Management of Grizzly Bears in the Northern Continental Divide Ecosystem, Montana

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Introduction

The Montana Department of Fish, Wildlife and Parks (DFWP) began preparation of a Programmatic Environmental Impact Statement (PEIS) for grizzly bear management in the Northern Continental Divide Ecosystem (NCDE), Montana, in 1984. This effort was a major task—essential to ensure a responsible grizzly bear management program with long–term continuity.

Public interest, changing management situations and additional grizzly bear population data dictated a need for review of the current management program. Public concern over hunting seasons, increasing grizzly bear depredation problems and new data from the Rocky Mountain East Front needed to be incorporated into a cohesive plan.

Also at issue was the threat of litigation over DFWP's management program. Defenders of Wildlife—a special interest group with a record of opposition to hunting—threatened a lawsuit to stop hunting of grizzly bears if DFWF did not revise management.

Montana is the only state in the conterminous U.S. where sportsmen have the opportunity to hunt grizzlies. It is no accident that this opportunity still exists, when one considers the history of grizzly bear management in Montana. The record is clear that where this species is managed under game status it has fared much better than where it was or is managed as threatened or endangered. Limiting or banning grizzly bear hunting in Arizona, Colorado, Idaho and Washington in 1929, 1954, 1946 and 1969, respectively, did not stop mortalities of grizzly bears or their extirpation from Arizona and Colorado and near extirpation in Idaho and Washington.

Management of the grizzly bear presents a unique set of problems because grizzlies do kill people on occasion. The most recent incident was in 1984 in Yellowstone National Park. Incidents such as these dictate that management of bears must be different than for other species. The endangered peregrine falcon (*Falco peregrinus*), for example, is known to nest on bridges in New York City, and obviously tolerates and is tolerated in close proximity to people. The same, however, cannot be said for grizzly bears.

The PEIS was completed in February 1986, after two years of preparation, including professional and public review. The process culminated in a progressive plan that should provide security well into the future for Montana's state animal. The document reviews the available data pertinent to grizzly bears and their management in northwestern Montana. It presents management alternatives, the Preferred Alternative adopted by DFWP, recommendations to other agencies on their grizzly bear

policies and, in general, prescribes a complete management program for northwestern Montana. This paper is a summary of that document (Montana DFWP 1986).

DFWP Goals

DFWP is committed to protect, conserve and manage the grizzly bear in Montana. Specific program goals of DFWP for the NCDE grizzly bear population are consistent with this policy. The goals for the management area (Figure 1) in the NCDE (excluding Glacier National Park) are to manage for a recovered grizzly bear population at an average density of between 1 bear per 30 square miles (1 per 78 km²)

