

U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Ursus arctos horribilis*

COMMON NAME: Grizzly Bear Populations in the Cabinet-Yaak Ecosystem (warranted but precluded reclassification from Threatened to Endangered)

LEAD REGION: Region 6

INFORMATION CURRENT AS OF: June 30, 2004

STATUS/ACTION:

Initial 12-month Petition Finding: not warranted
 warranted
 warranted but precluded (also complete (c) and (d) in section on petitioned candidate species- why action is precluded)

Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status

New candidate

Continuing candidate for uplisting:

Non-petitioned

Petitioned - Date petition received: **Cabinet-Yaak, Cascades, & Selkirk--01/28/91;**
Cabinet-Yaak, Selkirk, Yellowstone, NCDE--02/07/91

90-day positive - FR date: **Cabinet-Yaak--04/20/92**

12-month warranted but precluded - FR date: **02/12/93**

- Reassessed **06/04/98**

- Revised 12-month finding (adding Selkirk Recovery Area) **05/17/99**

- Reassessed **10/25/99 (64 FR 57534)**

Yes Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: **6**

New LP: **3**

Latest Date species became a Candidate: Not applicable as already listed as threatened

Candidate removal: Former LP:

A - Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

I - Insufficient information exists on biological vulnerability and threats to support listing.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Mammal, *Ursidae*

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Western United States, Alaska, Canada, and Mexico

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Alaska, Idaho, Montana, Washington, Wyoming, and Canada

LEAD REGION CONTACT: Chuck Davis, (303) 236-4253

LEAD FIELD OFFICE CONTACT: Christopher Servheen, (406) 243-4903

BIOLOGICAL INFORMATION:

Species Description

In the lower 48 States, the average weight of grizzly bears is 400 to 600 pounds (200 to 300 kilograms) for males and 250 to 350 pounds (110 to 160 kilograms) for females. Grizzly bears are generally long-lived with some individuals known to have lived 40 years (Storer and Tevis 1955). Adult bears are individualistic in behavior and normally are solitary wanderers. Home ranges of adult bears frequently overlap. The home range of adult male grizzly bears is typically 3 to 5 times the size of adult females. The large home ranges of grizzly bears, particularly males, enhance genetic diversity in the population by enabling males to mate with numerous females. In the Cabinet-Yaak recovery zone a male bear had a home range of over 1,100 square miles (mi^2) (2,800 square kilometers (km^2)) from 1987 to 1992 (Kasworm et al. 2000). Grizzly bears have a promiscuous mating system. A single radio-collared adult female from the Cabinet-Yaak was observed over a period of 8 years with at least four different males prior to producing four litters of cubs, with more than one male present during at least two of those breeding seasons. Though we do not know that all these males successfully mated with this female, these observations indicate the ability of female bears even in this small population to have several mates. Recent genetic studies have determined that cubs from the same litter may have different fathers (Craighead et al 1998). These evolutionary strategies allow grizzly bears to exist at low population density and maintain genetic diversity. Grizzly bear population densities of one bear per 8 mi^2 (20 km^2) have been reported in Glacier National Park (Martinka 1974), but most populations are much less dense.

Mating occurs from May through July with a peak in mid June. Age of first reproduction and litter size may be related to nutritional state. Age of first reproduction varies from 3 to 8 years of age and litter size varies from one to four cubs. Cubs are born in a den in late January or early February and remain with the female for 2 to 3 years before subsequent mating and production of another litter.

The causes of natural mortality for grizzly bears are not well known. Parasites and disease do not appear to be significant causes of natural mortality (Jonkel and Cowan 1971, Kistchinskii 1972, Mundy and Flook 1973, Rogers and Rogers 1976). Bears do occasionally kill each other. Adults

have killed juveniles or other adults. Human-caused mortality is better documented with causes related to livestock protection, threats to human safety, hunting, illegal kills, and nuisance behavior involving garbage and animal foods.

Taxonomy

Grizzly bears (*Ursus arctos horribilis*) are vertebrates that belong to the Class *Mammalia*, Order *Carnivora*, and Family *Ursidae*.

The grizzly bear is currently listed as a single entity in the lower 48 conterminous States. In 1993, we concluded in a 12-month finding that uplisting of the grizzly bear population in the Cabinet-Yaak Ecosystem was warranted but precluded by higher priority actions. These actions predated the policy regarding the recognition of Distinct Population Segments (DPS) (61 FR 4722). In 1999, we performed a preliminary DPS analysis in a revised 12-month finding and found that “the Selkirk and Cabinet-Yaak recovery zones are not discrete from one another, but are discrete from the Northern Continental Divide, North Cascades, Yellowstone, and Bitterroot recovery zones” and that “these combined recovery zones are significant” (64 FR 26725). New genetic information draws this conclusion into question. Additional biological information is required to complete this analysis under our DPS policy. The Fish and Wildlife Service (FWS) expects that this information will be available within the next few years.

Habitat

Although the digestive system of bears is essentially that of a carnivore, bears are successful omnivores, and in some areas may be almost entirely herbivorous. Grizzly bears must avail themselves of foods rich in protein and carbohydrates in excess of maintenance in order to survive denning and post-denning periods. Grizzly bears are opportunistic feeders and will prey on almost any available food including ground squirrels, ungulates, carrion, and garbage. In areas where animal matter is less available, grasses, roots, bulbs, tubers, and fungi may be important in meeting protein requirements. High quality foods such as berries, nuts, and fish are important in some areas (Interagency Grizzly Bear Committee 1987).

In all areas studied, home ranges of grizzly bears encompass a mosaic of numerous habitat units or types. This phenomenon also may be related to the breadth of the species food habits. Use of cover varies with sex, age, reproductive status, human activity, or management (hunted or unhunted populations).

