ENVIRONMENTAL ASSESSMENT

PREDATOR DAMAGE MANAGEMENT IN NORTHERN AND CENTRAL IDAHO

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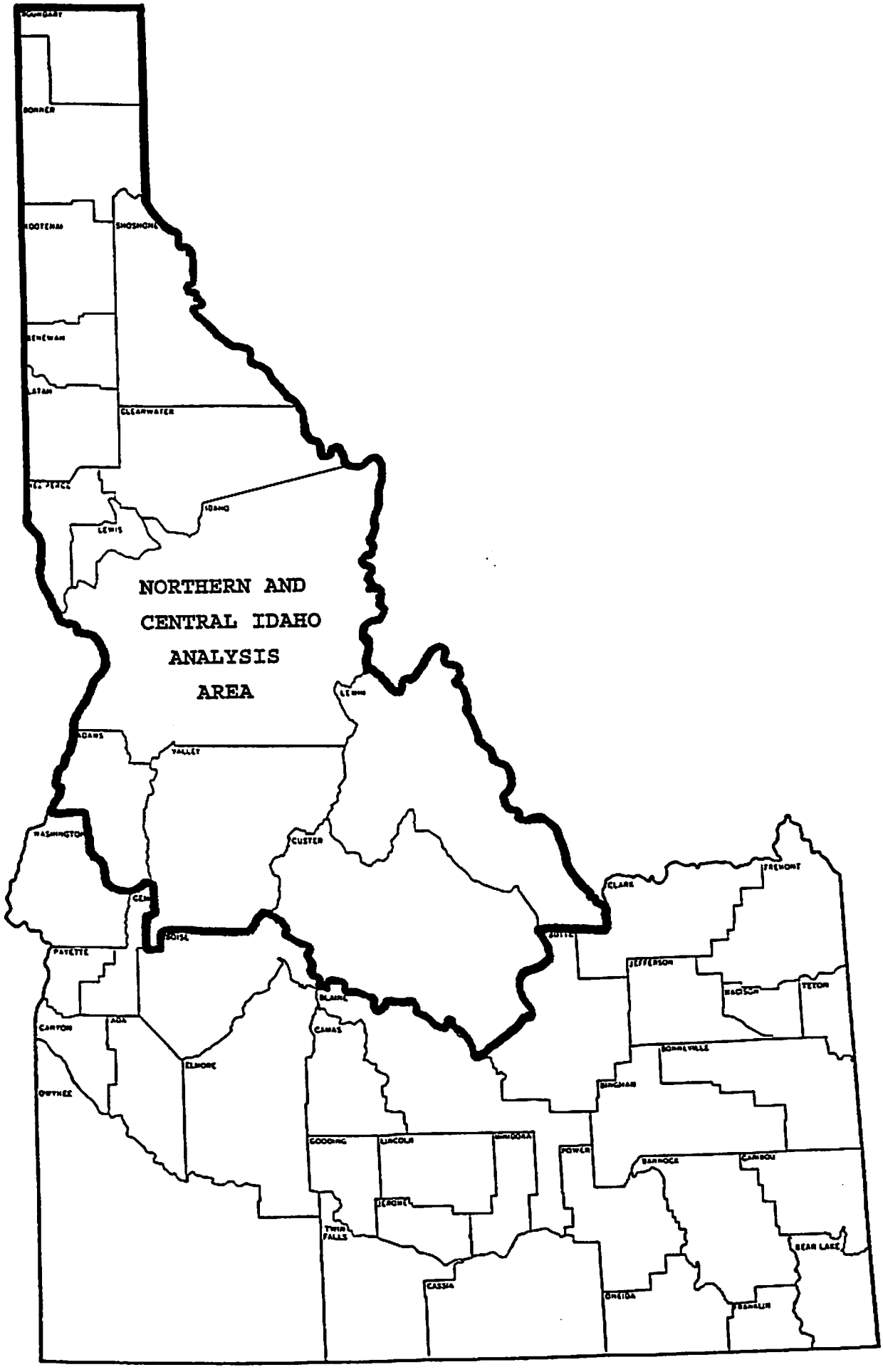
Table of Contents


BONNER
SHOSHONE
BENEWAH
LATAH
CLEARWATER
LEWIS
IDAHO
NORTHERN AND
CENTRAL IDAHO
ANALYSIS
AREA
ADAMS
VALLEY
WASHINGTON
CUSTER
CLARK
FREMONT
PAYETTE
BOISE
BUTTE
JEFFERSON
TETON
CANYON
ADA
CAMAS
ELMORE
OWYHEE
BONNEVILLE
BINGHAM
GOODING
LINCOLN
MINIDOKA
POWER
BANNOCK
CARIBOU
JEROME
TWIN
FALLS
BEAR LAKE
CASSIA
ONEIDA
FRANKLIN

1.0 CHAPTER 1: PURPOSE AND NEED FOR ACTION

Introduction

Across the United States, wildlife habitat has been substantially changed as human populations expand and land is used for human needs. These human uses and needs often compete with wildlife which increases the potential for conflicting human/wildlife interactions. In addition, some segments of the public strive for protection for all wildlife; this protection can create localized conflicts between human and wildlife activities. The ADC Final *Programmatic Environmental Impact Statement* (EIS) summarizes the relationship in American culture of wildlife values and wildlife damage in this way (USDA 1994):

> *"Wildlife has either positive or negative values, depending on varying human perspectives and circumstances . . . Wildlife is generally regarded as providing economic, recreational and aesthetic benefits . . . and the mere knowledge that wildlife exists is a positive benefit to many people. However . . . the activities of some wildlife may result in economic losses to agriculture and damage to property . . . Sensitivity to varying perspectives and values is required to manage the balance between human and wildlife needs. In addressing conflicts, wildlife managers must consider not only the needs of those directly affected by wildlife damage but a range of environmental, sociocultural and economic considerations as well."*

Normally, according to the APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions are categorically excluded (7CFR 372.5(c), 60 Fed Reg. 6,000-6,003, 1995). To evaluate and determine if any potentially significant impacts to the human environment from the proposed program would occur, we have decided to prepare this environmental assessment (EA).

ADC is the Federal program authorized by Congress to manage wildlife damaging livestock and other agriculture, natural resources, facilities, or causing threats to public health and safety. ADC's authority comes from the Animal Damage Control Act of 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriation Act of 1988. This EA documents the analysis of potential environmental effects of the proposed and planned damage management in the analysis area. This analysis relies mainly on existing data contained in published documents and the ADC programmatic EIS (USDA 1994) to which this document is tiered.

Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife and is recognized as an integral component of wildlife management (The Wildlife Society 1992). ADC uses an Integrated Wildlife Damage Management (IWDM) approach, commonly known as Integrated Pest Management (ADC Directive 2.105) in which a combination of methods may be used or recommended to reduce wildlife damage. IWDM is described in Chapter 1, pp 1-7 of USDA (1994). These methods include practices such as habitat and behavioral modification to prevent or reduce damage, or may require that the offending animal(s) be removed or that populations of the offending species be reduced through lethal methods. Potential environmental impacts resulting from the application of various predator damage reduction techniques are evaluated in this EA.

ADC is a cooperatively funded and service oriented program. Funding for the ADC program is derived from many sources, including livestock producers' fees, State and county general fund monies, State wildlife management agency monies, special interest user fees as well as other sources. Before any wildlife damage management is conducted, Agreements for Control or Wildlife Damage Management Work Plans (Work Plans) are signed by ADC and the land owner/administrator. ADC also cooperates with land and wildlife management agencies, as requested, to effectively and efficiently resolve wildlife damage problems according to all applicable Federal, State and local laws.

Any predator damage management conducted by ADC in the analysis area would be undertaken in compliance with relevant laws, regulations, policies, orders and procedures. Notice of the availability of this document will be published in local newspapers, consistent with the agency's NEPA procedures, to allow interested parties the opportunity to obtain and comment on this document.

ADC Program

ADC's mission is to provide leadership in wildlife damage management for the protection of America's agricultural, industrial and natural resources, property, and to safeguard public health and safety. This is accomplished through:

- Close cooperation with other Federal and State agencies
- Training of wildlife damage management professionals;
- Development and improvement of strategies to reduce economic losses and threats to publics from wildlife;
- Collection, evaluation and distribution of information on wildlife damage management;
- Cooperative wildlife damage management programs;
- Informing and educating the public on how to reduce wildlife damage and;
- Providing data and a source for limited-use management materials and equipment, including pesticides. (USDA 1989)

Purpose and Need

This EA analyzes planned and future predator damage management related to the protection of livestock, poultry, apiaries, and designated wildlife species, and to protect public safety, on public and private lands within the analysis area. The analysis area encompasses approximately 23 million acres in northern and central Idaho, including all lands within Adams, Benewah, Bonner, Boundary, Clearwater, Custer, Idaho, Kootenai, Latah, Lemhi, Lewis, Nez Perce, Shoshone and Valley counties (see Figure 1.1). ADC has agreements to conduct predator damage management for about 500 livestock producers on about 1.0 million acres within the analysis area. Of the total area under analysis, ADC activities were conducted on only about 907,000 acres, or about 4% of the total analysis area in Fiscal Year (FY) 95 (Management Information System (MIS) 1995). The analysis area encompasses Federal lands under the administration of the Forest Service, Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (USFWS), as well as tribal, State, county and private lands. Often, ADC spends only a few hours each year in a specific location trying to resolve a particular problem.

Within the analysis area, cattle and domestic sheep are permitted to graze on Federal lands throughout the year, with most livestock grazing on National Forest System lands in the summer and on BLM administered lands in the spring, fall, and winter. Much of the livestock protected by ADC grazes on some combination of National Forest System, BLM, State and private lands.