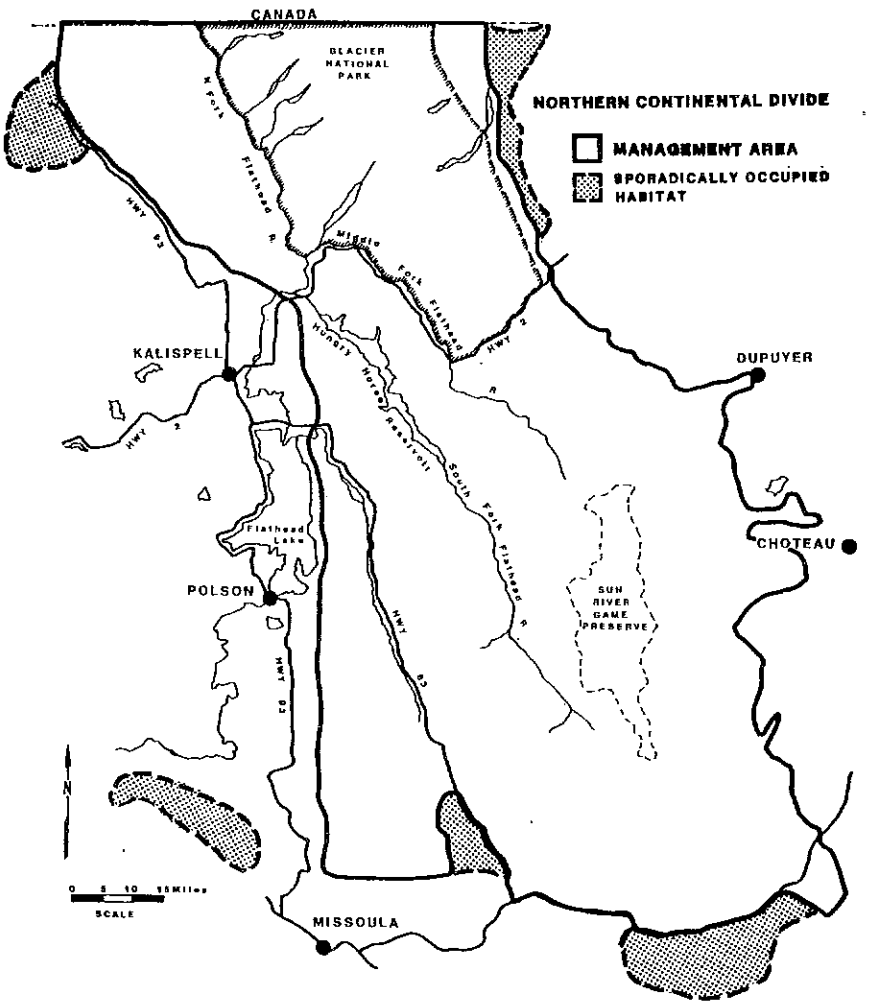

Figure 1. Grizzly bear management area for the Northern Continental Divide Ecosystem, Montana.

and 1 bear per 15 square miles (1 per 39km²), and seek to maintain the habitat in a condition suitable to sustain this density.

Information on minimum population size (Shaffer 1983), minimum effective population size (Franklin 1980), viability of remnant European brown bear populations (Elgmork 1978, Roth 1972, Mysterud 1977), and grizzly/brown bear densities in all areas was considered in establishing the population goal in the NCDE. This goal is consistent with the suggested recovery goals in the Grizzly Bear Recovery Plan (U.S. Department of Interior 1982).

The density goal was selected because it should provide for the continued existence of grizzly bears. A literature review of brown bear densities suggests that the NCDE is of intermediate habitat quality. Densities vary from a high of 1 bear per 0.6 square miles (1 per 1.5 km²) on Kodiak Island, Alaska (Troyer and Hensel 1964), to a low of 1 bear per 110 square miles (1 per 285 km²) in the Central Brooks Range of Alaska (Crook 1972).

Population Biology

Estimated ranges of grizzly bear densities in the NCDE for 12 units (Table 1) were based on similarity in habitat-use patterns, mortality patterns, home-range size and overlap, levels of human activity and encroachment, and pooled expertise from wildlife professionals.

These estimates (Figure 2) were developed utilizing known minimum densities from five study areas (Table 2) within and adjacent to the ecosystem and applying them to larger areas. Reynolds and Hechtel (1980) reported that extrapolations of bear densities from areas and habitats of intensive study give the best population estimates. Others (Zunino and Herrero 1972, Martinka 1974, Pearson 1975, Lortie

Table 1. Grizzly bear density estimates for the Northern Continental Divide Ecosystem, Montana.

Unit	Area (square miles)	Density (square miles per bear)			Number	
		Minimum[a]	Low	High	Low	High
Glacier National Park	1,583	8	8	6	193	264
Red Meadow	215		15	10	14	22
Whitefish	831		25	18	33	46
St. Mary	211		20	10	11	21
Badger–Two Medicine	323		20	16	16	20
Swan Front	780		30	20	26	39
South Fork	1,624	19	15	10	108	160
East Front	1,119	22	18	12	62	93
Mission Mountains	1,044	56	45	25	23	42
Scapegoat	1,903	28	30	18	63	106
Total	9,633		18	12	549	813
Total excluding Glacier National Park	8,050		23	15	356	549

[a]Reported in the literature or from re-evaluated data from research studies (Montana Department of Fish, Wildlife and Parks 1986).

