for five situations that may arise in the future (can be viewed at *http://wdfw.wa.gov/wlm/diversty/soc/gray_wolf/contacts.htm*). Wolf management in Washington may be beneficial to the NRM DPS, but is not necessary for achieving or maintaining a recovered population of wolves in the NRM DPS.

Oregon—The gray wolf has been classified as endangered under the Oregon Endangered Species Act (ORS 496.171–192) since 1987. The law requires the Oregon Fish and Wildlife Commission to conserve the species in Oregon. Anticipating the reestablishment of wolves in Oregon from the growing Idaho population, the Commission directed the development of a wolf conservation and management plan to meet the requirements of both the Oregon Endangered Species Act and the Oregon Wildlife Policy. ORS 496.012 states in part: ''It is the policy of the State of Oregon that wildlife shall be managed to prevent serious depletion of any indigenous species and to provide the optimum recreational and aesthetic benefits for present and future generations of the citizens of this State.''

In February 2005, the Oregon Fish and Wildlife Commission adopted the Oregon Wolf Conservation and Management Plan (Oregon 2005). The plan was built to meet the five delisting criteria identified in State statutes and administrative rules: (1) The species is not now (and is not likely in the foreseeable future to be) in danger of extinction in any significant portion of its range in Oregon or in danger of becoming endangered; (2) the species' natural reproductive potential is not in danger of failure due to limited population numbers, disease, predation, or other natural or human-related factors affecting its continued existence; (3) most populations are not undergoing imminent or active deterioration of range or primary habitat; (4) overutilization of the species or its habitat for commercial, recreational, scientific, or educational purposes is not occurring or likely to occur; and (5) existing State or Federal programs or regulations are adequate to protect the species and its habitat.

The Plan describes measures the Oregon Department of Fish and Wildlife (ODFW) will take to conserve and manage the species. This includes actions that could be taken to protect livestock from wolf depredation and address human safety concerns. The following summarizes the primary components of the plan:

- Wolves that naturally disperse into Oregon will be conserved and managed under the plan. Wolves will not be captured outside of Oregon and released in the State.
- Wolves may be considered for Statewide delisting once the population reaches four breeding pairs for 3 consecutive years in eastern Oregon (note—the boundary between east and west wolf management zones is defined by U.S. Highway 97 from the Columbia River to the junction of U.S. Highway 20, southeast on U.S. Highway 20 to the junction with U.S. Highway 395, and south on U.S. Highway 395 to the California border). Four breeding pairs are considered the minimum conservation population objective, also described as Phase 1. The plan calls for managing wolves in western Oregon, as

if the species remains listed, until the western Oregon wolf population reaches four breeding pairs. This means, for example, that a landowner would be required to obtain a permit to address depredation problems using injurious harassment.

• While the wolf remains listed as a State endangered species, the following will be allowed: (1) Wolves may be harassed (e.g., shouting, firing a shot in the air) to distract a wolf from a livestock operation or area of human activity; (2) harassment that causes injury to a wolf (e.g., rubber bullets or bean bag projectiles) may be employed to prevent depredation, but only with a permit; (3) wolves may be relocated to resolve an immediate localized problem from an area of human activity (e.g., wolf inadvertently caught in a trap) to the nearest wilderness area (relocation will be done by ODFW or USDA–WS personnel); (4) livestock producers who witness a wolf 'in the act' of attacking livestock on public or private land must have a permit before taking any action that would cause harm to the wolf; and (5) wolves involved in chronic depredation may be killed by ODFW or USDA–WS personnel; however, nonlethal methods will be emphasized and employed first in appropriate circumstances. Under this final delisting rule, wolves will remain federally listed in the western two thirds of Oregon, and neither of these two agencies have authority to use lethal removal in the portions of Oregon outside of the NRM DPS.

• Once the wolf is State-delisted, more options are available to address wolf-livestock conflict. While there are five to seven breeding pairs, landowners with a permit may kill a wolf involved in chronic depredation. Five to seven breeding pairs is considered the management population objective, or Phase 2.

• When there are more than seven breeding pairs, under Phase 3, a limited controlled hunt could be allowed to decrease chronic depredation or reduce pressure on wild ungulate populations.

• The plan provides wildlife managers with adaptive management strategies to address wolf predation problems on wild ungulates if confirmed wolf predation leads to declines in localized herds.

• In the unlikely event that a person is attacked by a wolf, the plan describes the circumstances under which Oregon's criminal code and the Federal Endangered Species Act would allow harassing, harming or killing of wolves where necessary to avoid imminent, grave injury. Such an incident must be reported to law enforcement officials.

• A strong information and education program is proposed to ensure anyone with an interest in wolves is able to learn more about the species and stay informed about wildlife management activities.

• Several research projects are identified as necessary for future success of long-term wolf conservation and management. Monitoring and radio-collaring wolves are listed as critical components of the plan both for conservation and communication with Oregonians.

• An economic analysis provides estimates of costs and benefits associated with wolves in Oregon and wolf conservation and management.

• Finally, the plan requires annual reporting to the Commission on program implementation.

The Oregon Wolf Management Plan, as approved by the Oregon Fish and Wildlife Commission in February 2005, called for three legislative actions, which the 2005 Oregon Legislative Assembly considered, but did not adopt. These actions were: (1) Changing the legal status of the gray wolf from protected non-game wildlife to a ''special status mammal'' under the ''game mammal'' definition in ORS 496.004; (2) amending the wildlife damage statute (ORS 498.012) to remove the requirement for a permit to lethally take a gray wolf caught in the act of attacking livestock; and (3) creating a State-funded program to pay compensation for wolf-caused losses of livestock and to pay for proactive methods to prevent wolf depredation. As a result, the Fish and Wildlife Commission amended the Oregon Plan in December 2005 and rather than dropping the proposals chose to move them from the body of the Plan to an appendix. The Commission remains on record as calling for those legislative enhancements; however, implementation of the Oregon Plan does not depend upon them.

Under the Oregon Wolf Management Plan, the gray wolf will remain classified as endangered under State law until the conservation population objective for eastern Oregon is reached (i.e., four breeding pairs for 3 consecutive years). Once the objective is achieved, the State delisting process will be initiated. Following delisting from the State Endangered Species Act, wolves will retain their classification as nongame wildlife under ORS 496.375.

Utah—When federally delisted, wolves in that portion of the NRM DPS in Utah will remain listed as protected wildlife under State law. In Utah, wolves fall under three layers of protection–(1) State code, (2) Administrative Rule and (3) Species Management Plan. The Utah Code can be found at *http://www.le.State.ut.us/code/TITLE23/TITLE23.htm.* The relevant administrative rules that restrict wolf take can be found at *http://www.rules.utah.gov/publicat/code/r657/r657–003.htm* and *http://www.rules.utah.gov/publicat/code/r657/r657–011.htm.* These regulations restrict all potential taking of wolves in Utah, including that portion in the NRM DPS. Wolf management in Utah will have no effect on the recovered wolf population that resides in suitable habitat in Montana, Idaho, and Wyoming.