The unavailability of food, deep snow, and low air temperature appear to make winter sleep essential to bear survival (Craighead and Craighead 1972). Grizzly bears spend up to 6 months in dens beginning in October or November. Bears exhibit a marked decline in heart and respiration rate, but relatively slight drop in body temperature.

Historical Range/Current Range/Distribution

The grizzly bear historically occurred throughout the western half of the contiguous United States, western Canada, and most of Alaska. Presently, it is found in large numbers only in Alaska and western Canada. Within the contiguous United States, the grizzly bear remains in only six general areas, identified as recovery zones. These include--the Yellowstone of northwest Wyoming, eastern Idaho, and southwest Montana (9,500 mi² (25,000 km²) and

population estimates >500), the Northern Continental Divide of north central Montana (9,600 mi² (25,000 km²)), the North Cascades of north central Washington (9,500 mi² (25,000 km²)), the Selkirk Mountains of north Idaho, northeast Washington, and southeast British Columbia (2,200 mi² (5,700 km²)), the Bitterroot Mountains of central Idaho and western Montana (5,800 mi² (15,000 km²)), and the Cabinet-Yaak of northwest Montana and northern Idaho (2,600 mi² (6,700 km²)). The Bitterroot Mountains have no current evidence of a grizzly bear population. The San Juan Mountains of Colorado also were identified as an area of grizzly bear occurrence, but not as a recovery unit because it was “still being evaluated as a potential recovery area.” No evidence of grizzly bears have been found in the San Juan Mountains since a bear was killed there in 1979. Grizzly bears could be extinct from this area today.

The Cabinet-Yaak recovery zone includes portions of the Kootenai, Idaho Panhandle, and Lolo National Forests. A recovery plan chapter for the Cabinet-Yaak Recovery Zones was revised in 1993 (FWS 1993).

Population Estimates/Status

Historic population levels for the western United States are believed to be in the range of 50,000 animals. Within the contiguous United States, the grizzly bear populations estimates for the 6 identified recovery zones include--the Yellowstone population at >500, the Northern Continental Divide population at >400, the North Cascades population at <20, the Selkirk Mountains population at 40 to 50, the Cabinet-Yaak population at 30 to 40) and the Bitterroot Mountains where no bears have been documented in past 30 years.

Separate population estimates were made for the Cabinet Mountains and the Yaak River drainage for the Cabinet-Yaak recovery zone. The Cabinet Mountains lie south of the Yaak River drainage and contain about 60 percent of the recovery zone. In the Cabinet Mountains the population was estimated to be 15 bears or fewer in 1988 (Kasworm and Manley 1988). There is insufficient data to dramatically change that estimate, but since 1988 the population was augmented with 4 young females (Kasworm et al. 1998), and there have been credible sightings of individual bears in all 14 Bear Management Units (BMUs) that make up the Cabinet Mountains, with sightings of females with young in 7 BMUs since the completion of transplants in 1994 (Kasworm et al, 2003 and In Prep). The Yaak River drainage adjoins grizzly bear habitat in British Columbia and contains about 40 percent of the recovery zone. Observations and captures of grizzly bears by study personnel in the Yaak study area were examined to evaluate minimum population size from 1989 to 2003. Forty-six individuals were identified with 25 bears radio-collared and 21 unmarked individuals from 1989 to 2003 (Kasworm et al. in prep.). Individuals not radio collared were separated by size, age, location, coloration, genetic information, and reproductive status. Some sightings believed to be the same individuals may actually consist of separate additional individuals. Of the 46 individuals identified, 20 were known or suspected to have died during 1989 to 2003. Human causes were linked to 12 of these mortalities. The remaining eight are believed to have died of natural causes during 1999 to 2002. Seven of these eight mortalities involved newborn cubs. Total animals identified during 1989 to 2003 (46 bears) less known mortality (20 bears) would suggest a population of at least 26 animals. It may be unlikely that all identified animals have survived the entire period. Using only animals identified during 1997 to 2003 (36) less known mortality (16) suggests a population of at least 20. Numbers of bears identified is conservative because study personnel observations

alone would not likely sample all bears in the area and the study has received several credible public reports of additional bears. Since 1989 there have been credible sightings of bears in all eight BMUs that make up the Yaak portion of the recovery area, with sightings of females with young in six BMUs. About half of the credible observations of females with young in these BMUs did not appear to come from marked bears. The actual number of unmarked females represented is unknown. A population estimate of 20 to 30 grizzly bears for the entire Yaak portion of the recovery zone would appear reasonable. Based on these data from the Yaak River drainage and the Cabinet Mountains, the population of the entire Cabinet-Yaak recovery zone can be conservatively estimated at 30 to 40 grizzly bears (Kasworm et al. in prep).

Application of new computer modeling techniques allows for the calculation of finite rate of population increase (λ) with a confidence interval (Hovey and McLellan 1996, Mace and Waller 1998). Though not a specific recovery criteria, this information is available for the Cabinet-Yaak recovery zone. Calculation of the rate is based upon survival and reproduction of female radio-collared bears. Specific parameters used include: adult female survival; subadult female survival; yearling survival; cub survival; age at first parturition; reproductive rate; and maximum age of reproduction. Fifty bear years of monitoring information was available for adult and subadult females and yearlings of either sex from 1983 to 2002 (Wakkinen and Kasworm 2004). Twenty-eight cubs were used to estimate cub survival. The estimated annual exponential rate of increase (r) was -3.7 percent with a 95 percent confidence interval ranging from -16.4 to 6.1 percent. The probability that the population was declining ($\lambda < 1.0$) was 75.1 percent. Calculation of rates with these techniques for the Cabinet-Yaak from 1983 to 1998 produced an $r = 6.5$ percent. Fifteen known mortalities occurred during 1999 to 2002 and appear largely responsible for the change in the point estimate for the rate of increase. Because all confidence intervals associated with these estimates included values for a stable population (ie., $\lambda = 1.0$) we are unable to conclude that these rates statistically reflect a decreasing or increasing population. During May 2004, the mortality of an adult female bear that died in 2002 was discovered. Three cubs accompanied the bear at the time of death. The cause of death is still under investigation, but was human-caused. This mortality will further depress survival rates.