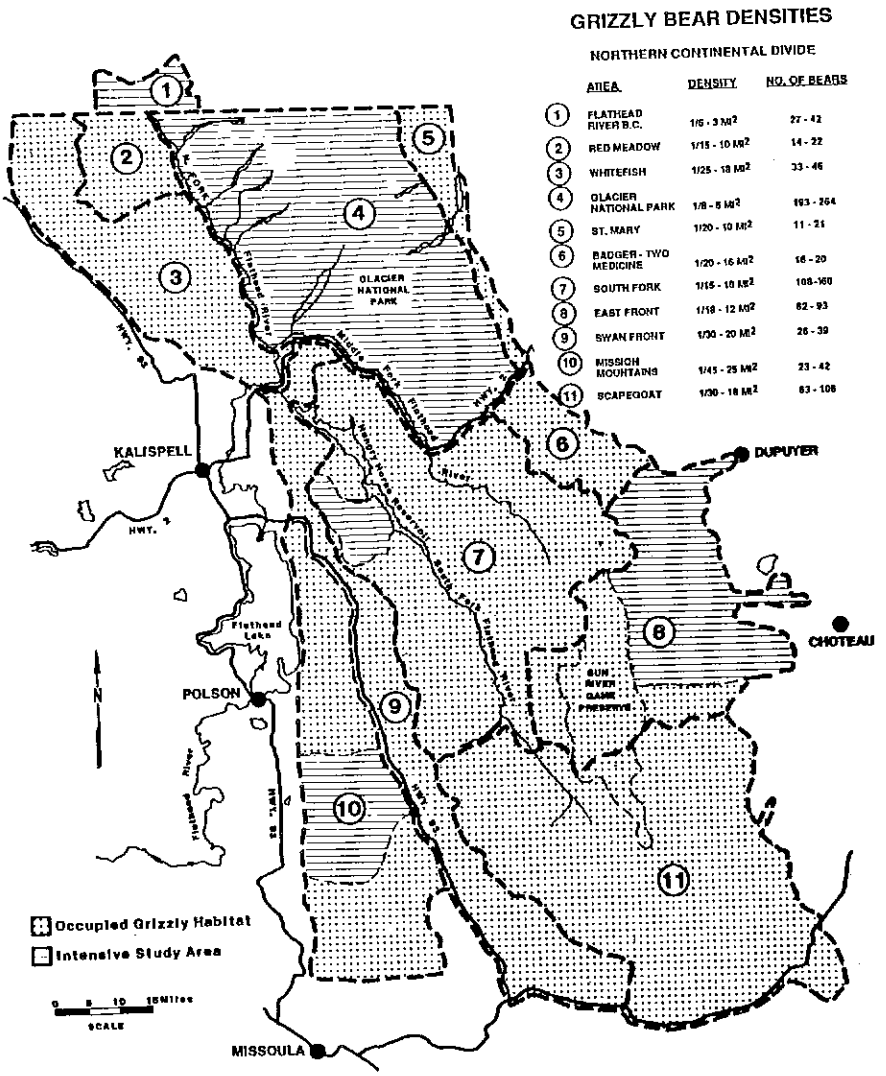

Figure 2. Grizzly bear density units in the Northern Continental Divide Ecosystem, Montana.

1978, Miller and Ballard 1982, Tompa 1984, van Drimmelen 1984) estimate population numbers using data extrapolated from intensive study areas. This procedure is widely used for other species (Schemnitz 1980). In areas where direct extrapolation was judged to be inappropriate, based on habitat, human impacts and pooled expertise of wildlife professionals, to be conservative, we applied a lower density.

Grizzly bear litter size has been determined for five study areas within the NCDE (Table 3) (Aune et al. 1985, C. Jonkel personal communication, Martinka 1974, McClellan 1984, Bureau of Indian Affairs files). Reproductive potential from the NCDE is more favorable than in less productive habitats with limited food sources

Table 2. Grizzly bear density estimates from study areas in and adjacent to the Northern Continental Divide Ecosystem, Montana.

Unit (source)	Area (square miles)	Density (square miles per bear)	Number
Glacier National Park (Martinka 1974)	1,583	8	193
Rocky Mountain Eastern Front (Aune et al. 1984)	689	11.5–22.2	31–60
Mission Mountains (Servheen 1981)	301	19	16
South Fork (Mace and Jonkel 1980)	128	10	13
Flathead River, British Columbia (McClellan 1984)	163	3.4–6.0	27–42

(Pearson 1975, 1976, Reynolds 1976, Miller et al. 1982). However, more information on reproduction would be desirable for the NCDE.