In 2003, the Utah Legislature passed House Joint Resolution 12, which directed the Utah Division of Wildlife Resources (UDWR) to draft a wolf management plan for review, modification, and adoption by the Utah Wildlife Board, through the Regional Advisory Council process. In April 2003, the Utah Wildlife Board directed UDWR to develop a proposal for a wolf working group to assist the agency in this endeavor. The UDWR created the Wolf Working Group in the summer of 2003. The Wolf Working Group is composed of 13 members that represent diverse public interests regarding wolves in Utah.

On June 9, 2005, the Utah Wildlife Board passed the Utah Wolf Management Plan (Utah 2005). The goal of the Plan is to manage, study, and conserve wolves moving into Utah while avoiding conflicts with the elk and deer management objectives of the Ute Indian Tribe; minimizing livestock depredation; and protecting wild ungulate populations in Utah from excessive wolf predation. The Utah Plan can be viewed at *http://www.wildlife.utah.gov/wolf/.* Its purpose is to guide management of wolves in Utah during an interim period from Federal delisting until 2015, or until it is determined that wolves have become established in Utah, or the assumptions of the plan (political, social, biological, or legal) change. During this interim period, immigrating wolves will be studied to determine where they are most likely to settle without conflict.

Tribal Plans—Approximately 20 Tribes are within the NRM DPS. Currently perhaps only 1–2 wolf packs are entirely dependent on Tribal lands for their existence in the NRM DPS. In the NRM DPS about 32,942 km^2 (12,719 mi^2) (3 percent) of the area is Tribal land. In the NRM DPS wolf occupied habitat, about 4,696 km^2 (1,813 mi^2) (2 percent) is Tribal land (Service *et al.* 2006; 71 FR 6645, February 8, 2006). Therefore, while Tribal lands can contribute some habitat for wolf packs

in the NRM, they will be relatively unimportant to maintaining a recovered wolf population in the NRM DPS. Many wolf packs live in areas of public land where Tribes have various treaty rights, such as wildlife harvest. Montana, Idaho, and Wyoming propose to incorporate Tribal harvest into their assessment of the potential surplus of wolves available for public harvest in each State, each year, to ensure that the wolf population is maintained above recovery levels. Utilization of those Tribal treaty rights will not significantly impact the wolf population or reduce it below recovery levels because a small portion of the wolf population could be affected by Tribal harvest or lives in areas subject to Tribal harvest rights.

The overall regulatory framework analyzed in this rule depends entirely on State-led management of wolves that are primarily on lands where resident wildlife is traditionally managed by the State. Any wolves that may establish themselves on Tribal lands will be in addition to those managed by the State outside Tribal reservations. At this point in time, only the Wind River Tribe (Wind River Tribe 2007) has an approved tribal wolf management plan for its lands. In addition, Nez Perce Tribe had a Service wolf management plan approved in 1995, but that plan applied only to listed wolves, and it was approved by the Service so the Tribe could take a portion of the responsibility for wolf monitoring and management in Idaho under the 1994 special regulation under section 10(j). No other Tribe has submitted a wolf management plan. In November 2005, the Service requested information from all the Tribes in the NRM regarding their Tribal regulations and any other relevant information regarding Tribal management or concerns about wolves (Bangs 2004). We reviewed all responses and incorporated Tribal comments on the 2007 delisting proposal into this final rule.

Summary—State wolf management plans for Montana, Idaho, and Wyoming (assuming implementation of the Wyoming State wolf management law) commit to regulation of wolf mortality over conflicts with livestock after delisting in a manner similar to that used by the Service to reduce conflicts with private property, and that would assume the maintenance of wolf populations above recovery levels. These State plans have committed to using a definition of a wolf pack that approximates the Service's current breeding pair definition. Based on that definition, they have committed to maintaining at least 10 breeding pairs and 100 wolves per State by managing for a safety margin of at least 15 breeding pairs and at least 150 wolves in each State. In addition, Wyoming has committed to manage for at least 7 of these wolf breeding pairs outside the National Parks. These States are to control problem wolves in a manner similar to that used by the Service for the past 20 years (Service 1988, p. 8; 1994, pp. 2, 9–12; 1999, pp. 39–40; 70 FR 1306–1311, January 6, 2005) and use adaptive management principles to regulate and balance wolf population size and distribution with livestock conflict and public tolerance. When wolf populations are above the State management objective of 15 breeding pairs, wolf control measures may be more liberal. If wolf populations ever get below 15 breeding pairs, wolf control as directed by each State will be more conservative to bring about population increases. The State wildlife agencies have experienced professional staff with expertise in wildlife monitoring, research and management, veterinarian and forensic science, problem wildlife management and control, education, outreach, administration, regulations and laws, and law enforcement that can successfully implement the States' commitments for science-based wolf management.

With delisting the wolf in the NRM DPS, the major differences between the previous Federal management and the new State management of problem wolves will be the slightly increased authority given to private landowners and grazing permittees to take wolves in the act of attacking or molesting livestock or other domestic animals, and public harvest programs to help regulate wolf distribution and density to meet State management objectives.

Private take of problem wolves under State regulations will replace some agency control, but we believe this will not substantially increase or decrease the overall numbers of problem wolves killed each year because of conflicts with livestock or affect the recovered status of the NRM DPS. Because the overall rate of depredation and conflict is dependent on the wolf population level (Service *et al.* 2007, Tables 4, 5), we believe overall rates of lethal control will remain stable and increased legal take by private individuals will simply replace some of the take of problem wolves by public agencies. In contrast to the Service recovery program, State and Tribal management programs will incorporate regulated public harvest when wolf populations in Montana, Idaho, and Wyoming are safely above recovery levels of 15 or more breeding pairs (in Wyoming 7 or more of those breeding pairs must be outside the National Parks). This approach will help manage wolf distribution and numbers to minimize conflicts with humans. States routinely use regulated public harvest to help successfully manage and conserve other large predators and wild ungulates under their management authority. The adjacent States of Utah, Oregon, and Washington all have in place laws that would remain in effect to protect wolves after delisting. Utah and Oregon have adopted wolf management plans, and Washington is currently preparing one. For the purposes of this rule there is no need for the Service to review or approve state wolf management plans outside of Montana, Idaho, or Wyoming. The adjacent States' management strategies should not impact the core recovery areas in Montana, Idaho, or Wyoming, because of the distance of those states from the core recovery areas. Any wolf breeding pairs that do become established in other States in the NRM DPS, while not necessary to maintain the NRM DPS above recovery levels, can only have a positive effect on maintaining wolf population recovery in the NRM DPS.

The States of Montana, Idaho, and Wyoming have successfully managed resident ungulate populations for decades and maintain them at densities that would easily support a recovered wolf population. They and Federal land management agencies will continue to manage for high ungulate populations in the foreseeable future. Native ungulate populations also are maintained at high levels by Washington, Oregon, and Utah in the portions of those States that are in the NRM DPS. No foreseeable condition would cause a decline in ungulate populations significant enough to affect a recovered wolf population.

E. Other Natural or Manmade Factors Affecting Its Continued Existence

Public Attitudes Toward the Gray Wolf—The primary determinant of the long-term status of gray wolf populations in the U.S. will be human attitudes toward this large predator. These attitudes are largely based on the real and perceived conflicts between human activities and values and wolves, such as depredation on livestock and pets, competition for surplus wild ungulates between hunters and wolves, concerns for human safety, wolves' symbolic representation of wildness and ecosystem health, killing of wolves by people, and the wolf-related traditions of Native American Tribes or local culture.