Currently, Idaho ADC conducts damage management for the protection of livestock on Federal lands in the analysis area under a total of eight different EAs prepared by the respective land management agencies. This EA will replace the current EAs for conducting ADC predator damage management on all portions of what was formerly known as the Coeur d'Alene and Salmon BLM Districts. These two Districts have now been combined administratively into the Upper Columbia/Salmon/Clearwater BLM District. This EA will also replace the EA covering that minor portion of what was formerly called the Boise BLM District (now the Lower Snake River BLM District) that falls within the analysis area. Likewise, this EA will replace the current EAs for conducting ADC predator damage management on all of the Nez Perce National Forest, including the Idaho portion of Hell's Canyon National Recreation Area (administered by the Wallowa-Whitman National Forest), and those portions of the Boise, Payette, Salmon/Challis and Sawtooth National Forests that fall within the analysis area. This EA is intended to supersede these existing EAs, analyze the proposed use of the Livestock Protection Collar (LPC), and expand the scope to address similar ADC predator damage management to protect additional resources (i.e., public health and safety and designated wildlife species.)

1.1 Need for Action

The need for action is based on the necessity for a program to protect livestock, poultry, apiaries, wildlife, and public health and safety. ADC has been authorized and directed by Congress to provide this service (Animal Damage Control Act of 1931, as amended; Rural Development, Agriculture, and Related Agencies Appropriation Act of 1988). In a recent District Court decision (U. S. District Court of Utah, Civil No. 92-C-0052A, Southern Utah Wilderness Alliance et al. v. Thompson, H. et al., Forest Supervisor), the court ruled that, " . . . *the agency need not show that a certain level of damage is occurring before it implements an ADC program.*" The court further ruled that, "*Hence, to establish need for an ADC, the forest supervisors need only show that damage from predators is threatened.*" ADC accepts this standard and court

guidance as appropriate for establishing need in the analysis area. Predator damage management is based not on punishing offending animals, but rather as a means of preventing future damage from occurring.

1.1.1 Summary of the Proposed Action

The proposed action is to allow ADC to use the full range of predator damage management methods currently authorized *and* to use the LPC in addition to these methods. An integrated approach would be implemented which would allow the use of all appropriate techniques and methods, used singly or in combination, to meet requester needs. Currently authorized methods include: frightening devices (propane exploders, siren-strobe light devices, etc.), calling and shooting, aerial hunting, denning, traps, snares, M-44s, trained dogs, and DRC-1339 (for control of depredating common ravens (*Corvus corax*) and black-billed magpies (*Pica pica*)). The LPC would only be used in fenced pastures where coyote (*Canis latrans*) predation on sheep or goats had occurred. Livestock producers would still be provided with information and training on the use of nonlethal methods. Work Plans would be developed and reviewed annually to address specific activities and restrictions required to safely conduct predator damage management on public lands. ADC would be authorized to initiate corrective and/or preventive damage management in response to resource owner or wildlife agency requests using lethal and/or nonlethal methods as appropriate and as permitted under Federal and State laws and in accordance with local work plans. (See Chapter 3 for a more detailed description of the current program and the proposed action.)

1.1.2 Predator Damage Management to Protect Livestock

Contribution of Livestock to Idaho's Economy

Idaho agriculture generated about $2.9 billion in cash receipts in 1994 (Idaho Agricultural Statistics Service (IASS) 1995). Livestock production, primarily cattle and sheep, is one of the most significant agricultural products and industries, and accounted for about 23% of all agricultural cash receipts in 1994 (IASS 1995).

In 1994, only about 13% of the cattle and 6% of the sheep in the State were produced in the analysis area (Table 1.1). While this amounts to a minor portion of the Idaho's total livestock production, it is still of major economic importance to those individuals and local communities involved in producing these livestock. Livestock inventories vary throughout the year, but January 1996 livestock inventories for counties in the analysis area included about 216,500 cattle and calves and 15,400 sheep and lambs, valued at almost $125 million (IASS 1996).

Table 1.1
Livestock Inventories by County in the Analysis Area

	1996		1996	
Counties in Northern and Central Idaho Analysis Area	January 1, Sheep and Lamb Inventory	% of Total Idaho Inventory Per County	January 1, Cattle and Calf Inventory	% of Total Idaho Inventory Per County
Adams	400	0.15%	20,500	1.16%
Benewah	100	0.04%	3,900	0.22%
Bonner	600	0.22%	10,400	0.59%
Boundary	600	0.22%	5,700	0.32%
Clearwater	100	0.04%	4,400	0.25%
Custer	1,800	0.66%	36,500	2.06%
Idaho	2,500	0.92%	44,500	2.51%
Kootenai	600	0.22%	7,100	0.40%
Latah	3,100	1.13%	9,200	0.52%
Lemhi	4,900	1.78%	49,500	2.80%
Lewis	--	--	4,300	0.24%
Nez Perce	400	0.15%	14,500	0.82%
Shoshone	--	--	500	0.03%
Valley	300	0.11%	5,500	0.31%
Northern and Central Idaho	15,400	5.64%	216,500	12.23%
Total Idaho	273,000		1,770,000	

Scope of Livestock Losses

Cattle and calves are most vulnerable to predation at calving time and less vulnerable as they get older and larger (Shaw 1977, 1981, Horstman and Gunson 1982). Because calving occurs at lower elevations in late winter and early spring, vulnerability of cattle to mountain lions (*Felis concolor*) and

bears (*Ursus americanus* and *U. horribilis*) is reduced. Calves remain vulnerable to these predators during the spring through autumn when they are grazed in higher elevation areas that typically have more suitable habitats for mountain lions and bears. Sheep and lambs remain vulnerable to predation throughout the year, particularly from coyotes, and to mountain lions and bears whenever they spend time in habitats of these species (Henne 1977, Nass 1977, 1980, Tigner and Larson 1977, O'Gara et al. 1983, Shaw 1987). Domestic dogs are also responsible for significant predation on sheep and lambs throughout the year (IASS 1995). Lambs are sometimes vulnerable to red fox (*Vulpes vulpes*) predation in the spring, primarily at the lower elevations.

Bears and mountain lions (Mysterud 1977, Shaw 1987) are occasionally responsible for catastrophic incidents or large losses of sheep and lambs, sometimes called "surplus killing" when only selected tissues or parts are consumed or the carcasses are not fed on at all. Bears or mountain lions may also frighten an entire flock of sheep as they attack, resulting in a mass stampede. This sometimes results in many animals suffocating as they pile up on top of each other in a confined area, such as along thick willow growth in the bottom of a drainage or in corrals or night pens. During the summer of 1995, two such "pileup" incidents occurred in Idaho. One of these incidents was caused by a mountain lion attack and resulted in the confirmed death of 67 lambs and 14 ewes (MIS 1995). The other incident was caused by a black bear, resulting in a minimum of 150 confirmed sheep and lambs killed (MIS 1995). (Partial damage compensation claims were filed with the Idaho Department of Fish and Game (IDFG) in both incidents, as provided for under Idaho Code 36-1109.)

Many studies have shown that coyotes inflict high predation rates on livestock. Coyotes accounted for 93% of all predator-killed lambs and ewes on nine sheep bands in shed lambing operations in southern Idaho and did not feed on 25% of the kills (Nass 1977). Coyotes were also the predominant predator on sheep throughout a Wyoming study and essentially the only predator in winter (Tigner and Larson 1977).

Table 1.2 presents data compiled by the IASS (1995 and 1996) which quantifies Idaho sheep and lamb predation losses by species responsible, and the dollar value of those losses, for the years 1993 through 1995. The portion of these statewide losses occurring in the analysis area was estimated based on the fact that approximately 6% of the sheep occur in the analysis area (see Table 1.1). The total number of these losses confirmed by ADC is also provided in Table 1.2. Predator losses accounted for an average of 35% of the total death loss reported during these three years, with the remaining 65% attributable to weather, disease, poisonous plants, lambing complications, old age, theft, other, and unknown causes (IASS 1995).

Table 1.2

Sheep and Lamb Predator Losses: by Species, Idaho and Northern and Central Idaho Analysis Area, 1993 - 1995

Cause of Death	Sheep						Lambs						Value of All Sheep and Lambs 2/3/4/ $1,000		
	Head			Percent of Total Loss 1/			Head			Percent of Total Loss 1/					
	1993	1994	1995	1993	1994	1995	1993	1994	1995	1993	1994	1995	1993	1994	1995
Coyote	3,600	2,900	2,000	30.0	24.2	16.7	8,100	12,900	9,700	22.5	33.1	28.5	936.0	1,327.0	1,082
Dog	300	300	400	2.5	2.5	3.3	900	800	400	2.5	2.1	1.2	96.0	93.0	74
Bear	300	300	400	2.5	2.5	3.3	700	500	800	1.9	1.3	2.4	80.0	67.0	111
Cougar	–	100	600	–	0.8	5.0	–	200	700	–	0.5	2.1	–	25.0	120
Fox	–	–	100	–	–	0.8	–	–	500	–	–	1.5	–	–	56
Other 5/6/	100	200	0	0.8	1.7	0.0	900	800	400	2.5	2.1	1.2	80.0	84.0	37
Unknown Predator	–	–	100	–	–	0.8	–	–	100	–	–	0.3	–	–	19
Total Idaho Predator Losses 7/	4,300	3,800	3,600	35.8	31.7	30.0	10,600	15,200	12,600	29.4	39.0	37.1	1,192.0	1,596.0	1,499.0
Analysis Area Predator Losses	275	217	203				678	866	711				76.3	91.0	84.5
Confirmed by ADC in Analysis Area	99	132	48	36.0	60.9	23.6	240	233	198	35.4	26.9	27.9			

1/ Percentages may not add due to rounding

2/ Based on average beginning of year and end of year value of head: 1993 $80.00; 1994 $84.00, 1995 $92.50.

3/ Rounded to nearest 1,000 dollars.

4/ Dollar values were rounded to add to total.

5/ In 1993 includes bobcat, cougar, eagle and fox.