Few age composition data are available for grizzlies in the NCDE. Data from the Rocky Mountain East Front (Aune et al. 1984) were compared with other populations in North America. McLellan's (1984) reported age structure in British Columbia is similar to that of Aune et al. (1984), and is from an area exhibiting an increase in grizzly bears.

Mortality rates by age class are not available for grizzly bears in the NCDE. However, of the mortality that has occurred, Aune et al. (1984) reported that 62.5 percent has been subadults and 37.5 percent has been adults. Nonhunting mortality accounted for more than 50 percent of the total (Aune et al. 1984). The high subadult mortality may be due to subadult dispersal from an expanding population (K. Aune personal communication). Martinka (1982) reported average annual losses of 3.5 to 5 percent for a region encompassing most of the NCDE, a rate indicated in the literature as an acceptable level (Cowan 1972, Craighead et al. 1974, Martinka 1974, Reynolds 1975, Lortie and McDonald 1977, Lortie 1978, British Columbia Fish and Wildlife Branch 1979, Bunnell and Tait 1980, McCullough 1981, Sidorowicz and Gilbert 1981, Tompa 1984, van Drimmelen 1984, B. Smith personal communication, R. Harris unpublished data). Martinka (1974) had no data on mortality rates within Glacier National Park, but stated that mortalities outside the park had little effect on the population within the park.

Although methods used in deriving the population estimates varied, it is possible to compare historical grizzly bear population estimates. Hickie (1952) reported an estimate of 758 grizzly bears in all of Montana in 1952. Cooney (1953) reported a current population estimate of 800 in Montana. Marshall (1955) reported an estimate of 700 grizzly bears for the entire state in 1954. Montana listed 439 grizzlies in 1955, exclusive of national parks (Cooney 1956). Based on a survey of wildlife professionals and user groups, Hamlin and Frisina (1975) reported that the grizzly population in Montana was at least stable and possibly increasing.

Comparing this historical information with our present estimates indicates the current grizzly bear population in Montana is as high or higher than that reported 30–40 years ago. It appears that such factors as acquisition of some key habitats, imple-

Table 3. Reproductive characteristics of North American grizzly bear populations.

Location (source)	Mean litter size	Mean age at first litter	Litter frequency (years)
Rocky Mountain Eastern Front, Montana[a] (Aune 1985)	2.16	5.5	2.1
North Fork Flathead River, Montana[a] (C. Jonkel personal communication)	2.66	5.0	
Mission Mountains, Montana[a] (U.S. Bureau of Indian Affairs, Flathead Indian Reservation)	2.12	5.5	3.3
Flathead River, British Columbia[a] (McClellan 1984)	2.5	5.5[b]	3.1
Kodiak Island, Alaska[a] (Hensel et al. 1969)	2.23	4–5	3+
Eastern Brooks Range, Alaska[a] (Reynolds 1976)	1.77	9.9	3+
Western Brooks Range, Alaska[a] (Reynolds and Hechtel 1980)	2.03	8.4	4+
Southwest Yukon[a] (Pearson 1975)	1.6	7.8	3+
Northern Yukon[a] (Pearson 1976)	1.4–1.8	7.5	4
MacKenzie Mountains, Northwest Territories[a] (Miller et al. 1982)	1.83	8[b]	3.8
Glacier National Park, Montana[c] (Martinka 1974)	1.7		
Glacier National Park, Canada[c] (Mundy and Flook 1973)	2.0	5+	2.8
Yellowstone National Park, Wyoming and Montana[c] (Craighead et al. 1974)	2.24	5.8	3.4
Yellowstone National Park, Wyoming and Montana[c] (Knight and Eberhardt 1985)	1.9	6.2	3.0
McNeil River, Alaska[c] (Glenn et al. 1976)	2.5	6	3.6

[a]Hunted population.
[b]Earliest age observed.
[c]Unhunted population.

mentation of more conservative control programs, restrictions on hunting and controls on predator poisoning have allowed growth in Montana's grizzly bear populations. This growth has occurred despite habitat encroachment.

It is difficult to use age data from hunter harvest to describe grizzly bear population status (Harris 1984). It is important, therefore, that when using harvest age data to interpret population status, it should be considered in conjunction with other population and trend indicators. Harris (1984) examined age and sex structure from simulated grizzly populations subjected to various harvest levels. When applied to 1982–84 harvest data for the NCDE, the index indicated a 10 percent or less chance the population was declining (R. B. Harris personal communication).