As described in the 1999 reevaluation of the Selkirk Mountains population's status review (64 FR 26725), we believe that it may be appropriate to pursue a change through the listing process that would recognize the Selkirk recovery zone and the Cabinet-Yaak recovery zone as one DPS (61 FR 4722)). The recovery plan that originally described these individual entities, as well as the 1993 finding on the petition to uplist the Selkirk recovery unit, predated our DPS policy. The DPS policy requires both discreteness and significance. These two populations may share some level of connectivity through the Purcell Mountains leading to questions about the discreteness of the two populations.

Monitoring of grizzly bears in the Selkirk and Cabinet-Yaak recovery zones has shown movement and mingling of approximately 7 to 10 percent of marked animals from each recovery zone into the southern British Columbia's Purcell Mountains. Tag return data has documented at least three male grizzly bears moving out of the Selkirk Mountains into the Purcell Mountains (Wakkinen pers. comm.). All three bears died in the Purcell Mountains and tags were identified. However, genetic analysis suggests that the Selkirk population is isolated without movement of

males or females back into the Selkirk Mountains. At this point, the exchange appears to be only north bound travel out of the Selkirk Mountains into the Purcell Mountains. Exchange between the Cabinet-Yaak recovery zone and the Purcell Mountains indicates some interchange occurring, but at unknown levels. Genetic analysis from bears on both sides of the Moyie River support the assertion of interchange of male bears moving south into the Cabinet-Yaak recovery unit from the Purcell Mountains (Proctor 2003). Radio-tracking data has documented at least two male bears moving north during the breeding season from the Yaak drainage into the Purcell Mountains (Kasworm in prep.). The Moyie River valley is approximately 10 miles (15 km) north of the U.S. border and the Cabinet-Yaak recovery zone. The valley with Highway 3, the railway, and scattered residences, are the only area of human development bisecting the Purcell Mountain chain and associated grizzly bear habitat which extends north from the U.S. border about 165 miles (270 km).

THREATS:

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

The 1975 listing of the grizzly bear identified a substantial decrease in the range of the species in the conterminous 48 States and stated that timbering and other practices have resulted in an increase in access road and trail construction into formerly inaccessible areas. Since 1975, habitat protection measures have focused on providing secure habitat for bears that lessens opportunity for human-caused mortality. The grizzly bear recovery plan (FWS 1993) population goal of 100 bears for this recovery zone was based on a minimum viable population estimate of 50 to 90 bears (Shaffer and Samson 1985) and the expectation that these areas would remain connected to other grizzly bear populations in southern British Columbia. These minimal sized populations require particular attention to habitat protection.

Two large silver and copper mines have been proposed within the Cabinet Mountains. In 1993 the Kootenai National Forest and the State of Montana issued an approval to Noranda Minerals Corporation for the Montanore project, but there has been no construction at the site and Noranda has recently abandoned the project because of production costs and low metal prices. However during 2004, Mines Management Incorporated announced plans to embark on a new permitting process for this deposit. The new mine proposal includes an operational life of 15-20 years and employment of about 250 people. Sterling's Rock Creek Mine proposal was approved in 2001 (Kootenai National Forest and Montana Department of Environmental Quality 2001) and a biological opinion was issued in 2003 (FWS 2003). The Rock Creek mine would operate for about 30 years, extracting 10,000 tons of ore per day. The permit area for the mine would include 1,560 acres (631 hectares). Number of people employed by the mine would range from 450 to 770 during various phases of construction and operation. These mine sites are about 6 mi (10 km) apart with one on each side of the Cabinet Mountains Wilderness. Mitigation measures for the mining activity as identified in the biological opinion (FWS 2003) include habitat replacement through acquisition and easements, an additional game warden and bear management specialist positions, and wildlife resistant garbage facilities.

In the late 1970s, the U.S. Forest Service (USFS) began restricting motorized vehicle use on some roads within the Cabinet-Yaak recovery zone. Most road restrictions have been accomplished with gates or permanent barriers. Gates have been used in cases where restrictions are seasonal to protect specific habitat at critical times of the year or in areas that are scheduled for additional timber management. Land managers have begun obliterating some roads and returning the land to its natural contour.

The Cabinet-Yaak recovery zone encompasses portions of the Idaho Panhandle, Kootenai, and Lolo National Forests. There are approximately 6,540 mi (10,500 km) of roads within the recovery zone of which about 35 percent have motor vehicle travel restrictions or are impassable because of vegetation or other features (Kootenai, Lolo, and Idaho Panhandle National Forests 2002). Some of the open roads are State, County, or private roads over which the USFS has no jurisdiction. Habitat security is believed to have declined in this recovery zone until the late 1980s when implementation of forest plans brought about access management through open road density standards (Summerfield et al. 2004). Since that time habitat security levels for grizzly bears have improved through road closures and decommissioning.

The USFS developed criteria for road access within BMUs, which are approximately 100 mi² (300 km²) in size and contain all seasonal ranges necessary for an adult female grizzly bear. The Kootenai and Idaho Panhandle Forest Plans proposed that a minimum of 70 percent of the BMU would be “effective habitat.” Effective habitat is defined as area outside the zone of influence (0.25 mi (0.40 km)) of activities on open roads, active timber sales, or active mining operations. This standard was based on bear research from other recovery areas. In 1990, 9 of 21 BMUs in the Cabinet-Yaak were below standard. In 1997, 7 of 21 BMUs in the Cabinet-Yaak were below standard. In 2001, 6 of 21 BMUs in the Cabinet-Yaak were below standard (Kootenai, Lolo, and Idaho Panhandle National Forests 2002). Cabinet-Yaak BMUs not meeting the criteria varied from 60 to 69 percent effective habitat.