6/ In 1994 includes bobcat, eagle and fox.

7/ Total predator loss is an average of 34.6% of total death loss, the remainder is attributed to weather, disease, poison, lambing complications, old age, theft other and unknown causes.

Table 1.3 presents the most recent data compiled by the National Agricultural Statistics Service (NASS) on Idaho cattle and calf death losses due to predators (NASS 1996). The portion of these statewide losses occurring in the analysis area was estimated based on the fact that approximately 12% of the cattle are present in the analysis area. Predation accounted for 2.5% of the total death loss for calves in 1995 (estimated 159 calves in the analysis area), and 1.2% of the total death loss of adult cattle (estimated 37 adult cattle in the analysis area). Value of cattle and calves killed by predators in the analysis area in 1995, based on average 1995 prices of $655.00 and $273.00 for cattle and calves, respectively (NASS 1996) was about $67,642.

Table 1.3
Idaho Cattle and Calf Death Losses to Predators, 1995

Cause of Death	Cattle	% of Total Predation	Calves	% of Total Predation
Coyotes	100	33.3%	800	61.5%
Dogs	1/	2/	100	7.7%
Mountain Lion/Bobcats	1/	2/	100	7.7%
Other Predators	100	2/	300	8.3%
Total Predator Losses	300		1,300	
Predator Losses in Analysis Area	37		159	
Confirmed by ADC in Analysis Area	2	5.5%	35	22.0%

1/ Less than 100 head for the entire state
2/ Not measurable due to rounding
Note: Totals do not add up due to rounding.

Connolly (1992a) determined that only a fraction of the total predation attributable to coyotes is reported to or confirmed by ADC. Connolly also suggested that the fraction of actual losses typically confirmed by ADC could be expected to be between 5-20% (Connolly 1992b). ADC personnel do not try to find every head of livestock reported to be killed by predators, but rather to investigate to verify whether or not predation has occurred, and if so, what species is responsible. As shown at the bottom of Table 1.2, ADC confirmed an average of about 30-40% of the sheep and lambs reported to be killed by predators in the analysis area between 1993 and 1995. This is higher than Connolly's estimated 5-20%, probably because most of these sheep and lamb losses were suffered by farm flock operators as opposed to range sheep operations. Predator kills are more likely to be discovered in smaller fenced pastures than they are when sheep are herded over vast expanses of unfenced rangeland. Table 1.4 provides information on the livestock and poultry in the analysis area confirmed by ADC as predator losses in FY 95 (MIS 1995). This information represents only a small percentage of the total losses, but does provide information on what types of predator losses occurred in the analysis area. Table 1.5 provides a county-by-county breakdown of these confirmed losses.

Table 1.4
Northern and Central Idaho Analysis Area Confirmed Losses FY 95

	Lambs	Sheep	Cattle	Calves	Goats	Pigs	Fowl	Rabbit	Foal	Pets	Dollar Value
Coyotes	85	31	2	23	6	8	13	3	1	6	27,802
Mt. Lion	9	1	0	2	8	0	1	0	0	1	5,425
Black Bear	38	15	0	2	0	0	0	0	0	0	4,760
Raven	0	0	0	4	0	0	0	0	0	0	1,500
Dog	3	1	0	4	0	0	0	0	0	0	625
Fox	2	0	0	0	0	0	25	0	0	0	265
Raccoon	0	0	0	0	0	0	2	0	0	0	100
Bobcat	1	0	0	0	0	0	4	0	0	0	130
Total	198	48	2	35	14	8	45	3	1	7	$40,607

Predation on livestock can have a significant economic impact on livestock producers, and although it would be impossible to specifically determine the exact amount of livestock saved from predation by ADC's efforts, it can be estimated. Scientific studies reveal that in areas without some level of predator damage management, losses of adult sheep and lambs to predators can be as high as 8.4% and 29.3% respectively (Henne 1977, Munoz 1977, O'Gara et al. 1983) as compared with areas with control at about 0.5% and 4.3%, respectively (USDI 1979). Additional

research suggests that without effective damage control efforts to protect livestock, predation losses would be higher (Nass 1977, 1980, Howard and Shaw 1978, Howard and Booth 1981, O'Gara et al. 1983).

Table 1.5
Northern and Central Idaho Analysis Area Confirmed Losses by County for FY 95

	Lambs	Sheep	Cattle	Calves	Goats	Pigs	Fowl	Rabbit	Foal	Pets	Dollar Value
1/ Adams	8	4					2				1,020
Benewah	2				1						250
Bonner	7	1	1	1			1			1	2,280
Boundary		1									90
Clearwater				1			6	3			565
2/ Custer	65	13		9			25			1	7,787
3/ Idaho	32	5	1	11			3			1	8,575
Kootenai				1	8					3	3,800
Latah	1	2		3	1		4				1,095
4/ Lemhi	39	6		2	4	8					4,275
Lewis				1						1	600
Nez Perce	1	4		6			4		1		6,150
Shoshone											0
5/ Valley	43	12									4,120
Total	198	48	2	35	14	8	45	3	1	7	40,607

1/ Includes 1 ewe and 1 lamb on the Payette Forest and 5 lambs on the Boise BLM District.

2/ Includes 1 ewe on the Sawtooth Forest.

3/ Includes 2 ewes and 2 lambs on the Nez Perce Forest and 16 lambs on the Payette Forest.

4/ Includes 3 ewes and 3 lambs on the Salmon BLM District.

5/ Includes 12 ewes and 39 lambs on the Payette Forest.

1.1.3 Predator Damage Management to Protect Wildlife

Under certain conditions, predators, primarily coyotes can have a significant adverse impact on other wildlife populations, and this predation is not necessarily limited to sick or inferior animals (Pimlott 1970, Bartush 1978, USDI 1978, Hamlin et al. 1984, Neff et al. 1985, Shaw 1977). Connolly (1978) reviewed 68 studies of predation on wild ungulate populations and concluded that in 31 cases, predation was a limiting factor. These cases showed that coyote predation had a significant influence on white-tailed deer (*Odocoileus virginianus*), black-tailed deer (*O. hemionus columbianus*), pronghorn antelope (*Antilocapra americana*) and bighorn sheep (*Ovis canadensis*) populations. Some degree of predation on ungulate populations is not necessarily detrimental, and may even be beneficial. But when predation levels exceed what is considered desirable under prescribed management objectives, predator control to protect ungulate populations may be desirable.

Predator damage management undertaken to protect livestock can be coordinated to augment wildlife management objectives set by IDFG or the USFWS. Conversely, a lack of predator damage management to protect livestock could conceivably result in adverse impacts to some wildlife species (Connolly 1978). Predator damage management for the protection of selected wildlife species would only be conducted at the request of the responsible wildlife management agency.

Deer

Mackie et al. (1976) documented high winter loss of mule deer (*Odocoileus hemionus*) to coyote predation in north-central Montana and stated that coyotes were the cause of most overwinter deer mortalities. Teer et al. (1991) documented that coyote diets contained nearly 90% deer during May and June. They concluded from work done at

the Welder Wildlife Refuge in Texas that coyotes take a large portion of the fawns each year during the first few weeks of life. Another Texas study (Beasom 1974a) found that predators were responsible for 74% and 61% of the fawn mortality for two consecutive years. Garner (1976), Garner et al. (1976) and Bartush (1978) found annual losses of deer fawns in Oklahoma to be about 88% with coyotes responsible for 88% to 97% of the mortality. Remains of 4 to 8 week old fawns were also common in coyote scats (feces) in studies from Steele (1969), Cook et al. (1971), Holle (1977), Litvaitis (1978), Litvaitis and Shaw (1980). Hamlin et al. (1984) observed that a minimum of 90% summer mortality of fawns was a result of coyote predation. Trainer et al.(1981) reported that heavy mortality of mule deer fawns during early summer and late autumn and winter was limiting the ability of the population to maintain or increase itself. Their study concluded that predation, primarily by coyotes, was the major cause for low fawn survival on Steens Mountain in Oregon. Other authors observed that coyotes were responsible for most fawn mortality during the first few weeks of life (Knowlton 1964, White 1967).

Guthery and Beasom (1977) showed that after coyote damage management, deer fawn production was more than 70% greater after the first year, and 43% greater after the second year in their southern Texas study area. Mule deer fawn survival was significantly increased and more consistent inside a predator-free enclosure in Arizona (LeCount 1977, Smith and LeCount 1976). Stout (1982) increased deer production on three areas in Oklahoma by 262%, 92% and 167% the first summer following coyote damage management, an average increase of 154% for the three areas. Knowlton and Stoddart (1992) reviewed deer productivity data from the Welder Wildlife Refuge following coyote population reduction. Deer densities tripled compared with those outside the enclosure, but without harvest management, ultimately returned to original densities due primarily to malnutrition and parasitism.

Pronghorn Antelope

Jones (1949) believed that coyote predation was the main limiting factor of pronghorn antelope in Texas. A six-year radio telemetry study of pronghorn antelope in western Utah showed that 83% of all fawn mortality was attributed to predators (Beale and Smith 1973). Major losses of pronghorn antelope fawns to predators have been reported from additional radio telemetry studies (Beale 1978, Barrett 1978, Bodie 1978, Von Gunten 1978, Hailey 1979, and Tucker and Garner 1980).