R. W. Klaver (personal communication) has modeled the 1970–84 mortality data

for the NCDE using the traditional methods of Gilbert et al. (1978) and a simplified approach to the Fraser et al. (1982) method. Klaver's analysis shows that harvest rates have been declining in recent years and that population indices indicate a stable or increasing population.

Population trend information is available for three intensive study areas within or adjacent to the NCDE. The portion of the ecosystem on the Rocky Mountain East Front (K. Aune, personal communication) and the British Columbia portion of the North Fork of the Flathead River (McLellan 1984) are both stable to increasing. Grizzly bear numbers in the Mission Mountains are reported to be declining (Claar et al. in Press).

Management Program Review

Montana is the only state in the 48 conterminous states authorized to allow hunting of grizzly bears under the Endangered Species Act. In 1975, the Code of Federal Regulations established a human–caused mortality quota of 25 grizzly bears for northwestern Montana. DFWP elected to be conservative in 1983 when it established a female subquota of nine for the NCDE. In 1985, an Emergency Federal Regulation reduced the total mortality quota to 15 and the female subquota to 6. These quotas involve the total man–caused grizzly mortality, including illegal kills, accidents, control actions and hunter harvest. Thus, hunter harvest is adjusted to reflect the other sources of mortality. In addition, quotas are reviewed annually to determine if they need adjustment.

Since 1967, the grizzly hunting season in the NCDE has coincided with deer and elk seasons (approximately mid– to late–October through late November, except in the wilderness areas where the season opened September 15). Season dates have a large influence on the sex ratio of bears harvested. Chi–square analysis indicates that significantly ($X^2 = 5.13$, $P = 0.02$) more females are shot in the NCDE before October 20 than after. Troyer (1961) stated that, since fall hunting produced a heavier harvest of females and the earliest part of the fall season is the most productive, seasonal restrictions would have the best results by limiting the early fall season. Pearson (1975) reported a decreasing proportion of females in the total kill as the fall season progressed in the Yukon. H. V. Reynolds (personal communication) stated that fall–only seasons in Alaska were used where harvest, sex and age data indicated some caution was necessary.

Since 1983, the hunting program in Montana has protected females through a female subquota of nine, and by prohibiting the taking of females accompanied by cubs (since 1947). Further protection was provided in 1985 by (1) prohibiting the shooting of females accompanied by young—defined as two–year olds or younger, and (2) a request that hunters not shoot any bear in a group.

The Montana Fish and Game Commission has the authority to close a hunting season at any time. Since quotas were initiated in 1975, the season has been closed three times, in 1975, 1984, and 1985, because total or female mortalities were approaching the quotas. Since inception of the quota, it has been recognized as improbable but possible that these quotas could be reached before the hunting seasons opened. In 1985, the season in one management area did not open because the female subquota had been met prior to the season. Alaska and the Canadian provinces and territories also have closure authority, but not based on a quota system.

Since 1967, hunters killing a grizzly have been required to report their kill within 48 hours to an officer of DFWP, and to purchase a trophy license and present the hide and skull within 10 days for tagging and recording the kill. Evidence of sex intact on the carcass or skin has also been required. It has also been prohibited for any person to remove any portion of a grizzly bear from Montana without first obtaining a trophy license. Since 1947, the annual limit per grizzly bear licensee has been one grizzly bear of either sex. Alaska, Alberta, British Columbia, the Yukon and Northwest Territories all have regulations similar to Montana's, with variations based on population status.

Montana hunters have been required to purchase species–specific grizzly bear licenses since 1967. Since 1971, these licenses had to be purchased before August 31. Because the hunting season has not opened prior to September 15, this regulation eliminates the possibility of a hunter killing a grizzly bear and then buying a license.

Analysis of trophy license data shows that between 1967 and 1985, 95 percent of 224 hunters have harvested only one bear, 5 percent have harvested two bears, and 1 hunter has harvested four bears.