In recent decades, national support has been evident for wolf recovery and

reintroduction in the NRM (Service 1994, pp. 5:11–111). With the continued help of private conservation organizations, the States and Tribes will continue to foster public support to maintain recovered wolf populations in the NRM DPS. We have concluded that the State management regulations that will go into effect when wolves in the NRM DPS are delisted will further enhance local public support for wolf recovery. State management provides a larger and more effective local organization and a more familiar means for dealing with these conflicts (Mech 1995, pp. 275–276; Williams *et al.* 2002, p. 582; Bangs *et al.* 2004, p. 102; Bangs *et al.* in press). State wildlife organizations have specific departments and staff dedicated to providing accurate and science-based public education, information, and outreach (Idaho 2007, p. 23–24, Appendix A; Wyoming 2007, p. 28–29; Montana 2003, p. 90–91).

Genetic Considerations—The genetic diversity of wolves in North America was reduced by the historic large-scale extirpation of wolves in North America (Leonard *et al.* 2005, p. 9), but populations have rebounded from previously low levels and even the relatively inbred Mexican wolf (Fredrickson *et al.* 2007) is not threatened by reduced genetic diversity alone. Even a wolf population on Isle Royale National Park that started from possibly 2 founders in 1949 and remained very small (<50 wolves) has persisted until the present time (Boitani 2003, p. 330). The wolf population on the island-like Kenai Peninsula, Alaska, was recolonized by a few wolves in the 1960's. That population is removed from other populations, has remained small (<200 wolves), is hunted and trapped, doesn't appear threatened (Peterson *et al.* 1994, p. 1), and is genetically fit (Talbot and Scribner 1997, p. 20–21). Small wolf populations are unlikely to be threatened solely by loss of genetic diversity, but that possibility exists (Boitani 2003, p. 330). Many extant wolf populations have persisted for many decades or centuries with low genetic diversity (Boitani 2003, pp. 322–03, 330–1; Fritts and Carbyn 1996). Furthermore, from a purely biological perspective, the NRM DPS is just the southern extension of a vast North American wolf population consisting of many tens of thousands of individuals.

We asked a wolf genetics expert who was a peer reviewer on the Service's 2006 proposal to delist the WGL wolf population (Wayne 2006), whose team we had contracted to do a genetic analysis of wolves in the NRM, to comment on our proposal (Wayne 2007). We did not ask him to be one of the peer reviewers for this proposal because of that potential conflict of interest. He and his colleagues mistakenly believed the Service's recovery goals were to have only 10 breeding pairs and 100 wolves in each of the three States and were unaware of the States' intentions to manage for about 883–1,250 wolves in mid-winter. Based on this belief they concluded that the YNP wolf population was less than what would be required for maintaining a genetically healthy, self-sustaining metapopulation. They believed it was too low given the wolf population's current higher population level, and that the current genetic isolation of YNP and potentially the GYA from the other recovery areas and Canada would reduce the genetic integrity of the YNP segment of the NRM wolf population, within 100 years. We carefully examined all those claims and determined those related to the GYA were based on faulty assumptions, unjustifiably pessimistic forecasts, and therefore we respectfully disagreed with them for the reasons stated below.

Genetic diversity throughout the NRM is currently very high (Forbes and Boyd 1996, p. 1084; Forbes and Boyd 1997, p. 226; vonHoldt *et al.* 2007, p. 19) and likely to remain so especially in the northwestern Montana and central Idaho core recovery areas, because wolf packs are relatively contiguous throughout those areas and into Canada where wolf packs are numerous and contiguous northward to the Arctic Ocean (Service *et al.* 2007, Figure 1). However, the theoretical modeling by von Holdt *et al.* (2007; Figure 8) indicated that under a worst-case scenario in 100 years the genetic diversity of wolves in YNP would be reduced if it were totally isolated from the GYA and the GYA was totally isolated from the other core recovery areas. That lower genetic diversity might result in an average of 4 pups being born into each pack rather than the current 5 per pack. That would certainly not threaten or even reduce the number of wolves in YNP which will continue to have an adult survival rate of around 80%, but lower pup production might theoretically reduce the rates of wolf dispersal from the Park. However, the model's assumptions are misleading. Delisting will not affect wolves in YNP and YNP is at the center of the GYA core recovery area that is composed of wolves in YNP as well as those outside of YNP in northwestern Wyoming, southwestern Montana, and to a lesser extent southeastern Idaho. Modeling and field data suggest that low-density wolf populations have a reduced probability of finding mates (Hurford *et al.* 2006; Brainerd *et al.* 2008), so having a high-density core refugium for wolves like YNP as the cornerstone of the GYA core recovery area is fortuitous and provides for a much larger and well-dispersed wolf population than the one modeled and upon which the von Holdt *et al.* (2007) paper based their predictions.

Wolves have naturally dispersed into the GYA. In 1992, an uncollared black wolf from northwestern Montana was shot just south of YNP (Fain 2007, p. 1). Another black wolf was filmed in YNP a month before that shooting, but has never been reported again. It is unknown if it was the same or a different wolf. Since 1995, we have documented dispersal of wolves to the GYA on at least four occasions by radio-collared wolves from Idaho. One was likely the alpha male of the Greybull pack near Meeteetse, WY. Recently a dispersing radio-collared male from Idaho has paired with a female in YNP (Service 2007b). Two other radio-collared wolves dispersed into the GYA from Idaho but were not suspected of breeding. Other wolves from Idaho or northwestern Montana have undoubtedly made the journey to the GYA since 1995 but have not been detected simply because they were not uniquely marked or tracked with radio telemetry (an average of only 30% of the wolf population is marked). However, while genetic studies are continuing, at this time no genes from offspring of a wolf dispersing from central Idaho or northwestern Montana into the GYA have been detected in the samples that have been analyzed (Wayne 2007). In other words, although 4–12 individual wolves have naturally dispersed into the GYA, to date little, if any, of their DNA has become incorporated into the GYA portion of the NRM DPS. If no new genes ever entered the GYA in the next 100 years (either naturally or by agency relocations), the GYA wolf population's currently high genetic diversity would be reduced, but not to the point the GYA wolf population would be threatened because other wolf populations have persisted at lower levels and with lower genetic diversity for decades or centuries.

The potential lack of genetic connectivity between wolves in YNP and wolves in the rest of the NRM DPS is not considered a threat under the Act's criteria for persistence, because much smaller extant wolf populations with much lower genetic diversity have persisted for decades or even centuries (See Fritts and Carbyn 1995, p. 33;

Boitiani 2003, pp. 330–335; Liberg 2005, pp. 5–6 for examples). Furthermore, if wolves select breeders for genetic differences, as data indicate (wolves have a strong tendency to select mates that will minimize inbreeding) (Bensch *et al.* 2006, p. 72; vonHoldt *et al.* 2007, p. 1), then future dispersers into a system experiencing genetic inbreeding would be much more likely to have their genes strongly selected for and incorporated into the inbred population. In addition, Montana (2003, p. 35), Idaho (2007, p. 20), and Wyoming (2007, p. 17) committed to foster successful dispersal by maintaining a widely-dispersed wolf population over 45 breeding pairs and 450 wolves, continuing to work toward resolving wildlife connectivity issues in the NRM DPS, including the maintenance of traditional ranching/open space, and if necessary relocate wolves or use other measures if reduced genetic diversity ever threatened wolf population recovery. Many small populations with low genetic diversity expanded rapidly when human persecution stopped (Boitani 2003, pp. 317–340; Fritts and Carbyn 1996, pp. 31–33). As a final safeguard, which is highly unlikely to be needed, relocation has proven to be a relatively simple procedure. Genetic rescue, improved pup production, and population increases have occurred in severely inbred small wolf populations as a result of the incorporation of one or two new genetic lines/individuals (Vila *et al.* 2003, p. 91; Liberg *et al.* 2004, p. 17; Liberg 2005, pp. 5–6; Mills 2006, pp. 195–96; Fredrickson *et al.* 2007, p. 2365).