In Arizona, Arrington and Edwards (1951) showed that intensive coyote damage management was followed by an increase in pronghorn antelope to the point where antelope were once again huntable, whereas on areas without coyote control this increase was not noted. Coyote damage management on Anderson Mesa, Arizona increased the herd from 115 animals to 350 in three years, and peaking at 481 animals in 1971. After coyote damage management was stopped, pronghorn fawn survival dropped to only 14 and seven fawns per 100 does in 1973 and 1979, respectively. Initiation of another coyote damage management program began with the reduction of an estimated 22% of the coyote population in 1981, 28% in 1982, and 29% in 1983. Pronghorn antelope populations on Anderson Mesa, during 1983, showed a population of 1008 antelope, exceeding 1000 animals for the first time since 1960. Fawn production increased from a low of seven fawns per 100 does in 1979 to 69 and 67 fawns per 100 does in 1982 and 1983, respectively (Neff et al. 1985). After a five-year study, Neff and Woolsey (1979, 1980) determined that coyote predation on pronghorn antelope fawns was the primary factor causing fawn mortality and low pronghorn densities on Anderson Mesa, Arizona. Similar observations of improved pronghorn antelope fawn survival and population increase following predator damage management have been reported by Riter (1941), Udy (1953), and Bodenchuk (1995). Coyote population reduction was necessary and cost effective in pronghorn antelope management, as shown by Smith et al. (1986).

Bird Species of Special Concern

In a study of waterfowl nesting success in Canada, researchers found that eggs in most nests were lost to predators, including red fox, coyote, striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), Franklin's ground squirrel (*Citellus franklini*), badger (*Taxidea taxus*), black-billed magpie and American crow (*Corvus brachyrhynchos*) (Johnson, et. al. 1988). Cowardin et al. (1985) determined that predation was by far the most important cause of nest failure in mallards (*Anas platyrhynchos*) on their study area. Various studies have shown that skunks and raccoons are major waterfowl nest predators that can contribute to poor nesting success (Keith 1961, Urban 1970, Bandy 1965). On the Sterling Wildlife Management Area in southern Idaho, striped skunks, red fox and black-billed magpies were documented as common predators of nesting ducks, with magpie predation identified as the most

significant factor limiting waterfowl production (Gazda and Connelly 1993). Thomas (1989) and Speake (1985) reported that predators were responsible for more than 40% of nest failures of wild turkeys (*Meleagris gallopavo*) in New Hampshire and Alabama, respectively. Everret et al. (1980) reported that predators destroyed seven of 8 nests on his study area in northern Alabama. Lewis (1973) and Speake et al. (1985) reported that predation was also the leading cause of mortality in turkey poults, and Kurzejeski et al. (1987) reported in a radio-telemetry study that predation was the leading cause of mortality in hens. Wakeling (1991) reported that the leading natural cause of mortality among older turkeys was coyote predation, with the highest mortality rate for adult females occurring in winter. Other researchers report that hen predation is also high in spring when hens are nesting and caring for poults (Speake et al. 1985, Kurzejeski et al. 1987, Wakeling 1991). Dumke and Pils (1973) reported that ringed-neck pheasant (*Phasianus colchicus*) hens were especially prone to predation during the nest incubation period.

In documenting an extensive study of the effects of red fox predation on waterfowl in North Dakota, Sargeant, et al. (1984) concluded that reducing high levels of predation was necessary to increase waterfowl production. Williams et al. (1980) reported that a 72% hatching success of wild turkey eggs following a predator poisoning campaign, but only 59% when predators were not poisoned. Balser et al. (1968) determined that predator damage management resulted in 60% greater production in waterfowl in areas with damage management as compared with areas without damage management. He also recommended that when conducting predator damage management, to target the entire predator complex or compensatory predation may occur by a species not under control, a phenomena also observed by Greenwood (1986).

Drewien et. al. (1985) found predation by coyotes and red fox on endangered whooping crane eggs and chicks was common during a whooping crane cross-fostering experiment at Grays Lake National Wildlife Refuge in southeastern Idaho. Predator control measures were implemented in response to this finding, and the authors concluded that predator control was probably effective in reducing mortality of whooping cranes and other avian species nesting at Grays Lake.

Clearly, under some circumstances, predator damage management can be an important tool in achieving and maintaining specific wildlife management objectives. If predator damage management is undertaken in the analysis area specifically to protect wildlife, it would be at the request of IDFG or the USFWS to meet their management objectives.

1.1.4 Predator Damage Management to Protect Public Safety

The IDFG has responsibility for managing resident wildlife species in Idaho and the lead responsibility for responding to complaints of black bears or mountain lions causing a nuisance or public safety concern (IDFG 1988). ADC provides assistance in responding to these types of incidents and other wildlife threats (i.e., disease) when requested by the IDFG. ADC cooperates with IDFG and other agencies in responding to any incidents involving threats to human safety from grizzly bears. Within the analysis area, human interactions with bears and mountain lions could occur wherever habitat or food sources overlap with human activities. Skunks, raccoons and other predator species can transmit rabies, distemper, as well as other disease to pets, domestic livestock and humans.

Black bears may occasionally pose a threat to humans when they habituate to urban or residential locations, or recreation areas such as campgrounds or picnic areas. The IDFG responds to most of these situations by live capturing bears in culvert traps and relocating them, but may sometimes request ADC assistance.

Although rare, mountain lion attacks on humans in the western U.S. and Canada have increased markedly in the last two decades, primarily due to increased mountain lion populations and human use of mountain lion habitats (Beier 1992). No mountain lion-caused fatalities have been documented in Idaho, but recent fatal attacks in California, Colorado and British Columbia emphasize the need for awareness. In FY 95, ADC responded to five incidents in the analysis area where mountain lions were perceived as posing a threat to public safety.

Coyotes sometimes create public safety threats when they spend time on airport runways. Although there have not yet been any reported incidents of coyotes being struck by departing or landing aircraft in the analysis area, such incidents have occurred at airports in other areas. ADC has responded to a number of requests from airports in Idaho where the presence of coyotes on runways was considered a potential public safety hazard. During FY 95, ADC responded

to the Lewiston/Nez Perce County airport manager's request to control coyotes because of pilot reports of several near misses involving coyotes and landing or departing aircraft.

1.1.5 ADC Objectives

The following objectives were established by ADC in consultation with the other cooperating agencies. The relative degree to which each alternative allows meeting these objectives will be considered when making a final decision on which alternative to implement.

1. Respond to 100% of requests for assistance with the appropriate action to most effectively resolve the problem, as determined by ADC personnel applying the ADC Decision Model (Slate et al. 1992).

2. Hold lamb losses due to predation to 5% or less annually, and adult sheep losses to 3% or less annually. (Percent predator loss would be determined annually using survey data supplied by the IASS).

3. Provide 100% of requesting livestock owners and cooperating agencies with information on effective nonlethal management techniques for reducing predation.

4. Ensure that the lethal take of non-target wildlife by ADC personnel during predator damage management does not exceed 5% of the target take in the analysis area.

5. Monitor the use of nonlethal, cooperator-implemented damage management methods.

6. Respond to 100% of requests for assistance from IDFG.

1.2 Relationship of this EA to Other Environmental Documents

1.2.1 ADC Programmatic EIS. ADC has issued a final EIS (USDA 1994) and Record of Decision on the National APHIS-ADC program. This EA is tiered to that EIS.

1.2.2 National Forest Land and Resource Management Plans (LRMPs). The National Forest Management Act requires that each National Forest prepare a Land and Resource Management Plan (LRMP) for guiding long range management and direction. The decision made from this document would need to be consistent with the LRMPs for the Boise, Challis, Nez Perce, Payette, and Sawtooth National Forests. Specific guidance from these LRMPs includes: *Boise-* Predator damage management is to be specific to minimize negative impacts on threatened and endangered (T&E) species. *Challis-* Provides that predator damage management would be allowed on grazing allotments where need is demonstrated. *Nez Perce-* Predator damage management occurs to minimize livestock losses by predators and that predicides and poisons are used only after an analysis clearly shows that no other method would meet the need. *Payette-* No specific guidance provided. *Sawtooth-* Control problem animals on a case-by-case basis in cooperation with State and Federal wildlife agencies using methods directed at the offending animal(s), but present the least risk to other wildlife and/or visitors. On the Ketchum and Fairfield Ranger Districts, no M-44s are allowed but the LPC may be allowed. No aerial hunting would be conducted in the Sawtooth Wilderness.

1.2.3 National Forest EAs for Predator Damage Management. Five of the National Forests (Boise, Challis, Nez Perce, Payette, Sawtooth) that fall wholly or partly within the northern and central Idaho analysis area currently have EAs and Decision Records addressing predator damage management. This EA incorporates by reference all of the applicable site-specific documentation of need and site-specific analysis of impacts from the EAs prepared by the Boise (1991), Challis (1993), Nez Perce (1991), Payette (1990), and Sawtooth (1993) National Forests. Predator damage management will continue under these documents until superseded by a new decision document.

1.2.4 BLM Resource Management Plans (RMPs). The BLM currently uses RMPs to guide management on lands they administer. RMPs generally replace older land use plans known as management framework plans. Any decision made because of this EA process will be consistent with guidance in these RMPs regarding ADC activities. All of the current EAs and decisions related to ADC work on BLM lands are consistent with current RMPs. The primary difference between ADC's currently proposed action and the alternatives implemented under existing BLM EAs is the

inclusion of the LPC. The LPC would not be used on BLM lands, however, so ADC's proposed action under this EA would be consistent with existing RMPs. If a change in an RMP is deemed appropriate by BLM and ADC to better facilitate accomplishment of the respective agency missions, amendment of an RMP may be considered.

1.2.5 BLM EAs for Predator Damage Management. The Upper Columbia/Salmon/Clearwater and Lower Snake River BLM Districts were formerly called the Coeur d'Alene and Salmon, and the Boise BLM Districts, respectively. EAs were prepared by the Coeur d'Alene (1992), Salmon (1993) and Boise (1993) BLM Districts to address ADC predator damage management in those three areas. This EA incorporates by reference all of the applicable site-specific documentation of need and site-specific analysis of impacts from those three EAs. Predator damage management will continue under these documents until they are superseded by a new decision document.

1.2.6 Final EIS on The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho. Part of the analysis area (south of I-90) falls within the nonessential experimental population area identified for Central Idaho. The Final *Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho EIS* and 50 CFR 17.84 provide guidance on when, where, and how wolf damage management would be conducted. Any decision made as a result of this EA process would be consistent with that guidance. As wolf management guidelines change in response to increasing wolf populations, ADC would cooperate with other involved agencies in conforming to revised guidelines.