Mortality Patterns

Total Man–caused Mortality

Grizzly bear mortalities from 1967 to 1985 have been analyzed by K. Greer of DFWP. Prior to the quota of 25 mortalities from all human causes, initiated in 1975, the average annual mortality was 28 grizzly bears. Since 1975, 18 grizzly bears on the average have been killed annually from all causes.

The average proportion of hunting to nonhunting mortality during 1967–85 was 55:45. Reported nonhunting mortality exceeded hunting mortality in 6 of the 19 years. Male grizzly bear mortality exceeded female mortality in 15 of the 19 years. The ratio of male to female mortality averaged 59:41 for the entire period, and the ratio of adult to subadult mortality was 51:49.

Hunting Mortality

From 1975 to 1985, the average annual hunting mortality was 10.2 individuals (range = 5–17), of which an average of 3.8 individuals (38 percent) were females. Males in the hunter harvest were younger (mean = 5.83 years, P = 0.03) than females (mean = 8.20 years). The ratio of adult to subadult animals was 51:49.

Nonhunting Man–caused Mortality in the NCDE

Since 1975, an annual average of 8.4 grizzly bears (range = 6–12) have been lost for man–caused reasons other than hunting. Nonhunting mortalities include illegal and control deaths as well as losses due to live translocations from the NCDE.

Male grizzly bears are more prevalent in the nonhunting mortality than are females. During the period 1968–1985, females constituted an average of 42 percent of the man–caused, nonhunting mortality. This percentage of females has decreased to 39 percent since 1975. Subadults comprise 52 percent of the nonhunting mortality.

Nonhunting mortality has been stratified into four major categories that allow accurate interpretation of nonhunting mortality patterns in the NCDE.

Defense of life or property. Fifty–two percent of the recorded nonhunting mortalities in the NCDE since 1975 has occurred in the defense of life or property. Mortality from this source averages 4.3 deaths annually. Sheep depredations are the leading cause (89 percent) of both citizen and agency actions.

Mistaken identity. During the period 1975–85, 11 grizzly bear mortalities due to accidental killing by black bear hunters have been recorded. The average is one such death per year.

Documented poaching and malicious deaths. Animals killed for profit or from malicious intent are difficult to document. Not all illegal grizzly bear deaths are reported to DFWP, so documentation is not complete. Twenty–seven records of poaching or vandal killing are present in DFWP records (averaging 2.5 per year).

Unreported illegal mortality. There is another source of mortality that is not reflected in DFWP records. These are grizzly bears accidentally or intentionally killed and the fact not reported. We estimated the extent of this unreported mortality in the NCDE using data from radio–instrumented grizzly bears.

Six of 71 instrumented animals monitored during a 10–year period were confirmed illegal deaths that would not have been recorded had it not been for their radio collars. Furthermore, five of these six instances occurred in roaded areas, although the animals' annual home ranges included roadless areas or designated wilderness. These data suggest that bears are more vulnerable in roaded areas than elsewhere.

Using these data, we estimated an average annual mortality rate of 4 percent. This rate was applied to bears in the ecosystem (excluding Glacier National Park) to establish an upper limit for this type of mortality (14). Because all bears in the ecosystem are not equally vulnerable, an average of seven represents a reasonable estimate of the annual average of mortality due to this source. As an additional test of the unreported mortality rate, we applied the 4 percent rate to the estimated proportion of subadults in the NCDE. Data from the East Front (Aune 1985) suggested a population structure of approximately 25 percent subadults (two to four years old). Assuming 25 percent of the NCDE population is subadult bears, then there are approximately 89 subadults in the NCDE. A 4 percent unreported mortality rate applied to these 89 subadults results in only four unreported deaths per year.

Mortality Summary

DFWP documented all sources of man–caused grizzly bear mortality in the NCDE. The analyses show that an average of 25 grizzly bears are either killed or translocated each year (Table 4).

Management Alternatives

Two major alternatives were evaluated in the DFWP PEIS—one using recreational hunting as a management tool and the other excluding recreational hunting. Within these two alternatives, five management options were developed (Figure 3). Management direction is the same under each option, whether under the hunting or non-

Table 4. Average annual man–caused grizzly bear mortality in the Northern Continental Divide Ecosystem, Montana, 1975–1985.