An interagency task force examined access management and produced recommendations to standardize definitions and methods (Interagency Grizzly Bear Committee 1994). This report identified three parameters that are recommended as part of access management. These parameters are total motorized route density, open motorized route density, and core area. Core area is the percentage of the analysis area that contains no motorized travel routes or any restricted roads upon which administrative use may occur. The report recommended that for each recovery zone specific criteria be developed for route densities and core areas based on female grizzly bears monitored in the recovery zone, other research results, and social or other management considerations. An Environmental Impact Statement (EIS) and alternatives for access management relating to grizzly bears on the Idaho Panhandle, Kootenai, and Lolo National Forests (Kootenai, Lolo, and Idaho Panhandle National Forests 2002) evaluated standards for core area and open and total road density. These standards are based on grizzly bear monitoring results from the Cabinet-Yaak and Selkirk recovery zones (Wakkinen and Kasworm 1997). This report suggested that additional access management was required to provide habitat for Cabinet-Yaak grizzly bears beyond that achieved by the 70 percent effective habitat standard. Standards for access management in the Cabinet-Yaak and Selkirk Mountains grizzly bear recovery zones were established through a biological opinion (FWS 2004) and a record of decision (Kootenai, Lolo, and Idaho Panhandle National

Forests 2004). This decision establishes BMU specific levels for core area and open and total road density that in most BMUs meet or improve upon habitat security for grizzly bears suggested in Wakkinen and Kasworm (1997). These standards will be applied to future projects affecting access management on the National Forests. Two BMUs (BMU 10–Pulpit and BMU 19–Grouse) with large amounts of private land could not meet these standards and were assigned different management goals.

Wildfire and prescribed fire are forces that are altering bear habitat in this recovery zone. Extensive wildfires occurred during 1994 and 2000 in the Yaak River drainage and the Cabinet Mountains. Most of these fires serve to remove timber canopy and create areas with higher bear food production in the form of grasses, forbs, and fruiting shrubs, but often removing cover for animals that may use these food resources. The USFS also has a prescribed fire program that attempts to create or improve food resources for bears. This program has been used in several locations in the Yaak River drainage, but should be given more consideration for use in the Cabinet Mountains.

Forestry, mining, recreation, and road building also affect grizzly bear habitat in British Columbia. Gilnockie Provincial Park was established in 1995 just north of the international border in the upper Yaak River drainage. The 7,100-acre (2,900-hectare) park is wilderness in nature with little road access. In 1995, the British Columbia provincial government developed a grizzly bear conservation strategy (British Columbia Ministry of Environment, Lands, and Parks 1995). A major goal of the British Columbia Grizzly Bear Conservation Strategy is to ensure effective, enhanced protection and management of habitat through land use planning processes, new protected areas, and the Forest Practices Code. Many of these processes are ongoing, and have not had the opportunity to achieve the stated goals of grizzly bear habitat protection. Currently there is little access management occurring on lands being used for timber production directly north of the International border in the Yahk and Moyie River drainages.

At this point in time, we feel that protective measures have not achieved desired goals for habitat protection in either the United States or Canada. Because this may pose a significant threat to the small grizzly bear population in the Cabinet-Yaak recovery zone, endangered status for that population is warranted.

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

Human-caused grizzly bear mortality can be classified into several categories (FWS 1993). These include: direct mortality from confrontation and self defense, attraction to improperly stored foods or attractants which result in management removal of bears, protection of livestock, and illegal kills. Increased human access into grizzly bear habitat has made bears more susceptible to human-caused mortality from all these sources. The grizzly bear recovery plan (FWS 1993) population goal of 100 bears for the Cabinet-Yaak recovery zone was based on a minimum viable population estimate of 50 to 90 bears (Shaffer and Samson

1985) and the expectation that these areas would remain connected to other grizzly bear populations in southern British Columbia. These minimal-sized populations require

particular attention to human-caused mortality.

Counts of females with cubs, distribution of those females with cubs, and human-caused mortality in and within 10 mi (20 km) of the recovery zone are among the demographic criteria in the grizzly bear recovery plan (FWS 1993). Counts of cubs and mortality are averaged over the latest 6 years. The Cabinet-Yaak recovery plan specifies goals of an average count of 6.0 females with cubs, female with cub occupancy of 18 of 22 BMUs, and mortality rate less than 4 percent of the current minimum population. Given current low numbers of bears in this recovery area the mortality goal has been set at zero by the recovery plan. Unduplicated sightings of females with cubs varied from 0 to 4 per year and averaged 1.5 per year from 1998 to 2003 (Kasworm et al. In prep) (Tables 1 and 2). Twelve of 22 BMUs in the recovery zone had sightings of females with young during 1998 to 2003. Six human-caused mortalities of grizzly bears were known to have occurred in or within 10 mi (20 km) of the recovery area during 1998 to 2003 (Table 3). Human-caused mortalities were an adult male, two adult females, three subadult females, and three cubs. One bear believed to be an adult female was killed by a train in 2001, but not discovered until 2002. Pending genetic analysis will verify the sex of the animal. Another female (accompanied by three cubs) was killed in 2002, but the death was not discovered until 2004. Minimum population levels were calculated by the number of observed females with cubs (seven) from 2001 to 2003 minus any adult female mortality (two) during 2001 to 2003, which totals five adult females. Total adult females is divided by 0.6 (sightability correction) then divided by 0.284 (adult female proportion of population) as specified in the recovery plan (FWS 1993). This resulted in a minimum population estimate of 29 individuals during 2003. Numbers of females with cubs may fluctuate from year to year based on factors affecting reproduction and were not intended to indicate population trend. Any attempt to use this parameter to indicate trends or precise population size would be an invalid use of these data. Applying the mortality limit of 4 percent to the minimum calculated population resulted in a total mortality limit of 1.2 bears per year (Table 2). The female limit is 0.4 female per year (30 percent of 1.2). Average annual human-caused mortality for 1998 to 2003 was 1.7 total grizzly bears, including 1.3 females. Numbers of females with cubs and BMU occupancy were below desired goals. Total and female mortality exceeded the calculated goal. It should be noted that the recovery plan established a goal of zero human-caused mortality for this recovery zone.