We agree with the conclusions of vonHoldt *et al.*'s (2007, pp. 18–19) that ''these limitations can potentially be addressed by management actions such as increased protection, habitat restoration, and population augmentation,'' all things Montana, Idaho, and Wyoming have already committed to do in their wolf management plans. We also agree that genetic data should be incorporated into long-term wolf conservation efforts and are confident the States will consider all the recommendations made by vonHoldt *et al.* (2007, p. 19) and other scientific literature when they manage wolf numbers and distribution in the NRM DPS.

Climate Change—While there is much debate about the rates at which carbon dioxide levels, atmospheric temperatures, and ocean temperatures will rise, the Intergovernmental Panel on Climate Change (IPCC), a group of leading climate scientists commissioned by the United Nations, concluded there is a general consensus among the world's best scientists that climate change is occurring (Intergovernmental Panel on Climate Change 2001, pp. 2–3; Intergovernmental Panel on Climate Change 2007, p. 4). The twentieth century was the warmest in the last 1,000 years (Inkley *et al.* 2004, pp. 2–3) with global mean surface temperature increasing by 0.4 to 0.8 degrees Celsius (0.7 to 1.4 degrees Fahrenheit). These increases in temperature were more pronounced over land masses as evidenced by the 1.5 to 1.7 degrees Celsius (2.7 to 3.0 degrees Fahrenheit) increase in North America since the 1940s (Vincent *et al.* 1999, p. 96; Cayan *et al.* 2001, p. 411). According to the IPCC, warmer temperatures will increase 1.1 to 6.4 degrees Celsius (2.0 to 11.5 degrees Fahrenheit) by 2100 (Intergovernmental Panel on Climate Change 2007, pp. 10–11). The magnitude of warming in the NRM has been particularly great, as indicated by an 8-day advance in the appearance of spring phenological indicators in Edmonton, Alberta, since the 1930s (Cayan *et al.* 2001, p. 400). The hydrologic regime in the NRM also has changed with global climate change, and is projected to change further (Bartlein *et al.* 1997, p. 786; Cayan *et al.* 2001, p. 411; Stewart *et al.* 2004, pp. 223–224). Under global climate change scenarios, the NRM may eventually experience milder, wetter winters and warmer, drier summers (Bartlein *et al.* 1997, p. 786). Additionally, the pattern of snowmelt runoff also may change, with a reduction in spring snowmelt (Cayan *et al.* 2001, p. 411) and an earlier peak (Stewart *et al.* 2004, pp. 223–224), so that a lower proportion of the annual discharge will occur during spring and summer.

Even with these changes, climate change should not threaten the NRM wolf population. Wolves are habitat generalists and next to humans are the most widely distributed land mammal on earth. Wolves live in every habitat type in the Northern Hemisphere that contains ungulates, and once ranged from central Mexico to the Arctic Ocean in North America. The NRM DPS is roughly in the middle of historic wolf distribution in North America, so wolves could easily adapt to the slightly warmer and drier conditions that are predicted with climate change, including any northward expansion of diseases, parasites, new prey, or competitors or reductions in species currently at or near the southern extent of their range.

Changing climate conditions have the potential to impact wolf prey. However, the extent and rate to which ungulate populations will be impacted is difficult to foresee with any level of confidence. One logical consequence of climate change could be a reduction in the number of elk, deer, moose, and bison dying over winter, thus maintaining a higher overall prey base for wolves (Wilmers and Getz 2005, p. 574; Wilmers and Post 2006, p. 405). Furthermore, increased over-winter survival would likely result in overall increases and more resiliency in ungulate populations, thereby providing more prey for wolves.

Catastrophic Events—The habitat model/PVA by Carroll *et al.* (2003, p. 543) analyzed environmental stochasticity and predicted it was unlikely to threaten wolf persistence in the GYA. We also considered catastrophic and stochastic events to the extent possible. None of these factors are thought to pose a significant risk to wolf recovery in the foreseeable future. With regard to wildfires, which humans often view as catastrophic events, large mobile species such as wolves and their ungulate prey usually are not adversely impacted.Wildfires in the NRM often lead to an increase in ungulate food supplies and an increase in ungulate numbers, which in turn supports increased wolf numbers. Wolves are an exceptionally resilient species.

Impacts to Wolf Pack Social Structure—When human-caused mortality rates are low, packs contain older individuals. Older experienced individuals (5–7 yrs old) have gained their maximum body size and weight. They help maintain traditions (e.g., hunting bison) in a pack and are more successful at killing very large prey. They also help stabilize their pack's social structure and can more successfully defend their territory from neighboring wolf packs (Smith 2007a). All these effects will continue in areas like YNP, GTNP, GNP, the wilderness areas surrounding those Parks, and the wilderness areas and most remote portions of central Idaho and northwestern Montana, where human-caused mortality is relatively low. These ''natural'' social structures will continue unaltered in those areas after wolves are delisted. However, wolves in much of the NRM DPS will be constantly interacting with livestock and people and will not be at biological carrying capacity or maximum density. In addition, regulated hunting will be allowed by the States and that will increase wolf mortality rates. Wolf packs have high rates of natural turnover (Mech 2006, p. 1482) and quickly adapt to changes in pack social structure (Brainerd *et al.* 2008). Higher rates of human-caused mortality also may simply replace some forms of

natural mortality (Fuller *et al.* 2003, pp. 185–6). Thus the potential effects caused by natural wolf pack dynamics in much of the NRM DPS will be moderated to varying degrees by conflicts with humans and rates of human-caused mortality (Garrott *et al.* 2005; pp. 7–9; Campbell *et al.* 2006, p. 363). Higher rates of human-caused mortality outside protected areas will result in different wolf pack size and structure than that in protected areas, but wolves in many parts of the world, including most of North America, experience various levels of human-caused mortality and the associated disruption in natural processes and wolf social structure without ever threatening the population (Boitani 2003). Therefore, while social structure disruption may occur in the future, it will not threaten the wolf with extinction in the foreseeable future.

Summary

No manmade or natural factors threaten wolf population recovery in the NRM DPS now or in the foreseeable future. Public attitudes toward wolves have improved greatly over the past 30 years, and we expect that, given adequate continued management of conflicts, those attitudes will continue to support wolf restoration. The State wildlife agencies have professional education, information, and outreach components and are to present balanced science-based information to the public that will continue to foster general public support for wolf restoration and the necessity of conflict resolution to maintain public tolerance of wolves. Additionally, any wolf genetic viability, interbreeding coefficients or changes in wolf pack social structure are unlikely to threaten the wolf population in the NRM DPS in the foreseeable future, but if the GYA population segment was threatened that issue could be easily resolved by reintroduction or other deliberate management actions, as promised by the States, if it ever becomes necessary.