Mortality cause	Average number of grizzly bears per year
Hunting	10.2
Nonhunting	
Defense of life or property	4.3
Known poaching/vandal killing	2.4
Mistaken identity	1.0
Vehicular collision	0.6
Unreported	6.8
Total	25.3

hunting alternative, but management techniques differ. In this manner, present and future management direction was identified and evaluated.

DFWP's population goal for the NCDE represents the optimum population status—termed "Status C" (Figure 3). If the grizzly bear population were to change over time from Status C. more–or–less stringent management techniques would be necessary to return the population to the optimum. The techniques used would depend on whether recreational hunting was available as a technique.

DFWP has evaluated the possible management techniques under both the hunting and the nonhunting alternatives for each of the five populations statuses. If, for example, the NCDE population was to increase from Status C to Status E, and hunting was not allowed, DFWP would seek to increase substantially the man-caused mortality other than hunting mortality. This would be accomplished by encouraging the unlicensed killing of nuisance grizzly bears. If recreational hunting was allowed in this situation (Alternative 2), then it could be used to lower the population to Status C. If the status was to decline from Status C to Status A under the hunting alternative, then the hunting season would be closed, control kills of nuisance grizzlies would be severely reduced and population augmentation would be recommended.

Under the hunting alternative, DFWP also evaluated several types of season struc-

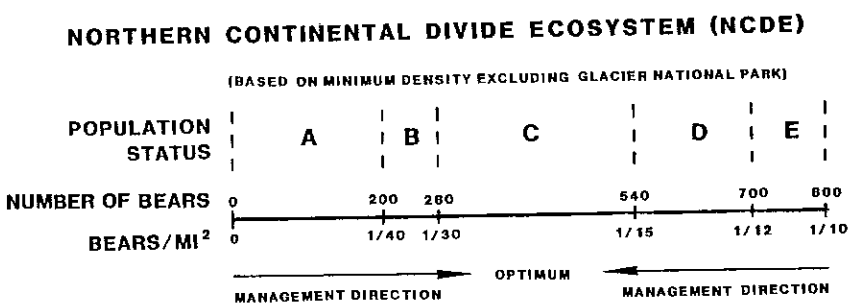

Figure 3. Grizzly bear management options for the Northern Continental Divide Ecosystem, Montana.

tures. These included spring season only, fall season only and a split season. Limited entry methods and unlimited entry methods were also considered.

Preferred Alternative

The management program preferred by DFWP is the hunting alternative. The present status of the NCDE is stable–to–increasing at an estimated minimum of 356 bears (excluding Glacier National Park). This indicates that a regulated hunting season under population Status C should be recommended. This hunting season will be conducted under a total mortality quota and a female mortality subquota. A hunting season is recommended for the following reasons:

1. An average of 10 grizzly bears are legally harvested annually in the NCDE. There is no evidence in the population–structure data or population–trend data to suggest this level of legal harvest is detrimental to the population.
2. Hunters might legally harvest problem bears, and bear/human conflicts could be reduced through such harvest.
3. Hunting may reduce the need for agency control of problem bears. Troyer (1961), Greer (1976b), Mysterud (1980), Poelker and Parsons (1980), and Waddell and Brown (1984) indicated that hunting can reduce the need for control actions.
4. Hunting may cause bears to be wary of humans. Evidence was provided by Mysterud (1977) and Elgmork (1978), who reported wariness in brown bear populations long exposed to human exploitation. Herrero (1985) provided evidence that bear/human incidents are more frequent in unhunted than hunted bear populations.
5. Hunting grizzlies may increase cub survival and recruitment, providing for population increase (Lindzey et al. 1983, Inukai 1972, Young and Ruff 1982, Troyer and Hensel 1964, Glenn et al. 1976, Pearson 1976, Reynolds and Hechtel 1980, Stringham 1983).

DFWP's future management actions will be based on the status of the grizzly population in the NCDE. Several important factors have been identified that will be evaluated by DFWP (1986) when determining population status. It should be recognized that population status will be determined not by any one criterion, rather, by a collection of the best–available information from all criteria will be used.

Hunter harvest, total known man–caused mortality, and total known man–caused and estimated unreported man–caused mortality have averaged 3, 5, and 7 percent of the population (excluding Glacier National Park), respectively, in the NCDE since 1975.