1.2.7 Nez Perce Tribal Wolf Recovery and Management Plan. The USFWS has entered into a cooperative agreement with the Nez Perce Tribe which allows the Tribe to assume responsibilities for recovery and mangement of gray wolves in designated areas of Idaho. The *Nez Perce Tribal Wolf Recovery and Management Plan* is based on mangement policy set forth in the Final EIS and the Final Experimental Population Rules, and addresses the Tribe's management obligations defined under the the cooperative agreement with the USFWS. This plan designates ADC as the lead entity responsible for control of problem wolves. ADC would cooperate and coordinate closely with the USFWS and the Nez Perce Tribe in carrying out this responsibility.

1.2.8 IDFG Management Plans. The IDFG Wildlife Depredation Plan clarifies the legal roles and responsibilities of the IDFG and other agencies regarding wildlife damage management. Specific management plans for black bear, mountain lions, and furbearers outline management goals and objectives for these species. Any decision because of this EA process would be consistent with guidance in these plans.

1.2.9 Guidelines for Determining Grizzly Bear Nuisance Status and for Controlling Nuisance Grizzly Bears in Northern Idaho and Washington. This plan addresses when and how management of nuisance grizzly bears would occur in northern Idaho and defines agency roles and responsibilities. Any decision made as a result of this EA process would be consistent with these guidelines.

1.3 Decision to be Made

Based on agency relationships, Memoranda of Understanding (MOUs) and legislative direction, ADC is the lead agency for this EA, and therefore responsible for the scope, content and decisions made. The Forest Service and BLM, along with the IDFG, Idaho Department of Agriculture, and Idaho Department of Lands, had input throughout the EA preparation to ensure an interdisciplinary approach in compliance with NEPA and agency mandates, policies and regulations.

Based on the scope of this EA, the decisions to be made are:

-Should predator damage management as currently implemented be continued in the analysis area (the no action alternative)?

-If not, how should ADC fulfill its legislative responsibilities in the analysis area?

-Might the proposal have significant impacts requiring preparation of an EIS?

1.4 Scope of this EA

1.4.1 Actions Analyzed. This EA evaluates planned predator damage management activities to protect livestock, poultry, apiaries, and/or designated wildlife species (as determined by IDFG or USFWS) from predation by coyotes, black bears, mountain lions, red fox, bobcats *(Lynx rufus)*, gray wolves, grizzly bears, raccoons, striped skunks, feral house cats, common ravens, and/or black-billed magpies. This EA also analyzes activities to protect public safety from black bears, mountain lions and coyotes. Protection of other agricultural resources and other program activities will be addressed in other NEPA documents.

1.4.2 Wildlife species potentially protected by ADC. IDFG has previously requested ADC assistance to protect nesting waterfowl from predation by skunks, raccoons, feral house cats, red fox, coyotes, common ravens and black-billed magpies; ring-necked pheasants from predation by feral house cats, striped skunks, and red fox; and wild turkeys, white-tailed deer and mule deer from coyote predation. Also, the USFWS has requested assistance in the past to protect endangered whooping cranes (*Grus americana*) from coyote and red fox predation at Grays Lake National Wildlife Refuge. If the IDFG or USFWS identify additional species in need of protection, a determination would be made on a case-by-case basis to determine if additional NEPA analysis would be needed.

1.4.3 American Indian Lands and Tribes. Presently, no tribes have Cooperative Agreements with ADC for conducting predator damage management activities. If a tribe enters into a Cooperative Agreement, this EA would be supplemented pursuant to NEPA if necessary.

1.4.4 Period for which this EA is Valid. This EA will remain valid until ADC and other appropriate agencies determine that new needs for action, changed conditions or new alternatives having different environmental effects must be analyzed. At that time, this analysis and document will be supplemented pursuant to NEPA. Review of the EA would be conducted each year at the time of the work planning process by ADC and cooperating agencies to ensure that the EA is complete and appropriate.

1.4.5 Site Specificity. This EA addresses the potential impacts of predator damage management on all lands under Cooperative Agreement, Agreement for Control or ADC Work Plans in the analysis area. These lands are under the jurisdiction of the Forest Service, BLM, USFWS, State, County, municipal, and private ownership. As noted earlier, this EA incorporates by reference all of the applicable site-specific documentation of need and site-specific analysis of impacts from those previously prepared EAs covering ADC activities on Federal lands in the analysis area. It also addresses the potential impacts of predator damage management on areas where additional agreements may be signed in the foreseeable future. Because the proposed action is to reduce predator damage, and because the program's goals and directives are to provide service when requested and appropriate, within the constraints of available funding and workforce, it is conceivable that additional predator damage management efforts could occur. This EA emphasizes major issues as they relate to specific areas whenever possible; however, many issues apply wherever predator damage and resulting management occur, and are treated as such. The standard ADC Decision Model (Slate et al. 1992) will be the site-specific procedure for individual actions conducted by ADC in the analysis area. (See Chapter 3 for a description of the ADC Decision Model and its application.)

1.4.6 Summary of Public Involvement.

Issues related to the proposed action were initially developed through a multiagency process involving ADC, the Forest Service, BLM, IDFG, IDA, and the Idaho Department of Lands (IDL). Because of the public interest that had previously been expressed during preparation of other EAs on predator damage control, public involvement was considered appropriate for the development of this EA. A public involvement letter containing a preliminary list of issues, objectives and alternatives, along with a summary of the need for action, was sent to about 235 individuals or organizations who had identified an interest in ADC issues, and to the Coeur d'Alene and Nez Perce Tribes. Notice of the proposed action and availability of the public involvement letter were placed in the four major newspapers covering the analysis area. A total of 21 comment letters or cards were received during the initial public involvement period. The responses represented a wide range of opinions, both supporting and opposing the proposal. All comments were analyzed to identify any new issues or alternatives, or to redirect the objectives of the program. A summary of the issues raised is presented in Chapter 2.

Results of Public Review of this EA

Any additions or revisions deemed necessarily after reviewing public comments related to this EA will be handled either through revision of the EA or by addressing specific public comments through the written decision document.

1.5 Authority and Compliance

1.5.1 Authority of Federal[1] and State Agencies in Predator Damage Management in Idaho

ADC Legislative Authority

The primary statutory authority for the ADC program is the Animal Damage Control Act of 1931, as amended, which provides that:

"The Secretary of Agriculture is authorized and directed to conduct such investigations, experiments, and tests as he may deem necessary in order to determine, demonstrate, and promulgate the best methods of eradication, suppression, or bringing under control on national forests and other areas of the public domain as well as on State, Territory or privately owned lands of mountain lions, wolves, coyotes, bobcats, prairie dogs, gophers, ground squirrels, jackrabbits, brown tree snakes and other animals injurious to agriculture, horticulture, forestry, animal husbandry, wild game animals, furbearing animals, and birds, and for the protection of stock and other domestic animals through the suppression of rabies and tularemia in predatory or other wild animals; and to conduct campaigns for the destruction or control of such animals. Provided that in carrying out the provisions of this Section, the Secretary of Agriculture may cooperate with States, individuals, and public and private agencies, organizations, and institutions."

Since 1931, with the changes in societal values, ADC policies and its programs place greater emphasis on the part of the Act discussing "*bringing* (damage) *under control*," rather than "*eradication*" and "*suppression*" of wildlife populations. In 1988, Congress strengthened the legislative authority of ADC with the Rural Development, Agriculture, and Related Agencies Appropriations Act. This Act States, in part:

"That hereafter, the Secretary of Agriculture is authorized, except for urban rodent control, to conduct activities and to enter into agreements with States, local jurisdictions, individuals, and public and private agencies, organizations, and institutions in the control of nuisance mammals and birds and those mammal and bird species that are reservoirs for zoonotic diseases, and to deposit any money collected under any such agreement into the appropriation accounts that incur the costs to be available immediately and to remain available until expended for Animal Damage Control activities."

Idaho State ADC Board

Establishment of the Idaho State ADC Board was provided for under Idaho Code 25-128. The Board is composed of the Chairman of the State Board of Sheep Commissioners, a representative of the Idaho Cattle Association, the Director of the IDA, the Director of the IDFG, and the Chairmen of the 5 ADC Districts in the State of Idaho. The Board is responsible for coordinating and giving general direction to, "*Programs to prevent and control damage or conflicts on federal, state, or other public or private lands caused by predatory animals, rodents, or birds injurious to animal husbandry, agriculture, horticulture, forestry, wildlife and human health or safety . . .* " Under the provisions of an MOU between the State ADC Board and the APHIS-ADC program, ADC cooperates with the Board in carrying out wildlife damage management in Idaho.

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[1] A more detailed discussion of ADC legal authorities and key legislation pertinent to wildlife damage management can be found in Chapter 1 of the ADC FEIS (USDA 1994).

Idaho Department of Fish and Game (IDFG)

In Idaho, management of resident wildlife species, including black bear, mountain lion and furbearers, is the responsibility of the IDFG. However, under the current MOU between IDFG and the State ADC Board, ADC is responsible for responding to livestock damage caused by black bear, mountain lion, red fox and bobcat. Idaho Code 36-1109, states that "*Prevention of depredation shall be a priority management objective of the department (IDFG), and it is the obligation of landowners to take all reasonable steps to prevent property loss from black bears or mountain lions or to mitigate damage by such.*" This statute further provides for monetary compensation to landowners suffering livestock depredations from black bear or mountain lions, or when black bears damage berries or honey on private land. Damage must be confirmed by ADC, and there is a $1000 deductible per occurrence.

Under Idaho Code 36-1107, the Director of IDFG may authorize landowners or lessees to take any protected wildlife species causing damage to property. This law also authorizes livestock owners or their employees to take black bears or mountain lions that are molesting livestock, without the need for any special permit or authorization.