Conclusion of the 5-Factor Analysis

Is the Species Threatened or Endangered throughout ''All'' of Its Range—As required by the Act, we considered the five potential threat factors to assess whether the gray wolf in the NRM DPS is threatened or endangered throughout all or a significant portion of its range. When considering the listing status of the species, the first step in the analysis is to determine whether the species is in danger of extinction throughout all of its range. If this is the case, then the species is listed in its entirety. For instance, if the threats against a species are acting on only a portion of its range, but they are at such a large scale that they place the entire species in danger of extinction, we would list the entire species.

Human-caused mortality is the most significant threat to the long-term conservation of the gray wolf. Managing this source of mortality (i.e., overutilization of wolves for commercial, recreational, scientific and educational purposes and human predation) remains the primary challenge to maintaining a recovered wolf population into the foreseeable future. Montana and Idaho have wolf management plans to regulate human-caused mortality that are current and effective under State law and that the Service has determined are adequate to support a recovered wolf population. We have also determined that the 2007 Wyoming wolf management plan, if implemented, will provide adequate regulatory protections to conserve Wyoming's portion of a recovery wolf population into the foreseeable future (Hall 2007, pp. 1–3). As stated previously, the 2007 Wyoming wolf management plan automatically goes into effect upon the Governor's certification to the Wyoming Secretary of State that all of the provisions found in the 2007 Wyoming wolf management law have been met (Freudenthal 2007b, pp. 1–3). Thus, while our determination is conditional upon the 2007 Wyoming wolf management law being fully in effect within 20 days of publication of this rule and the wolf management plan being legally authorized by Wyoming statutes (Hall 2007), we anticipate that this final certification will be issued within the specified time period. Therefore, we have concluded that each State will maintain its share and distribution of the NRM DPS wolf population above recovery levels for the foreseeable future.

In terms of habitat, the amount and distribution of suitable habitat in public ownership provides, and will continue to provide, large core areas that contain high-quality habitat of sufficient size to anchor a recovered wolf population (assuming adequate regulatory mechanisms are in place). Our analysis of land-use practices shows these areas will maintain their suitability well into the foreseeable future, if not indefinitely. These areas also provide the necessary connectivity to support a three-part metapopulation. As illustrated in the GYA in 2005 and discussed in our 2006 12-month finding (71 FR 43410, August 1, 2006), disease and parasites can play a temporary role in population stability. That said, as long as populations are managed above recovery levels, diseases or parasites are not likely to threaten the recovered NRM DPS at any point in the foreseeable future. Natural predation is likely to remain an insignificant factor in population dynamics into the foreseeable future. Finally, we believe that other natural or manmade factors are unlikely to threaten the recovered wolf population within the foreseeable future.

Overall, we have determined that secure portions of Idaho, Montana and Wyoming contain habitat of sufficient quality, extent, and distribution to collectively support connected, stable populations of more than 45 breeding pairs and 450 wolves that will not fall below 30 breeding pairs and 300 wolves. Connectivity with wolves in Canada will provide further stability to this portion of the NRM DPS. Thus, the NRM DPS does not merit continued listing as threatened or endangered throughout ''all'' of its range.

Is the Species Threatened or Endangered in a Significant Portion of Its Range—Having determined that the NRM DPS of gray wolf does not meet the definition of threatened or endangered in all of its range, we must next consider whether there are any significant portions of its range that are in danger of extinction or are likely to become endangered in the foreseeable future. On March 16, 2007, a formal opinion was issued by the Solicitor of the Department of the Interior, ''The Meaning of 'In Danger of Extinction Throughout All or a Significant Portion of Its Range' '' (U.S. DOI 2007). We have summarized our interpretation of that opinion and the underlying statutory language below. A portion of a species' range is significant if it is part of the current range of the species and is important to the conservation of the species because it contributes meaningfully to the representation, resiliency, or redundancy of the species. The contribution must be at a level such that its loss would result in a decrease in the ability to conserve the species.

The first step in determining whether a species is threatened or endangered in a significant portion of its range is to identify any portions of the range of the species that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant and threatened or endangered. To identify only those portions that warrant further consideration, we determine whether there is substantial information

indicating that (i) the portions may be significant and (ii) the species may be in danger of extinction there or likely to become so within the foreseeable future. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are essentially uniform throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats applies only to portions of the range that are unimportant to the conservation of the species, such portions will not warrant further consideration.

If we identify any portions that warrant further consideration, we then determine whether in fact the species is threatened or endangered in any significant portion of its range. Depending on the biology of the species, its range, and the threats it faces, it may be more efficient for the Service to address the significance question first, or the status question first. Thus, if the Service determines that a portion of the range is not significant, the Service need not determine whether the species is threatened or endangered there; if the Service determines that the species is not threatened or endangered in a portion of its range, the Service need not determine if that portion is significant.

The terms ''resiliency,'' ''redundancy,'' and ''representation'' are intended to be indicators of the conservation value of portions of the range (Schaffer and Stein 2000). Resiliency of a species allows the species to recover from periodic disturbance. A species will likely be more resilient if large populations exist in high-quality habitat that is distributed throughout the range of the species in such a way as to capture the environmental variability found within the range of the species. It is likely that the larger size of a population will help contribute to the viability of the species overall. Thus, a portion of the range of a species may make a meaningful contribution to the resiliency of the species if the area is relatively large and contains particularly high-quality habitat or if its location or characteristics make it less susceptible to certain threats than other portions of the range. When evaluating whether or how a portion of the range contributes to resiliency of the species, it may help to evaluate the historical value of the portion and how frequently the portion is used by the species. In addition, the portion may contribute to resiliency for other reasons—for instance, it may contain an important concentration of certain types of habitat that are necessary for the species to carry out its life-history functions, such as breeding, feeding, migration, dispersal, or wintering.

Redundancy of populations may be needed to provide a margin of safety for the species to withstand catastrophic events. This does not mean that any portion that provides redundancy is a significant portion of the range of a species. The idea is to conserve enough areas of the range such that random perturbations in the system act on only a few populations. Therefore, each area must be examined based on whether that area provides an increment of redundancy that is important to the conservation of the species.

Adequate representation ensures that the species' adaptive capabilities are conserved. Specifically, the portion should be evaluated to see how it contributes to the genetic diversity of the species. The loss of genetically based diversity may substantially reduce the ability of the species to respond and adapt to future environmental changes. A peripheral population may contribute meaningfully to representation if there is evidence that it provides genetic diversity due to its location on the margin of the species' habitat requirements.

To determine whether the NRM DPS is threatened in any significant portion of its range, we first consider how the concepts of resiliency, representation, and redundancy apply to the conservation of this particular DPS. A number of available documents provide insight into this discussion, including the 1994 EIS on the reintroduction efforts in Central Idaho and the GYA (Service 1994), the 1987 recovery plan (Service 1987), our 2001/2002 review of the recovery goals (Bangs 2002), Interagency Annual Reports (Service *et al.* 1989–2007), and numerous professional publications (Soule *et al.* 2003, p. 1238; Scott *et al.* 2005, p. 383; Vucetich *et al.* 2006, p. 1383; Carroll *et al.* 2006, pp. 369–371; Waples *et al.* 2007, p. 964; see Service *et al.* 2007, pp. 213–230).