The mortality rates of 8.2 and 14.4 percent reported by Craighead et al. (1974) for recorded and total mortality are from a population they reported to be increasing at an annual rate of 2.4 percent. McCullough (1981) re–evaluated the Craighead et al. (1974) findings, and derived a population estimate of 312. Using this estimate and the annual known mortality of 18.9 bears per year reported by Craighead et al. (1974), yields an annual mortality rate of 6.1 percent.

R. B. Harris (unpublished data) has indicated that an annual mortality rate of 6.5 percent is sustainable, based on efforts designed to model the NCDE population. This mortality rate consisted of 69 percent males; harvests with higher proportions of males would allow for a higher mortality rate. The management actions prescribed

in the PEIS, including the prohibition on shooting females with young and the request not to shoot any bear in a group, should reduce female mortality and increase the proportion of males in total mortality. In 1985, the proportion of males in the hunter harvest was 100 percent, while total mortality was 81 percent male.

The current grizzly population status in the NCDE, the apparent trend of this population in relation to past mortality rates, and the recommended and reported mortality in the literature indicate that a proposed total man–caused mortality rate (known and unreported) of 6 percent (21 bears) will not be excessive for the NCDE population and should allow for a continuing increase in numbers.

Although DFWP has chosen to exclude Glacier National Park from management consideration, it is important to relate the proposed mortality rate to the entire NCDE. The estimate of the minimum population for Glacier is 193 bears, thus the estimate of the minimum total population for the NCDE is 549 grizzly bears. Under the present quota a maximum of 21 deaths would be allowed from this population. Considering this park population reduces the mortality rate to 4 percent, which is well within that recommended or reported in the literature.

It is also recommended that the proportion of females in the total known man–caused mortality not exceed 40 percent. This is based on recommended or reported male/female ratios of 60:40 to 76:24 in the literature (van Drimmelen 1984, British Columbia Fish and Wildlife Branch 1979, Lortie and McDonald 1977, R. B. Harris (unpublished data); R. A. DeMarchi personal communication), as well as the past ratios in the NCDE. While it is important to keep female mortality at a minimum, and DFWP is working to keep it at a minimum, it does not need to be entirely eliminated. Proposed harvest restrictions on females and relocation guidelines regarding females should reduce female mortality from that of previous years.

Recommendations

Several recommendations are presented that should make DFWP's management program more effective in the future. The Preferred Alternative presented earlier and the recommendations presented here provide for a reasonable and responsive grizzly bear management program for the NCDE.

Management Area Changes

DFWP recognizes that grizzly bears can and do live outside the boundary of management areas. The presence of bears outside these boundaries will be encouraged as long as conflicts with humans do not occur. If a conflict occurs, the bear responsible will be treated according to agency guidelines. If sufficient numbers of grizzlies begin to occupy land outside current management area boundaries without conflict, then DFWP will evaluate modifying the boundary to include the newly occupied area(s).

Population Trends

The ability to document long–term population trends is an important aspect of grizzly bear management, DFWP will assist in developing and evaluating new trend–monitoring techniques, including systematic subjective surveys of wildlife professionals and various user groups. Surveys should be developed by professional surveyors to ensure statistical validity.

Focus Concern for the Grizzly Bear to Other Ecosystems

It is DFWP's position that an effort must be made to focus concern for the grizzly to other ecosystems identified in the grizzly bear recovery plan (USDI 1982). To accomplish this will require the cooperation of all agencies dealing with grizzly bear management, as well as public support. This is important because grizzlies in the NCDE are least biologically vulnerable, due to the size of the current population and its proximity to the rest of the population in Canada. In addition, the status of bear habitat is much more secure in the NCDE, due to land already established as national park and wilderness.

The same situation is not true of bear populations in other ecosystems. Those populations are much lower and tend to be more isolated from areas with a healthy population. Suitable habitat is much less secure in such ecosystems.

If agencies continue to focus so extensively on the NCDE (largely a result of the limited recreational harvest), vital opportunities to recover the bear in some of the other ecosystems may be lost. The record is clear that once grizzlies are totally eradicated from an area, the support for their re-establishment is minimal. As progress is made toward recovery in other ecosystems, management will be more flexible and public support will increase.

Continued focus on grizzly bears—a *species* that is not biologically threatened with extinction—increases the risk of extinction to other species that *are* endangered,

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