Idaho Department of Agriculture (IDA)

Under the provisions of Idaho Code 22-103(24), the Director of the IDA is authorized and responsible, "*To take all steps that are deemed necessary to prevent and control damage or conflicts on federal, state, or other public or private lands caused by predatory animals, rodents, or birds, including threatened or endangered wildlife within the state of Idaho as are established by federal or state law, federal or state regulation, or county ordinance, that are injurious to animal husbandry, agriculture, horticulture, forestry, wildlife and human health and safety.*" Under Idaho Code 22-102A, the IDA is also responsible for issuance of private aerial hunting permits for predator damage management. This function is handled for the IDA through the State ADC Board.

U.S. Forest Service (Forest Service) and Bureau of Land Management (BLM)

The Forest Service and BLM have the responsibility to manage the resources of Federal lands for multiple uses including livestock grazing, timber production, recreation and wildlife habitat, while recognizing the State's authority to manage wildlife populations. Both the Forest Service and BLM recognize the importance of reducing wildlife damage on lands and resources under their jurisdiction, as integrated with their multiple use responsibilities. For these reasons, both agencies have entered into MOUs with ADC to facilitate a cooperative relationship. Copies of these MOUs are available by contacting the ADC State Director's office in Boise, Idaho.

U.S. Fish and Wildlife Service and the Nez Perce Tribe

The USFWS has the statutory authority to manage Federally listed T&E species through the Endangered Species Act of 1973. As noted under Section 1.2.7, ADC would cooperate and work closely with the USFWS and the Nez Perce Tribe in responding to reported incidents of wolf depredation on livestock. Any wolf control actions that might take place would be carried out under the guidelines described in the Final Experimental Population Rules (50 CFR 17.84) and in cooperation with all of the involved agencies.

1.5.2 Compliance with Federal Laws. Several Federal laws regulate ADC's wildlife damage management. ADC complies with these laws, and consults and cooperates with other agencies as appropriate.

National Environmental Policy Act. Environmental documents pursuant to NEPA must be completed before work plans, consistent with the NEPA supported decision, can be developed and implemented. Before 1993, each National Forest (and occasionally individual Ranger Districts) and each BLM District prepared its own NEPA document. This resulted in different requirements and procedures for different agencies and areas, and did not analyze predator damage management on lands under other ownership or jurisdiction. This EA, with ADC as the lead agency, is the first time that all land classes under Cooperative Agreements, Agreements for Control and ADC Work Plans will be analyzed in a comprehensive manner in the analysis area.

ADC also coordinates specific projects and programs with other agencies. The purpose of these contacts is to coordinate any predator damage management that may affect resources managed by these agencies or that may affect other areas of mutual concern. Federal agencies that request ADC assistance to protect resources outside the species discussed in this EA are responsible for NEPA compliance.

Endangered Species Act (ESA) Under the ESA, all Federal agencies are charged with a responsibility to conserve endangered and threatened species and to utilize their authorities in furtherance of the purposes of the Act (Sec.2(c)). ADC conducts consultations with the USFWS, as required by Section 7 of the ESA, to ensure that, "*..any action authorized, funded or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species . . .* " (Sec.7(a)(2)).

Migratory Bird Treaty Act The Migratory Bird Treaty Act provides the USFWS regulatory authority to protect birds that migrate. The law prohibits any "take" of these species, except as permitted by the USFWS.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) FIFRA requires the registration, classification, and regulation of all pesticides used in the United States. The Environmental Protection Agency (EPA) is responsible for implementing and enforcing FIFRA. All chemical methods used by ADC in the analysis area are registered with and regulated by the EPA and the IDA. All ADC use of pesticides is carried out in compliance with labeling requirements.

National Historical Preservation Act (NHPA) of 1966 as amended The NHPA requires: 1) Federal agencies to evaluate the effects of any Federal undertaking on cultural resources, 2) consult with the State Historic Preservation Office regarding the value and management of specific cultural, archaeological and historic resources, and 3) consult with appropriate American Indian tribes to determine whether they have concerns for traditional cultural resources in areas of these Federal undertakings. ADC consulted with the Idaho State Historical Society and it was determined that none of the activities under ADC's proposed action would likely have any impact on cultural or historical resources. ADC also contacted the Coeur d'Alene and Nez Perce Tribes regarding any potential concerns they might have about ADC's proposed action, but neither of the Tribes expressed any concerns.

1.6 A Preview of the Remaining Chapters in this EA

The remainder of this EA is composed of three additional chapters and three appendices. Chapter 2 discusses and analyzes the issues and affected environment. Chapter 3 contains a description of each alternative, alternatives not considered in detail, mitigation and standard operating procedures. Chapter 4 contains analyses of how each alternative addresses the objectives identified in Chapter 1 and the issues identified in Chapter 2.

2.0 CHAPTER 2: ISSUES AND AFFECTED ENVIRONMENT

Introduction

Chapter 2 contains a discussion of the issues, including issues that will receive detailed environmental impacts analysis in Chapter 4 (Environmental Consequences), issues that were used to develop mitigation measures and standard operating procedures, and issues that will not be considered in detail, with the rationale. Pertinent portions of the affected environment will be included in this chapter in the discussion of issues used to develop mitigation measures. Additional affected environments will be incorporated into the discussion of the environmental impacts in Chapter 4 and the description of the current program (the "no action" alternative) in Chapter 3.

2.1 Issues Analyzed in Detail in Chapter 4

A multi agency team, consisting of representatives from the lead (ADC) and cooperating agencies (BLM, Forest Service, IDFG, IDA, and Idaho Department of Lands) concurred in the identification of the following major issues:

Issue 1. Cumulative impacts on viability of wildlife populations. (This will include consideration of the following related issue:)
- Potential for ADC take of predators to negatively impact recreational or commercial harvest of predators.

Issue 2. Effectiveness and selectivity of control methods. (This will include consideration of the following related issues:)
- Potential for ADC methods to take nontarget animals.
- Need for a wide variety of control methods.
- Criteria for deciding what methods will be used.
- Use of "preventive" control work.

Issue 3. Risks posed by control methods to the public and domestic pets

Issue 4. Concern about ADC impacts on threatened and endangered (T&E) species.

2.2 Issues Used To Develop Mitigation

2.2.1 Predator Damage Management in Special Management Areas on Federal Lands.

A number of different types of areas exist on Federal lands within the analysis area which currently have a special designation and/or require special management consideration. These include wilderness areas (WAs) or primitive areas (PAs), wilderness study areas (WSAs), research natural areas (RNA's), areas of critical environmental concern (ACECs), and national recreation areas (NRAs). The special management required for these different areas varies considerably by designation and land administrator, and is governed by different legal mandates.

Wilderness or primitive areas are areas designated by Congress to be managed for the preservation of wilderness values. These areas are currently on Forest Service lands.

ADC has conducted some predator damage management in special management areas in the past. Recreationists and others interested in special management areas (particularly wilderness) may consider these activities to be an invasion of solitude and that it may adversely affect the aesthetic quality of the wilderness experience.

ADC predator damage management is conducted (and is proposed to continue in the future) in wilderness areas only in limited instances, when and where a specific need is identified, only when allowed under the provisions of the specific wilderness designation, and with the concurrence of the land managing agency.

ADC activities in special management areas have historically been, and are expected to continue to be a minor part of the overall ADC program. Restrictions on activities in wilderness and wilderness study areas are listed at the end of Chapter 3 under Mitigation.

BLM and Forest Service Special Management Areas

WSA's. WSA's are areas studied for their potential to qualify as wilderness areas and are currently awaiting Congressional designation. These are primarily BLM lands and managed in accordance with the BLM's WSA Handbook H-8550-1 in a manner that does not diminish their wilderness values (BLM, 1995). This interim management allows for continuation of most prior (non-land disturbing) activities and does not preclude predator damage management. At present, however, there are no WSA's in the analysis area where ADC conducts predator damage management. If there is any need for predator damage management activities on a WSA in the future, ADC and BLM would confer on a case-by-case basis.

RNA's. RNA's are Federal lands managed for the protection of unusual, scientific, or special interest natural characteristics for research and education. BLM policy does not automatically exclude wildlife damage management within these areas, but ADC activities are restricted to corrective control only. Currently, however, there are no RNA's in the analysis area where ADC conducts predator damage management. If there is any need for predator damage management activities on an RNA in the future, ADC and the responsible land management agency would confer on a case-by-case basis.

ACEC's. ACEC's are BLM lands for which special management is deemed necessary. However, it should be noted that the legal mandate for designation and management for ACEC's comes from the Federal Land Policy and Management Act (FLPMA) and is considerably different than either RNA or wilderness designations. FLPMA defines an ACEC as an area "*within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.*" ACEC's can be and are designated for a wide variety of special management situations ranging from maintaining near pristine scenic quality to the management of a hazardous waste dump. ACEC's can be and are often designated for multiple uses. ACEC designation does not, by itself, preclude wildlife damage management, instead, the individual management prescriptions developed and presented within a given ACEC management plan determine what is allowable.

NRA's. NRA lands are managed primarily for recreational use, but the Hells Canyon National Recreation Area (HCNRA) Act of December 31, 1975 allows for grazing and other multiple-uses to occur. The HCNRA is part of the Nez Perce National Forest but is administered by the Wallowa-Whitman National Forest under the Hells Canyon NRA Comprehensive Management Plan (1981). The Plan allows for predator damage management when predators threaten private property, public health or safety, T&E species, or cause or threaten to cause unacceptable damage to other resources. The HCNRA Comprehensive Management Plan encourages livestock management techniques that reduce the necessity for predator damage management. Under ADC's proposed action, only nonlethal methods or mechanical lethal control methods would be employed in response to predation on livestock in the HCNRA. Mechanical lethal methods that might potentially be used include calling and shooting, trapping, snaring and aerial hunting. These same methods may be used by livestock producers or members of the general public who possess the required licenses or permits.