In the case of this final rule, because we anticipate that the 2007 Wyoming wolf management law will be fully in effect within 20 days of publication of this final rule and that the 2007 Wyoming wolf management plan will then be legally authorized by Wyoming statutes (Hall 2007), no portion of the NRM DPS currently occupied by persistent wolf packs (i.e., core recovery areas) warrants further consideration. Through our analysis (see Factor D section) we have determined that Montana's, Idaho's and Wyoming's plans meet the Act's requirements for delisting because these States have proposed management objectives that would maintain at least 10 breeding pairs and 100 wolves per State by managing for a safety margin of at least 15 breeding pairs and at least 150 wolves in each State. Thus, the absence of threats means that the species is neither endangered nor threatened in these portions of its range.

However, if the provisions in the Wyoming wolf law are not fulfilled and the final certifications are not made within 20 days of publication of the final rule, we will withdraw this final rule before its effective date. In this situation, the 2003 Wyoming State law and wolf management plan would be the regulatory mechanisms in Wyoming. As we have previously determined, the 2003 Wyoming State law and wolf management plan are not adequate to ensure that Wyoming's numerical and distributional share of a recovered NRM wolf population will be conserved (Williams 2004; 71 FR 43410, August 1, 2006). Thus, we have decided to further consider the portion of the NRM DPS in northwestern Wyoming, outside the National Park Service lands, in the following analysis.

Through an abundance of caution, we have identified two areas within the NRM DPS as warranting further consideration to determine if they are significant portions of the range that may be threatened or endangered. These areas include (1) northwest Wyoming, outside the National Park Service lands, and (2) portions of the NRM DPS within 97 to 300 km (60 to 190 mi) of the habitat currently occupied by persistent wolf packs (i.e. core recovery areas) which are routinely used by dispersing wolves. For each of these areas we evaluate whether they are significant per the above definition and, if significant, we weigh whether they are threatened or endangered.

The area of northwest Wyoming, outside the National Park Service lands, has long been considered critical to gray wolf recovery in the NRM (Service 1987; Service 1994; 71 FR 43410, August 1, 2006). As outlined in our 12-month finding (71 FR 43410, August 1, 2006), we believe this area is important for maintaining a viable, self-sustaining, and evolving representative meta-population in the NRM DPS into the foreseeable future. We have determined that a fundamental part of achieving recovery in the NRM DPS is a well-distributed number of wolf packs and individual wolves among the three States and the three recovery zones. The possible loss of wolves in northwest Wyoming, outside the National Park Service lands, would meaningfully affect the representation, resiliency, or

redundancy of the NRM DPS, making this portion of the range a significant portion of the range.

The portion of the NRM DPS range in northwest Wyoming, outside the National Park Service lands, is considered significant because it contains a substantial proportion of the secure suitable habitat in Wyoming, and contains many of the persistent wolf packs that have been documented in Wyoming since 1995. In 2006 this area supported at least 25 packs, 15 breeding pairs, and 175 wolves (Service *et al.* 2007, Table 2). Under the provisions of the 2007 Wyoming wolf management plan, wolves in this portion of the NRM DPS range will be managed as trophy game (see Factor D) (Freudenthal 2007a). Areas in Wyoming outside the Trophy Game Area have not supported persistent wolf packs since 1995. The entire Trophy Game Area, as described in the 2007 Wyoming wolf management plan, is: Northwest Wyoming beginning at the junction of Wyoming Highway 120 and the Wyoming-Montana State line; southerly along Wyoming Highway 120 to the Greybull River; southwesterly up said river to the Wood River; southwesterly up said river to the Shoshone National Forest boundary; southerly along said boundary to the Wind River Indian Reservation boundary; westerly, then southerly along said boundary to the Continental Divide; southeasterly along said divide to the Middle Fork of Boulder Creek; westerly down said creek to Boulder Creek; westerly down said creek to the Bridger-Teton National Forest boundary; northwesterly along said boundary to its intersection with U.S. Highway 189–191; northwesterly along said highway to the intersection with U.S. Highway 26–89–191; northerly along said highway to Wyoming Highway 22 in the town of Jackson; westerly along said highway to the Wyoming-Idaho State line; north along said state line to the Wyoming-Montana State line; north, then east along said State line to Wyoming Highway 120. This area contains about 70% (31,207 km^2 [12,049 mi^2]) of the suitable wolf habitat in Wyoming. The significant portion of the NRM DPS range in northwest Wyoming to which this analysis applies is the Trophy Game Area, as described above, excluding the lands administered by the National Park Service.

Within this portion of the NRM DPS range in northwestern Wyoming, managing human-caused mortality remains the primary challenge to maintaining a recovered wolf population in the foreseeable future. If this issue is adequately addressed, none of the other factors, individually or collectively, are likely to rise to the level of threatening or endangering the population within the foreseeable future.

In 2004, we determined that problems with the 2003 Wyoming legislation and plan, and inconsistencies between the law and management plan did not allow us to approve Wyoming's approach to wolf management (Williams 2004). On August 1, 2006, we published a 12-month finding describing the reasons why the 2003 Wyoming State law and wolf management plan did not provide the necessary regulatory mechanisms to assure maintenance of Wyoming's numerical and distributional share of a recovered NRM wolf population (71 FR 43410).

In 2007, the Wyoming legislature amended State law to address Service concerns. Following the change in State law, the WFGC approved a revised wolf management plan (Cleveland 2007). This plan was then approved by the Service as providing adequate regulatory protections to conserve Wyoming's portion of a recovered NRM DPS into the foreseeable future (Hall 2007). We anticipate the stipulations in the Wyoming law will be met within the next 20 days following publication and prior to the rule being effective. Thus, based on the best scientific and commercial information available, we determine that this significant portion of the range is not likely to become in danger of extinction within the foreseeable future (see Factor D).

However, if the requirements of the 2007 Wyoming wolf management laws are not met, we will withdraw this final rule before its effective date and replace it with an alternate final rule maintaining the Act's 1994 nonessential experimental population protections (§ 17.84 (i)) in northwestern Wyoming's significant portion of the NRM DPS (See Factor D). The alternate final rule would remove the gray wolf from the endangered and threatened species list in the remainder of the NRM DPS. We are moving forward with this rule as written because we view its withdrawal unlikely.

Finally, we decided to assume that the portions of the NRM DPS within 97 to 300 km (60 to 190 mi) of the habitat currently occupied by persistent wolf packs (i.e. core recovery areas) which are routinely used by dispersing wolves warranted additional consideration out of an abundance of caution and based on the controversy concerning the status of the wolf in this area. Specifically, we considered: The portion of Montana east of I–15 and north of I–90; the portion of Idaho south of I–84; the remainder of Wyoming not considered above; and the portions of Oregon, Washington, and Utah within the NRM DPS. These boundaries are based largely upon our understanding of suitable habitat and the location of easily identifiable and understandable manmade markers and boundaries. The following provides our analysis of whether these portions of the range are significant.