Two adult male grizzly bears that were originally captured and tagged within the recovery zone were killed more than 10 mi (20 km) outside of the recovery zone in British Columbia and not counted against recovery goals. These mortalities occurred in 1988 and 1997. The recovery plan specifies that mortality occurring in or within 10 mi (20 km) of the recovery areas will be applied in calculating recovery criteria.

Table 1. Annual Cabinet-Yaak recovery zone grizzly bear population and known human-caused mortality and minimum unduplicated counts of females with cubs (FWC), 1988 to 2003.

YEAR	ANNUAL FWCs	ANNUAL HUMAN-CAUSED ADULT FEMALE MORTALITY	ANNUAL HUMAN-CAUSED ALL FEMALE MORTALITY	ANNUAL HUMAN-CAUSED TOTAL MORTALITY	4% TOTAL HUMAN-CAUSED MORTALITY LIMIT¹	30% ALL FEMALE HUMAN-CAUSED MORTALITY LIMIT¹	TOTAL HUMAN-CAUSED MORTALITY 6-YEAR AVERAGE	FEMALE HUMAN-CAUSED MORTALITY 6-YEAR AVERAGE
1988	1	1	1	1	0	0		
1989	0	0	1	1	0	0		
1990	1	0	0	1	0	0		
1991	1	0	0	0	0	0		
1992	1	0	0	0	0	0		
1993	2	0	0	1	0.9	0.3	0.7	0.3
1994	1	0	0	0	0.9	0.3	0.5	0.2
1995	1	0	0	0	0.9	0.3	0.3	0
1996	1	0	0	1	0.7	0.2	0.3	0
1997	3	0	0	0	1.2	0.4	0.3	0
1998	0	0	0	0	0.9	0.3	0.3	0
1999	0	0	1	2	0.7	0.2	0.5	0.2
2000	2	0	1	1	0.5	0.1	0.7	0.3
2001	1	1 ²	2	2	0.5	0.1	1.0	0.8
2002	4	1	4	5	1.2	0.4	1.7	1.3
2003	2	0	0	0	1.2	0.4	1.7	1.3

¹ Presently grizzly bear numbers are so small in this ecosystem that the mortality goal shall be 0 known human-caused mortalities.

² Mortality discovered in 2002 and assumed to be an adult female, pending genetic verification.

Table 2. Status of the Cabinet-Yaak recovery zone during 2003 in relation to the demographic recovery targets from the grizzly bear recovery plan (FWS 1993).

RECOVERY CRITERIA	TARGET	2003
Females with Cubs (6-year average)	6.0	1.5 (9/6)
Human-caused Mortality Limit (4% of minimum estimate)	1.2	1.7 (6-year average)
Female Human-caused Mortality Limit (30% of total mortality)	0.4	1.3 (6-year average)
Distribution of Females with Young	18 of 22	12 of 22

Table 3. Known human-caused grizzly bear mortalities in or within 10 mi (20 km) of the Cabinet-Yaak recovery area, 1988 to 2003.

MORTALITY DATE	TAG #	SEX	AGE	LOCATION	MORTALITY CATEGORY AND CAUSE
Autumn 1988	None	F	Adult	Seventeen Mile Creek, MT	Human, Self Defense
Summer 1989	129	F	3.5	Burnt Creek, MT	Human, Research
1990	None	M	Subadult	Poverty Creek, MT	Human, Malicious
1993	None	M	Adult	Libby Creek, MT	Human, Unknown
Spring 1996	302	M	3.5	Dodge Creek, MT	Human, Unknown
Autumn 1999	596	F	2.5	Hart Creek, BC	Human, Self Defense
Autumn 1999	358	M	15	Yaak River, MT	Human, Management Removal
Autumn 2000	592	F	3.5	Pete Creek, MT	Human, Unknown
Spring 2001	None	F	1.5	Spread Creek, MT	Human, Mistaken Identity
Autumn 2001	None	F ¹	Adult	Elk Creek, MT	Human, Train collision
Autumn 2002	None	F	Subadult	Porcupine Creek, MT	Human, Under investigation
Autumn 2002	353	F	Adult	Yaak River, MT	Human, Under investigation
Autumn 2002	None	F	Cub	Yaak River, MT	Human, Under investigation
Autumn 2002	None	F	Cub	Yaak River, MT	Human, Under investigation
Autumn 2002	None	M	Cub	Yaak River, MT	Human, Under investigation

¹ Mortality discovered in 2002 and assumed to be an adult female, pending DNA verification.

Grizzly bear populations in the Cabinet-Yaak recovery zone appeared to be responding to protective measures that reduce human-caused mortality prior to 1999, but human-caused mortality and high levels of natural mortality during 1999 to 2002 have eroded much of the population gains. Population trends are inconclusive, but the recovery plan goal for human-caused mortality in this recovery zone is zero (FWS 1993). The increase in human-caused mortality from an average of 0.5 mortalities per year from 1988 to 1998 to 1.2 mortalities per year from 1999 to 2003 would indicate that reclassification is warranted because of overutilization. Habitat connectivity in Canada is an important issue for this population and must be maintained.