2.2.2 Animal welfare and humaneness of methods used by ADC.

The issue of humaneness, as it relates to the killing or capturing of wildlife is an important but very complex concept that can be interpreted in a variety of ways. Humaneness is a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. The issue of humaneness has two aspects in relation to the proposed action.

1. Animal welfare organizations are concerned that some methods used to manage wildlife damage expose animals to unnecessary pain and suffering. Research suggests that with some methods, such as restraint in leghold traps, changes in the blood chemistry of trapped animals indicate "stress." Blood measurements indicated similar changes in foxes that had been chased by dogs for about 5 minutes as those restrained in traps (USDA 1994, Chap. 3 p. 81). However, such research has not yet progressed to the development of objective, quantitative measurements of pain or stress for use in evaluating humaneness.

2. Humaneness, as perceived by the livestock industry and pet owners, requires that domestic animals be protected from predators because humans have bred the natural defense capabilities out of domestic animals. It has been argued that humans have a moral obligation to protect these animals from predators (Glosser 1993). Predators frequently do not kill larger prey animals quickly, and will often begin feeding on them while they are alive and still conscious (Wade and Bowns 1982).

Thus, the decision-making process involves tradeoffs between the above two aspects of humaneness. An objective analysis of this issue must consider not only the welfare of a wild animal caught in a leghold trap, but also the welfare of the domestic animals that may continue to be maimed and killed if the leghold trap were not being used. The challenge in coping with this issue is how to achieve the least amount of animal suffering with the constraints imposed by current technology and funding.

ADC has improved the selectivity of damage management tools through research and development of such devices as trap pan-tension devices, break-away snares, and the Livestock Protection Collar. By incorporating the use of these devices into the ADC program, risks to nontarget species that are smaller or weigh less than the target species and non-offending individuals can reduced. Research is continuing to bring new findings and products into practical use and these too would be incorporated into the program when developed. ADC personnel are experienced and professional in their use of damage management methods so that they are as humane as practically possible and all State laws are followed. Mitigation measures/standard operating procedures relative to this issue are listed at the end of Chapter 3.

2.2.3 The public's concern about use of chemicals.

Much of the public concern over the use of toxicants for predator damage management is based on an erroneous perception that ADC uses nonselective, outdated chemical methodologies. But chemical methods currently used and proposed for use by ADC have a high degree of selectivity (see sections 4.2.2.1 and 3.1.2). Currently, the use of toxicants by ADC in all instances is regulated by the EPA through the FIFRA, by MOUs with other agencies, and by ADC Directives. Based on a thorough Risk Assessment, APHIS concluded that, when ADC program chemicals are used in accordance with label directions, they are very selective for target individuals or populations, and such use has negligible impacts on the environment (USDA 1994, Appendix P).

2.2.4 American Indian Concerns.

2.2.4.1 Cultural Resources

The National Historic Preservation Act of 1966, as amended, requires Federal agencies to evaluate the effects of any Federal undertaking on cultural resources and to consult with appropriate American Indian Tribes to determine whether they have concerns for cultural properties in areas of these Federal undertakings. The Native American Graves and Repatriation Act of 1990 provides for protection of American Indian burials and establishes procedures for notifying Tribes of any new discoveries.

In consideration of American Indian cultural and archeological interests, the ADC program solicited input from the Coeur d'Alene and the Nez Perce Tribes within the analysis area. Each

Tribe was requested to identify any cultural concerns relating to the proposed ADC program, but none of the Tribes identified any such concerns.

Usually, predator damage management has little potential to cause adverse effects to sensitive cultural resources. The areas where wildlife damage management would be conducted are small and pose minimal ground disturbance.

2.3 Issues Not Considered In Detail, With Rationale.

2.3.1 Disturbance of nontarget wildlife through aerial hunting activities.

Disturbance of wintering big game herds could conceivably induce stress that might negatively affect these animals. Under the terms of the MOU between IDFG and the Idaho State ADC Board, ADC and IDFG consult and cooperate to identify areas that may be of concern for wintering big game species. ADC avoids flying in these areas, and if big game herds are encountered in other areas, flight crews move away if the animals are reacting to the aircraft.

IDFG annually conducts wintering big game survey flights by helicopter. Survey flights require flying close enough and for long enough that observers can accurately count and identify sex of the animals present. IDFG has monitored this situation to determine whether these flights may be negatively impacting those animals being surveyed. They have found no evidence to suggest that this short-term disturbance creates significant negative impacts to these animals (L. Kuck, IDFG 1996, pers. comm.).

ADC flight crews have occasionally witnessed coyotes chasing deer in deep snow conditions. To the extent that aerial hunting activities remove coyotes that might otherwise stress or kill wintering big game animals, this activity may have a beneficial effect.

2.3.2 Livestock losses are a cost of doing business and the need to consider a threshold of loss.

Some commenters felt that livestock producers should expect some level of loss as a cost of doing business, and that ADC should not initiate any control actions until economic losses reach some predetermined "threshold" level. Although some losses of livestock and poultry can be expected and tolerated by livestock producers, ADC has a legal responsibility to respond to requests for wildlife damage management, and it is program policy to aid each requester to minimize losses. If control efforts are not initiated soon after a damage problem is detected, damages may sometimes escalate to excessive levels before the problem is solved.

In the Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie National Forest, et al., the United States District Court of Utah denied plaintiffs' motion for preliminary injunction. In part, the court found that a forest supervisor need only show that damage from predators is threatened to establish a need for wildlife damage management (United States District Court of Utah 1993).

2.3.3 Objectives are not reasonable.

During public involvement, some individuals questioned the establishment of objectives for use in this analysis process. ADC has the authority and responsibility to set program objectives for meeting its mandate and to monitor the effectiveness in achieving those objectives. Setting objectives is part of a good planning process and sets goals for the organization. The objectives identified in the EA were developed as what seemed to be realistically obtainable under ADC's current program. The current program is used as a baseline standard for a relative assessment of how each of the other alternatives would meet the identified objectives. This additional analysis goes beyond the requirements of NEPA, and can aid in the decision-making process.

2.3.4 No wildlife damage management at taxpayer expense, predator damage management should be fee based.

During public involvement, some respondents felt that predator damage management should not be provided at the expense of the taxpayer or that it should be fee based. ADC was established by Congress as the program responsible for providing wildlife damage management to the people of the United States. Funding for ADC comes from a variety of sources in addition to Federal appropriations. Idaho general funds, livestock producer funds, county funds, and IDFG funds are all applied to the program under Cooperative Agreements. Federal, State and local officials have decided that ADC should be conducted by appropriating funds. Additionally, wildlife damage management is an appropriate sphere of activity for government programs, since wildlife management is a government responsibility.

2.3.5 Set standards for regularly soliciting public involvement/input.

ADC solicits public involvement through the NEPA process by publishing notice of any planned EAs in area newspapers, and by distributing public involvement letters with details about ADC's proposed actions. ADC considers and responds to all public comments, whether those comments are provided in conjunction with some specific NEPA process or are provided for any other reason. Meetings held with public land management agencies and the IDFG are not ordinarily announced to the public, but anyone wishing to attend work plan meetings may inquire about scheduling of such meetings and attend. Members of the public are provided with an opportunity to express any comments or concerns they may have.

2.3.6 Cost-effectiveness of ADC's predator damage management activities.

NEPA does not require preparation of a specific cost-benefit analysis, and consideration of this issue is not essential to making a reasoned choice among the alternatives being considered. However, a cost-benefit analysis was presented in USDA (1994) that indicated each dollar spent conducting ADC activities to protect sheep resulted in a net average savings of $2.40. An additional analysis presented in USDA (1996) likewise suggested a positive cost-benefit ratio for ADC activities to protect sheep in southern Idaho.

2.3.7 Appropriateness of using rancher-supplied data to quantify livestock losses.

Some individuals felt that ranchers often intentionally overestimated the extent of their livestock losses in order to justify more control work. Pearson (1986), however, reported on several studies that indicated little or no bias occurred in ranchers reporting loss, and Shelton and Klindt (1974) found that some ranchers underestimated their losses due to some husbandry practices. Wywialowski (1994) likewise found that livestock producers' estimates of wildlife-caused damage were consistent with estimates based on studies and surveys of predation rates. Schaefer et al. (1981) investigated sheep predation and determined that : 1) producers correctly assessed the cause of livestock death more than 94% of the time, and 2) the results of two types of loss surveys yielded similar results. Average losses attributed to predation by Idaho sheep producers between 1993 and 1995 amounted to about 35% of the total reported death loss (Table 1.2). However, through intensive monitoring conducted during a study on three typical range sheep operations in southern Idaho, Nass (1977) found that predation was actually responsible for 56% of the total lamb losses. This data suggests that attributing an average of 35% of total death losses to predation is not unrealistic, and may even suggest that Idaho sheep producers could be *under*estimating their predation losses.

2.3.8 Relocation (rather than killing) of problem wildlife.

Relocation may be appropriate in some situations (i.e., if the problem species' population is at very low levels, there is a suitable relocation site, and the additional dollars required for relocation can be obtained.) However, those species that often cause damage problems (i.e., coyotes, red fox, black bears,

mountain lions) are relatively abundant in much of the suitable habitat in the analysis area, and relocation is not necessary for the maintenance of viable populations. Relocation of predators implicated in livestock depredation may result in future depredations if the predator encounters livestock again, and in the case of black bears and mountain lions in Idaho, could also require payment of damage compensation claims. Any decisions on relocation of black bears or mountain lions are coordinated with local IDFG officials. Idaho Code 36-1109 requires IDFG to consult with appropriate land management agencies and land users before transplanting or relocating any black bear or mountain lion.