While wolves historically occurred over most of the NRM DPS, large portions of this area are no longer able to support viable wolf populations or breeding pairs. These areas include about 13 percent of theoretical suitable wolf habitat (as described by Oakleaf *et al.* 2006, p. 561). To the extent that any of these areas contain suitable habitat, they are small, fragmented areas where wolf packs cannot persist. This is why wolf recovery was never envisioned for these areas (Service 1987; Service 1994). We believe these areas are insignificant to maintaining the NRM wolf population's viability because they make virtually no contribution to the species' representation, resiliency, or redundancy.

In light of the above, we conclude that none of the areas within 97 to 300 km (60 to 190 mi) of the habitat currently occupied by persistent wolf packs (*i.e.* core recovery areas) constitute a significant portion of the range. These areas are not likely to meaningfully contribute to the representation, resiliency, or redundancy at a level such that their loss would result in a decrease in the ability to conserve the species. As noted above, if we determine that a portion of the range is not significant, we need not determine whether the species is threatened or endangered there.

In summary, we have determined that none of the existing or potential threats, either alone or in combination with others, are likely to cause the gray wolf in the NRM DPS to become in danger of extinction within the foreseeable future throughout all or any significant portion of its range (assuming Wyoming's wolf management law and management plan are allowed to become effective). On the basis of this evaluation, we remove the gray wolf in the NRM DPS from the Federal List of Endangered and Threatened Wildlife.

Effects of the Rule

Promulgation of this final rule will affect the protections afforded to the NRM gray wolf DPS under the Act. Taking, Interstate commerce, import, and export of wolves from the NRM DPS are no longer prohibited under the Act. Other State and Federal laws will still regulate take. In addition, with the removal of the NRM DPS from the List

of Endangered and Threatened Wildlife, Federal agencies are no longer required to consult with us under section 7 of the Act to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the species' continued existence. This regulation removes the now obsolete nonessential experimental regulations designed to reduce the regulatory burden in parts of the NRM DPS. No critical habitat has been designated for the NRM DPS: Thus, 50 CFR 17.95 is not modified by this regulation. Delisting the NRM DPS is expected to have positive effects in terms of management flexibility to the State, Tribal, and local governments.

The full protections of the Act will still continue to apply to wolves in other portions of the lower 48 States outside the NRM DPS and the Western Great Lakes DPS. The Western Great Lakes DPS was established and removed from the List of Endangered and Threatened Wildlife in a separate action on February 8, 2007 (72 CFR 6052).

Post-Delisting Monitoring

Section 4(g)(1) of the Act, added in the 1988 reauthorization, requires us to implement a system, in cooperation with the States, to monitor for not less than 5 years the status of all species that have recovered and been removed from the Lists of Endangered and Threatened Wildlife and Plants (50 CFR 17.11 and 17.12). The purpose of this post-delisting monitoring (PDM) is to verify that a recovered species remains secure from risk of extinction after it no longer has the protections of the Act. Should relisting be required, we may make use of the emergency listing authorities under section 4(b)(7) of the Act to prevent a significant risk to the well-being of any recovered species.

Monitoring Techniques—The NRM area was intensively monitored for wolves even before wolves were documented in Montana in the mid-1980s (Weaver 1978; Ream and Mattson 1982, pp. 379–381; Kaminski and Hansen 1984, p. v). Numerous Federal, State, and Tribal agencies, universities, and special interest groups assisted in those various efforts. Since 1979, wolves have been monitored using standard techniques including collecting, evaluating, and following-up on suspected observations of wolves or wolf signs by natural resource agencies or the public; howling or snow tracking surveys conducted by the Service, our university and agency cooperators, volunteers, or interested special interest groups; and by capturing, radio-collaring, and monitoring wolves. We only consider wolves and wolf packs as confirmed when Federal, State, or Tribal agency verification is made by field staff that can reliably identify wolves and wolf signs.

The wolf monitoring system works in a hierarchical nature. Typically we receive a report (either directly or passed along by another agency) that wolves or their signs were observed. We make no judgment whether the report seems credible or not and normally just note the general location of that observation. Unless breeding results, reports of single animals are not important unless tied to other reports or unusual observations that elicit concern (e.g., a wolf reported feeding on a livestock carcass). Lone wolves can wander long distances over a short period of time (Mech and Boitani 2003, pp. 14–15) and may be almost impossible to find again or confirm. However, the patterns and clusters of those individual reports are very informative and critical to subsequent agency decisions about where to focus agency searches for wolf pack activity.

When we receive multiple reports of multiple individuals that indicate possible territoriality and pair bonding (the early stage of pack formation), or a report of multiple wolves that seems highly credible (usually made by a biologist or experienced outdoors-person), we typically notify the nearest Federal, State, or Tribal natural resource/land management agency and ask them to be on the alert for possible wolf activity during the normal course of their field activities. Once they locate areas of suspected wolf activity, we may ask experienced field biologists to search the area for wolf signs (tracks, howling, scats, ungulate kills). Depending on the type of activity confirmed, field crews may decide to capture and radio-collar the wolves. Radio-collared wolves are then located from the air 1 to 4 times per month dependent on a host of factors including funding, personnel, aircraft availability, weather, and other priorities. At the end of the year, we compile agency-confirmed wolf observations to estimate the number and location of adult wolves and pups that were likely alive on December 31 of that year. These data are then summarized by packs to indicate overall population size, composition, and distribution. This level of wildlife monitoring is intensive and the results are relatively accurate estimates of wolf population distribution and structure (Service *et al.* 2007, Table 1–4, Figure 1–4). This monitoring strategy has been used to estimate the NRM wolf population for over 20 years.

Montana, Idaho, and Wyoming, as well as Washington, Oregon and Utah, have committed to continue monitoring wolf populations, according to their State wolf management plans (See State plans in Factor D) or in other cooperative agreements, using techniques similar to those used by the Service and its cooperators (which has included the States, Tribes, and USDA–WS—the same agencies that will be managing and monitoring wolves post-delisting). The States have committed to continue to conduct wolf population monitoring through the mandatory 5-year PDM period that is required by the Act (Idaho 2002, p. 35; Montana 2003, pp. 63, 78; Wyoming 2007, p. 12). The States also have committed to publish the results of their monitoring efforts in annual wolf reports as has been done since 1989 by the Service and its cooperators (Service *et al.* 1989–2007). Other States and Tribes within the DPS adjacent to Montana, Idaho, and Wyoming also have participated in this interagency cooperative wolf monitoring system for at least the past decade, and their plans commit them to continue to report wolf activity in their State and coordinate those observations with other States. The annual reports have also documented all aspects of the wolf management program including staffing and funding, legal issues, population monitoring, control to reduce livestock and pet damage, research (predator-prey interactions, livestock-wolf conflict prevention, disease and health monitoring, publications, etc.) and public outreach.

Service Review of the Post-Delisting Status of the Wolf Population—To ascertain wolf population distribution and structure and to analyze if the wolf population might require a Service-led status review (to determine whether it should again be listed under the Act), we intend to review the State and any Tribal annual wolf reports for the first five years after delisting. The status of the NRM wolf population will be estimated by estimating the numbers of packs, breeding pairs, and total numbers of wolves in mid-winter by State and by recovery area throughout the post-delisting monitoring period (Service *et al* 2007, Table 4, Figure 1). By evaluating the techniques used and the results of those wolf monitoring efforts, the Service can decide whether further action, including relisting is warranted. In addition, the States and Tribes are investigating other, perhaps more accurate and less expensive, ways to help estimate and describe wolf pack distribution and abundance (Kunkel *et al.* 2005; Ausband 2006; Mitchell *et al.* in press; Service *et al.* 2007, Figure 1, Table 4).