C. Disease or Predation.

This factor was not identified as a threat to grizzly bears in the original listing. The recovery plan indicates that parasites and disease do not appear to be significant causes of natural mortality among bears (Jonkel and Cowan 1971, Kistchinskii 1972, Mundy and Flook 1973, Rogers and Rogers 1976). Research in Alaskan grizzly bears has shown previous exposure by some grizzly bears to rangiferine brucellosis and leptospirosis, though impacts to populations are unknown (Zarnke 1983). The most common internal parasite noted in grizzly bears is *Trichinella* for which 62 percent of grizzly bears tested positive from 1969 to 1981 (Greer 1982). Disease screening of captured black and grizzly bears in the Cabinet-Yaak, Selkirk Mountains, and Northern Continental Divide recovery zones during 2000 showed antibody levels consistent with exposure to several diseases, but no clinical sign of disease (Port et al. 2001). Effects of these levels of incidence are unknown but monitoring will continue.

Mortality summaries from the Yellowstone Ecosystem for 1959 to 1987 did not identify disease as a significant factor resulting in mortality (Craighead et al. 1988). Only 1 of 477 known mortalities was attributed to disease or parasites. Thirty-eight mortalities could not be identified by cause and some of these may have been related to disease or parasites, but these factors do not appear to be significant causes of mortality affecting Yellowstone grizzly bears. Mortality summaries from the Cabinet-Yaak recovery zone indicate natural mortality accounted for about 38 percent of total known mortality during 1983 to 2003. Small population size and the expected loss of the Cabinet Mountains portion of the population in the next few decades prompted a test of population augmentation during 1990-94 (Kasworm et al. 1998). Four subadult female grizzly bears were captured in southeast British Columbia and released in the Cabinet Mountains. Three of the four animals remained in the area for at least one year, though contribution by these animals to the population through reproduction is unknown. One of these animals is known to be dead. Montana Department of Fish, Wildlife, and Parks has proposed additional population augmentation.

The Montana Department of Fish, Wildlife, and Parks operate a wildlife laboratory at Bozeman. One of the laboratory's objectives is to necropsy wildlife specimens suspected of being diseased, parasitized, or dying of unknown causes, to identify the cause of death (Aune and Schladweiler 1995). Tissue samples are examined by Veterinary Pathologists at the State Diagnostic Laboratory. Though disease was not considered a threat at the time of listing, we will continue to have dead grizzly bears processed through a laboratory to determine cause of death and to maintain baseline information on diseases and parasites occurring in grizzly bears. This

action will serve to continue monitoring of these agents as potential mortality sources. If disease is later determined to be a threat, we will evaluate and adopt specific measures to control the spread of any disease agent and treat infected animals, where such measures are possible. These measures will depend on the disease agent identified.

Twelve bears are believed to have died of natural causes during 1982 to 2003. However, nine of these deaths occurred from 1999 to 2002. The increase in natural mortality beginning in 1999 may be linked to poor food production during 1998 to 2003 (Kasworm In prep.). Huckleberry production during these years was about 50 to 75 percent of the 11-year average. Huckleberries are the major source of late summer food for bears in the Cabinet-Yaak area that enable them to accumulate sufficient fat to survive the denning period and enable females to produce and nurture cubs. Poor nutrition often causes females to not produce cubs in the following year. Poor food production also may cause females to travel further for food which may expose cubs to greater risk of mortality from predators or accidents. Four of seven cub mortalities have come from one female bear that lost litters of two cubs each during 2000 and 2001. Another mortality incident involved a female with two cubs that appear to have been killed by another bear in 1999. Mortality of grizzly bears through predation has been mostly attributed to conspecifics (Interagency Grizzly Bear Committee 1987). Predation was commonly associated with adult males killing smaller individuals. A yearling female died in 2002 from natural causes (poor condition and after being orphaned when the mother was killed in a train collision).

Monitoring of this factor will continue, but disease and natural mortality does not appear to be limiting the population beyond the high natural mortality levels noted during 1999 to 2001. If levels of natural mortality do not decline in the future, the FWS will reconsider this factor.

D. The Inadequacy of Existing Regulatory Mechanisms.

The Interagency Grizzly Bear Management Guidelines (USFS 1986) specified that at developed recreation sites, dispersed recreation sites, special use campsites, and fire camps all human and prepared livestock or pet food and human refuse will be made unavailable to grizzly bears through proper storage, handling, and disposal. The guidelines stated that in areas where survivorship of individual grizzly bears is considered important for recovery or conflicts have been documented that special care be taken for attractant storage and game meat storage at camps. The Cabinet-Yaak grizzly bear recovery zone encompasses portions of the Idaho Panhandle, Kootenai and Lolo National Forests, but there are no food storage requirements. The Yellowstone and Northern Continental Divide recovery zones have food storage regulations.

The States of Idaho and Montana have maintained closed hunting seasons for grizzly bears since the animal was listed in 1975. British Columbia closed the hunting season in the area directly north of the Cabinet-Yaak recovery zone in the 1970s, but there is an area of spring hunting allowed between the Cabinet-Yaak and Selkirk Mountains recovery zones.

The Cabinet-Yaak recovery zone adjoins grizzly bear habitat in Canada. Legally mandated habitat protection measures such as those described in the United States are absent or only recently being implemented in Canada such that their effectiveness cannot be judged at this time. Though regulatory mechanisms such as sanitation regulations and USFS management of human access which influences grizzly bear displacement from important habitat and human-caused mortality potential do not exist or are incomplete, these threats do not appear sufficient to warrant reclassification to endangered status.