Other survey methods and data can become the 'biological equivalents' of the breeding pair definition currently used to measure recovery (Mitchell *et al.* in press). Those State and Tribal investigations also include alternative ways to estimate the status of the wolf population and the numbers of breeding pairs that are as accurate, but less expensive, than those that are currently used (Ausband 2006; Mitchell *et al.* in press). Although not compelled by the Act, the State will likely continue to publish their annual wolf population estimates, in cooperation with National Parks and Tribes, after the 5-year mandatory wolf population monitoring required by the Act is over because of mandatory reporting requirements in Federal funding and grant programs and the high local and national public and scientific interest in NRM wolves.

We fully recognize and anticipate that State and Tribal laws regarding wolves and State and Tribal management will change through time as new knowledge becomes available as the States and Tribes gain additional experience at wolf management and conservation. We will base any analysis of whether a status review and relisting are warranted upon the best scientific and commercial data available regarding wolf distribution, abundance, and threats in the NRM DPS. For the 5-year PDM period, the best source of that information will be the States' annual or other wolf reports and publications. We intend to post those annual State wolf reports and our annual review and comment on the status of the wolf population in the NRM DPS on our Web site (*http://westerngraywolf.fws.gov/*) by approximately April 1 of each following year. During our annual analysis of the States' annual reports (which will continue for 5 years), we also intend to comment on any threats that may have increased during the previous year, such as significant changes in a State regulatory framework, habitat, diseases, decreases in prey abundance, increases in wolf-livestock conflict, or other natural and man-caused factors.

Our analysis and response for PDM is to track changes in wolf abundance, distribution, and threats to the population. Four scenarios could lead us to initiate a status review and analysis of threats to determine if relisting is warranted including: (1) If the wolf population for any one State falls below the minimum NRM wolf population recovery level of 10 breeding pairs of wolves and 100 wolves in either Montana, Idaho, and Wyoming at the end of the year; (2) if the portion of the wolf population in Montana, Idaho, or Wyoming falls below 15 breeding pairs or 150 wolves at the end of the year in any one of those States for 3 consecutive years; (3) if the wolf population in Wyoming outside of YNP falls below 7 breeding pairs for 3 consecutive years; or (4) if a change in State law or management objectives would significantly increase the threat to the wolf population. All such reviews would be made available for public review and comment, including peer review by select species experts. Additionally, if any of these scenarios occurred during the mandatory 5-year PDM period, the PDM period would be extended 5 additional years from that point in that State.

Regulatory Planning and Review (Executive Order 12866)

The Office of Management and Budget (OMB) has determined that this rule is not significant and has not reviewed this rule under Executive Order 12866 (E.O. 12866). OMB bases its determination upon the following four criteria:

(a) Whether the rule will have an annual effect of $100 million or more on the economy or adversely affect an economic sector, productivity, jobs, the environment, or other units of the government.

(b) Whether the rule will create inconsistencies with other Federal agencies' actions.

(c) Whether the rule will materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients.

(d) Whether the rule raises novel legal or policy issues.

Paperwork Reduction Act

Office of Management and Budget (OMB) regulations at 5 CFR 1320 implement provisions of the Paperwork Reduction Act (44 U.S. C. 3501 *et seq.*). The OMB regulations at 5 CFR 1320.3 (c) define a collection of information as the obtaining of information by or for an agency by means of identical questions posed to, or identical reporting, recordkeeping, or disclosure requirements imposed on, 10 or more persons. Furthermore, 5 CFR 1320.3(c)(4) specifies that ''ten or more persons'' refers to the persons to whom a collection of information is addressed by the agency within any 12-month period. For purposes of this definition, employees of the Federal Government are not included. The Service may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

This rule does not contain any collections of information that require approval by OMB under the Paperwork Reduction Act. As proposed under the Post-Delisting Monitoring section above, populations will be monitored by Montana, Idaho, and Wyoming in accordance with their Wolf Management Plans. We do not anticipate a need to request data or other information from 10 or more persons during any 12-month period to satisfy monitoring information needs. If it becomes necessary to collect information from 10 or more non-Federal individuals, groups, or organizations per year, we will first obtain information collection approval from OMB.

National Environmental Policy Act

The Service has determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the NEPA, need not be prepared in connection with actions adopted pursuant to section 4(a) of the Act. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Executive Order 13211

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. As this final rule is not expected to significantly affect energy supplies, distribution, or use, this action is not a significant energy action and no Statement of Energy Effects is required.

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments (59 FR 22951), Executive Order 13175, and 512 DM 2, we have coordinated the proposed rule and this final rule with the affected Tribes. Throughout several years of development of earlier related rules and the proposed rule, we have endeavored to consult with Native American tribes and Native American organizations in order to both (1) provide them with a complete understanding of the proposed changes, and (2) to understand their concerns with those changes. We have fully considered their comments during the development of this final rule. If requested, we will conduct additional consultations with Native American tribes and multitribal organizations subsequent to this final rule in order to

facilitate the transition to State and tribal management of gray wolves within the NRM DPS.

References Cited

A complete list of all references cited in this document is available upon request from the Western Gray Wolf Recovery Coordinator (see **ADDRESSES** above).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

■ Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500; unless otherwise noted.

■ 2. In § 17.11(h), the entry for ''Wolf, gray'' under MAMMALS in the List of Endangered and Threatened Wildlife is revised to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
MAMMALS							
*	*	*	* *		*		*
Wolf, gray	*Canis lupus*	Holarctic	U.S.A., conterminous (lower 48) States, except: (1) Where listed as an experimental population below; (2) Minnesota, Wisconsin, Michigan, eastern North Dakota (that portion north and east of the Missouri River upstream to Lake Sakakawea and east of the centerline of Highway 83 from Lake Sakakawea to the Canadian border), eastern South Dakota (that portion north and east of the Missouri River), northern Iowa, northern Illinois, and northern Indiana (those portions of IA, IL, and IN north of the centerline of Interstate Highway 80), and northwestern Ohio (that portion north of the centerline of Interstate Highway 80 and west of the Maumee River at Toledo); and (3) Montana, Idaho, Wyoming, eastern Washington (that portion of Washington east of the Centerline of Highway 97 and Highway 17 north of Mesa and that portion of Washington east of the centerline of Highway 395 south of Mesa), eastern Oregon (portion of Oregon east of the centerline of Highway 395 and Highway 78 north of Burns Junction and that portion of Oregon east of the centerline of Highway 95 south of Buirns Junction), and north-central Utah (that portion of Utah east of the centerline of Highway 84 and north of Highway 80). Mexico.	E	1, 6, 13, 15, 35	N/A	N/A
Do	..... do	..... do	U.S.A. (portions of AZ, NM, and TX—see § 17.84(k)).	XN	631	N/A	17.84(k)
*	*	*	* *		*		*

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§ 17.84 [Amended]

■ 3. Amend § 17.84 by removing paragraphs (i) and (n).

Dated: February 13, 2008.

H. Dale Hall,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 08–798 Filed 2–21–08; 9:49 am]

BILLING CODE 4310–55–P