E. Other Natural or Manmade Factors Affecting Its Continued Existence.

Due to their low population size (less than 50 individuals), grizzly bears in the Cabinet-Yaak recovery zone are more vulnerable to environmental events such as floods, droughts, or fires (Boyce et al. 2001). These events may result in direct mortality or indirect mortality through effects on food supplies. Recent analysis of genetic samples suggests some degree of demographic and genetic isolation of the Cabinet-Yaak grizzly bear population (Proctor 2003), though radio tracking tagging of bears has indicated some movement of bears out of the Cabinet-Yaak and genetic data suggests movement into the Cabinet-Yaak from the southern Purcell Mountains. Isolation of this small population is of great concern to the FWS (Mattson and Merrill 2004, Proctor et al. In press). This is particularly true for the Cabinet Mountains segment of this recovery zone. There has been no documented movement of bears between the Cabinet Mountains and the Yaak River drainage during 1983 to 2003.

High-speed highways are an important factor in grizzly bear habitat that can affect habitat use and cause direct mortality. Highway reconstruction or expansion can lead to further fragmentation of grizzly bear habitat. These projects also can provide opportunities to improve crossing opportunities for grizzly bears and other forms of wildlife. There are several examples of radio-collared grizzly bears crossing existing major highways in the Cabinet-Yaak recovery zone, specifically Highways 200, 56, and 92 in the United States and Highway 3 in British Columbia. We do not have similar information for Highway 2, but bear populations adjacent to those highways are low and there are currently no radio-collared bears in close proximity to those highways. We have begun a study of high-speed highways on the periphery of Glacier National Park. Results from that study may prove useful in identifying impacts related to grizzly bears and making recommendations on future highway design and construction to maintain crossing opportunities. We are specifically concerned about increasing traffic levels and future improvements to the highway system such as creation of additional lanes for traffic. We will have an opportunity to monitor these activities within the United States through section 7 review of all Federal actions as long as these populations remain listed under the Endangered Species Act (Act).

Small population size and the potential for genetic isolation appear to warrant reclassification to endangered status.

SUMMARY OF REASONS FOR ADDITION, REMOVAL OR LISTING PRIORITY CHANGE:

Reasons for the change in listing priority number include continuing high levels of human caused mortality, new threats to habitat in the form of large scale mine development proposals in the Cabinet Mountains, and the high potential for further fragmentation of populations within the recovery zone.

N/A Is the removal based on a Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE) finding?

FOR PETITIONED SPECIES:

- a. Is up-listing warranted? **Yes**
- b. To date, has publication of a proposal to up-list been precluded by other higher priority listing actions? **Yes**
- c. Is a proposal to up-list the species as threatened or endangered in preparation? **No**
- d. If the answer to c. above is no, provide an explanation of why the action is precluded.

The Grizzly Bear is currently listed as threatened in the Cabinet-Yaak Ecosystem under the Act and, therefore, receives protections of the Act. In addition, the FWS promulgated regulations extending take prohibitions under section 9 to threatened species. Prohibited actions under section 9 include, but are not limited to, take (i.e., harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in such activity). Under section 7 of the Act, Federal agencies must ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species. Given that these protections are already in place, we do not feel it is a prudent use of limited resources to uplist the Cabinet-Yaak Ecosystem of Grizzly Bears before listing high priority candidate species.

Immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions. During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, emergency listings, and essential litigation-related, administrative, and program management functions. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted. For information on listing actions taken over the 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (<http://endangered.fws.gov/>).

Furthermore, additional biological information must be obtained before we can analyze each of the recovery units under our policy regarding the recognition of DPSs (61 FR 4722). Although we performed a preliminary DPS analysis in 1999 in a revised 12-month finding, new genetic information draws this conclusion into question. New information in the form of genetic analysis now suggests that the Selkirk Mountains are isolated from other adjacent populations in the United States and Canada and are lower in genetic diversity (Proctor

2003). This isolation may have been in place for several generations. The same analysis indicates male oriented population interchange is occurring in the northern portion of the Cabinet-Yaak recovery zone with Canada. Thus, the FWS is presently collecting and analyzing biological information on genetic relationships between the grizzly bears in the Northern Continental Divide recovery area in Montana; the Cabinet/Yaak recovery area in Montana and Idaho; the Selkirk recovery area in Idaho and Washington; the North Cascades recovery area in Washington; and the Bitterroot recovery area in Idaho and Montana. The FWS also is collecting and analyzing movement information within and between these areas using very high frequency radio-collars and global positioning system collars; examining the effects of human developments such as highways on grizzly bear movements; and examining possible population linkage within and between areas. This information will be used in a comprehensive application of the DPS policy for these areas. We believe it is logical to complete these studies and collect this information before completing the application of the DPS policy to these remaining grizzly bear areas. The FWS expects that this information will be available within a few years.

LAND OWNERSHIP: The Cabinet-Yaak recovery zone is approximately 90 percent Federal, 5 percent State, and 5 percent private lands. The Kootenai, Idaho Panhandle, and Lolo National Forests administer Federal lands within the recovery zone. In 1997 the Kootenai National Forest completed a land exchange in which 21,422 acres (8,669.2 hectares) of land owned by Plum Creek Timber Company were placed in public ownership. Almost all of this land was within the Cabinet-Yaak grizzly bear recovery zone. The portion of British Columbia directly north of the Cabinet-Yaak is largely crown land with the exception of the Moyie and Kootenay River valleys. Major private landowners include Plum Creek and Stimson Timber Companies.

PRELISTING: Prelisting activities are not applicable because the grizzly bear is already listed. However, various conservation activities ongoing within these two ecosystems may assist in reducing threats to the grizzly bear. These conservation activities include Federal agency actions being conducted in conformance with Interagency Grizzly Bear Guidelines, the Grizzly Bear Recovery Plan Chapters prepared for the Cabinet-Yaak ecosystem, and section 7 of the Act (consultation).

DESCRIPTION OF MONITORING: The FWS stations a wildlife biologist in this recovery zone to conduct much of the monitoring of Cabinet-Yaak grizzly bear populations. The FWS maintains a sample of radio-collared animals in the area and keeps records of sightings or sign of grizzly bears and mortality in the area. The FWS also monitors food production at numerous locations within the area. Through consultation, the FWS monitors and regulates Federal activities that may affect grizzly bears or their habitat. Through the Interagency Grizzly Bear Committee and other contacts the FWS receives and disseminates information on the status of the species and habitat. The small number of animals, low population density of the species, large annual home ranges, wary nature of the species, dense habitat in which it occurs, and the controversial human aspects of recovering this species requires an active monitoring program.

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LISTING PRIORITY:

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3*
	Non-imminent	Monotypic genus	4
		Species	5
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Rationale for Listing Priority Number:

Grizzly bears were listed as a threatened species in 1975 in the conterminous 48 States. In 1993, the Service issued a warranted but precluded finding to uplist the Cabinet-Yaak recovery zone population to endangered status. This uplisting action continues to be precluded by higher priority listing actions. The 1975 listing of grizzly bears has resulted in section 7 (Act) reviews of all federally funded projects and section 9 (Act) prohibitions on the import and export, take, illegal sale, or interstate sale or transport of the species or parts. A grizzly bear recovery plan was approved in 1982 and revised in 1993 (FWS 1993). The plan defines a sequence of actions that should provide for the conservation and recovery of the grizzly bear in selected areas of the conterminous 48 States. Listing and recovery actions have resulted in increased effort focused on the conservation of the species, however actions taken or funded thus far appear to be insufficient to address threats to the species (including human-caused mortality, sanitation measures to avoid conflicts that result in removal of animals, and public information and education to reduce conflicts). Some measures are still being implemented and the full effect of those actions may not be judged at this time (motorized access management). Other threats to the species (such as population fragmentation and genetic isolation) are magnified because of a small population size and a low inherent reproductive rate. When uplisted to endangered, the Service expects a number of minor changes in the future management of this population. For example, “a final regulation designating critical habitat . . . shall be published concurrently with the final publication implementing the determination that the population is endangered,” (16 U.S.C., 1531 et seq.). To date, critical habitat has not been required because the original listing predated the critical habitat amendment to the act. This designation will change the section 7 consultation process requiring the consideration of “adverse modification” to critical

habitat. The Service also may re-evaluate the recovery zone's size, sufficiency, and boundaries based on the critical habitat designation. Additionally, uplisting will change the direct take regulation for this population. Currently, nuisance bears can be relocated or destroyed if they constitute a demonstrable but non-immediate threat to human safety or commit significant depredation to lawfully present livestock under section 4(d) of the Act. Such flexibility is reduced for an endangered population under this section of the Act, but may be allowed in certain instances under section 10(a)(1)(A) of the Act. The impact of this loss of flexibility to the overall well being of the Cabinet-Yaak population is hard to predict. Other intangible impacts such as increased public awareness also may result from uplisting.

Magnitude:

In the Cabinet Yaak recovery zone, grizzly bears face multiple threats. Habitat protection measures in the United States and Canada, largely in the form of motorized access management, are incomplete. Current and additional proposals for mining activity in the Cabinet Mountains are additional habitat threats. These proposals have resulted in two jeopardy opinions from the FWS since 1992. Recent increases in human caused mortality are of great concern to this population. The species exhibits a very low reproductive rate that heightens the effects of excessive mortality through lower ability to replace animals lost to the population. The recovery zone currently contains a small population (30-40 animals) possibly fragmented into two areas. Not only small population size, but also fragmentation enhance the risk associated random human caused mortality events or natural mortality events arising from fluctuations in food production, accidental mortality, or unusual weather events. There appears to be at least partial isolation from other populations in Canada and the United States with interchange occurring only by male movement from Canada. These factors justify the high magnitude threat level.

Imminence:

Small population size and possible fragmentation of the population into two areas dramatically increases the effects of any form of mortality on these segments. Current estimates of population size are 15 or fewer in the Cabinet Mountains and 20-30 in the Yaak River drainage. We have not detected any animal movement between the Cabinet Mountains and the Yaak River drainage. The expected loss of the Cabinet Mountains population in the next few decades was the main reason for the test of population augmentation techniques conducted in 1990-1994. Though the test of augmentation technique suggests promise, it was merely a test of the technique and did not involve large enough numbers of animals to be considered sufficient augmentation. Current and additional proposals for mine development in the Cabinet Mountains heighten the concern for this population because of increased levels of human population associated with the mine and the connected effects of increased recreation, risk of mistaken identity from black bear hunting, and sanitation issues. Known human-caused mortality in this recovery zone has increased from an average of 0.5 mortalities per year from 1988 to 1998 to 1.2 mortalities per year from 1999 to 2003. These threats are judged to be imminent in this recovery area.

These conditions result in a listing priority number of 3.

Is Emergency Up-Listing Warranted?

No. Given the long lifespan of the species, the habitat protections that are currently in place (motorized access management standards and wilderness or protected area status), the protections against take associated with section 9 of the Act, and the review of Federal actions affecting the species under section 7 of the Act, FWS does not believe that emergency uplisting is warranted at this time.

APPROVAL/CONCURRENCE:

Approve: Sharon R. Rose, Acting
Regional Director, Fish and Wildlife Service

September 10, 2004
Date

Concur: Matt Hogan, Acting
Director, Fish and Wildlife Service

5/2/04
Date

Do not concur: _____
Director, Fish and Wildlife Service

Date

Director's Remarks: _____

Date of annual review: June 30,2004

Conducted by: Wayne Kasworm

Comments: _____