The American Veterinary Medical Association, The National Association of State Public Health Veterinarians, and the Council of State and Territorial Epedemiologists all oppose the relocation of mammals because of the risk of disease transmission, particularly for small mammals such as raccoons or skunks (Center for Disease Control 1990). Although relocation is not necessarily precluded in all cases, it would in many cases be logistically impractical and biologically unwise.

2.3.9 Appropriateness of preparing an EA (instead of an EIS) for such a large area.

Some individuals questioned whether preparing an EA for an area as large as 23 million acres would meet the NEPA requirements for site specificity. If in fact a determination is made through this EA that the proposed action would have a significant environmental impact, then an EIS would be prepared. In terms of considering cumulative impacts, one EA covering the entire analysis area may provide a better analysis than multiple EA's covering smaller zones within the analysis area. All the other predator damage management EA's prepared by the Forest Service and the BLM have resulted in a Finding of No Significant Impact, suggesting that ADC activities as currently conducted and proposed to continue, do not have a significant impact on the human environment.

2.3.10 ADC work on private versus public lands.

Some individuals expressed concern about how ADC activities would be conducted on private versus public lands. ADC activities on private lands are carried out only after the landowner has requested services from ADC and after an *Agreement for Control* has been signed. This agreement stipulates which methods may be used on the property. ADC activities on public lands are carried out only after development of site specific work plans between ADC and the respective land management agencies. These plans stipulate any restrictions that may be deemed necessary to ensure public safety or resource protection on those public lands. ADC activities on public lands are typically carried out under more restrictions than on private land in order to mitigate the likelihood of conflicts with users of public lands.

2.3.11 Rancher responsibility to protect their own livestock through use of husbandry methods.

In January 1995, the Idaho Agricultural Statistics Service surveyed Idaho sheep producers regarding their use of nonlethal predator damage management measures to protect sheep. Although there is no law or policy requiring livestock producers to employ good husbandry practices to protect their livestock, most Idaho sheep producers do employ a variety of husbandry practices to protect their sheep as a matter of good business.

Most (>75%) of Idaho's range sheep operations, for example, employ the use of guard animals to protect their flocks (R. Tratz 1996, IASS, pers. comm.), and they all employ herders to stay with the sheep. Most requests for assistance to protect sheep from predation come from producers who are already employing a variety of nonlethal control measures but experience predation problems in spite of these practices. ADC policy is to respond to all requests for assistance within program authority and responsibility. If improved husbandry practices would likely reduce a predation problem, ADC makes recommendations regarding these practices.

2.3.12 Effect of coyote removal on the demographics of coyote populations and the resultant impact on killing behavior of coyotes, (i.e., removal of coyotes in an area might result in infiltration of the area by younger, dispersing coyotes that are more likely to prey on livestock than mated pairs that are maintaining and defending territories.)

Two studies (Connolly et al. 1976, Gese and Grothe 1995) investigated the predatory behavior and social hierarchy of coyotes in relation to predatory behavior, and determined that the more dominant (alpha) animals were the ones that killed the larger prey. Connolly et al. (1976) concluded from pen studies, with known-aged coyotes, that the proclivity of individuals that attacked livestock seemed related to their age and relationship with conspecifics. The coyotes that attacked sheep most frequently were the dominant males and females paired with these males, with the males responsible for the majority of the attacks and kills. Gese and Grothe (1995) concluded from observing wild coyotes that the dominant pair was involved in the vast majority of predation attempts. The alpha male was the main aggressor in all successful kills, even when other pack members were present. Submissive, younger and less dominant animals scavenged on carcasses of animals killed by the more dominant animals, other carcasses as found, or apparently had diets that, in part, consisted of other small food items. Windberg et al. (1996) demonstrated that coyotes from unexploited populations readily kill livestock and selectively preyed on the smaller kids. They determined that 41% of the kid goats exposed during their study were killed by predators. This remarkably high rate of predation occurred despite no recent (>7 years) exposure of goats, or sheep, as prey on their study area. Thus, it appears the above concern is unfounded because removal of local territorial (dominant) coyotes, removes the individuals that are most likely to kill livestock and generally results in the immigration of subdominant coyotes that are less likely to kill livestock.

2.3.13 Appropriateness of ADC preparing this EA, rather than the Forest Service or BLM.

Under the terms of a 1993 MOU between APHIS and the Forest Service, and a 1995 MOU between APHIS and the BLM, APHIS-ADC is recognized as the agency with the authority and expertise to conduct wildlife damage management. The Forest Service, BLM, and ADC all recognize that ADC is responsible for NEPA compliance related to any of the predator damage management conducted by ADC. The Forest Service and BLM cooperate with ADC in the preparation of NEPA documents addressing ADC's activities on lands administered by these two agencies.

2.3.14 Potential for ADC's take of predators to disrupt predator/prey relationships and biodiversity, resulting in population increases of rodents and rabbits, which might then increase agricultural damage.

No ADC wildlife damage management is conducted to eradicate a native wildlife population. ADC operates in accordance with international, Federal and State laws and regulations enacted to ensure species viability. Any reduction of a local population or group would be temporary because migration from adjacent areas or reproduction would eventually replace the animals removed. The impacts of the current ADC program on biodiversity are not significant nationwide, statewide, or in the analysis area (UDSA 1994 , Chap. 4).

The ADC take of predators is a small proportion of the total population as analyzed in Chapter 4. The relationship between predators and rodent and rabbit populations has been summarized in USDI (1979).

Rabbit and rodent populations normally fluctuate substantially in multi-year cycles. There are two basic schools of thought as to the factors responsible for these fluctuations. One is that rodent and rabbit populations are self-regulated through behavior, changes in reproductive capacity due to stress, or genetic changes (Chitty 1967, Myers and Kregs 1983). The other is that populations are regulated by environmental factors such as food and predation (Pitelka 1957, Fuller 1969).

Keith (1974) concluded that: 1) during cyclic declines in prey populations, predation has a depressive effect and as a result, the prey populations may decline further and be held for some time at relatively low densities, 2) prey populations may escape this low point when predator populations decrease in response to the reduced food base, and 3) since rabbit and rodent populations increase at a faster rate than predator populations, factors other than predation must initiate the decline in populations.

Wagner and Stoddart (1972) and Clark (1972) independently studied the relationship between coyote and jackrabbit (*Lepus californicus*) populations in northern Utah and southern Idaho. Both noted that coyote populations increased as jackrabbit numbers increased, but with a 1-2 year delay, suggesting that the prey population controlled the predator population, rather than the reverse.

In two studies conducted in south Texas (Beasom 1974b, and Guthery and Beasom 1977), intensive short-term predator removal was employed to test the response of game species to reduced coyote abundance. At the same time, rodent and lagomorph species were monitored. A marked reduction in coyote numbers apparently had no notable effect on the populations of rabbits or rodents in either study. Similarly, Neff et al. (1985) noted that reducing coyote populations on their study area in Arizona to protect antelope fawns had no apparent effect on the rodent or rabbit population. At the relatively low levels of predator removal currently being sustained (see Section 4.2.1.1), it is unlikely that overall rodent or rabbit populations would increase in response to predator removal.

2.3.15 Need for public awareness and education, and the type of information that would be provided.

Some individuals suggested there was a need to educate the public and livestock producers regarding ADC activities and predator damage management techniques. Although this is a recognized need, ADC does not require each State administered program to undertake efforts to promote public understanding of this issue. Idaho ADC personnel, however, make presentations to elementary and high school classes on wildlife damage management, conduct informational and instructional sessions as requested by individuals or organizations, and maintain an informational booth at State fairs as time and budgets allow. ADC maintains information and literature on the use of effective lethal and nonlethal mechanical methods, and livestock guarding animals, and provides this information to anyone who requests it.

2.3.16 Nonlethal control only except where the offending animal is caught in the act of depredation.

As stated earlier, most (>75%) Idaho range sheep operations employ the use of guard animals to protect their flocks (R. Tratz 1996, IASS, pers. comm.), and they all employ herders to stay with the sheep. Most requests for assistance to protect sheep from predation come from producers who are already employing nonlethal damage management measures but experience predation problems in spite of these practices. Coyotes are responsible for the majority of the damage requests received by ADC and this species is common throughout Idaho and the western United States. The coyote's behavior is such that it is often nocturnal (active at night), thus making nearly impossible to witness the specific animal in the act of depredation, however, unique characteristics from the act of predation can identify the coyote as the depredating species. Given the present levels of funding, workforce and technology, and the relative abundance of coyotes, it would be virtually impossible to conduct an effective program by catching each depredating animal in the act of killing livestock.

2.3.17 Livestock Losses from Causes Other Than Predation.

ADC is charged by the Animal Damage Control Act of 1931 as amended (7 U.S.C. 426-426c, Stat 1468, and the Rural Development, Agricultural and Related Agencies Appropriated Act of 1977, Public Law 100-202, Dec. 22, 1987. Stat 1329-1331, 7 U.S.C. 426c) with the responsibility to protect natural resources, livestock, property from wildlife damage, and to protect public health and safety from wildlife threats. A recent court decision confirmed that the mere threat of wildlife damage is reason enough to have an ADC program. Livestock losses from other causes other than wildlife are not wildlife damage

and outside of ADC's responsibility. Therefore, livestock losses caused by reasons other than predation are outside the scope of this EA.

2.4 Additional Issues not Considered Because They are Outside the Scope of this Analysis.

1. How the ADC program is funded.
2. Repeal of the Animal Damage Control Act of 1931.
3. Appropriateness of livestock grazing on public lands.
4. Maintenance and economics of a livestock industry in the analysis area and State.
5. Wildlife habitat and wetlands should be preserves.
6. Deer depredation to agricultural resources (i.e., haystacks, crops).
7. Multiple-use land management on public lands.
8. Wolf reintroduction and grizzly bear recovery.
9. ADC has no formal appeals process.
10. Private property rights.

3.0 CHAPTER 3: ALTERNATIVES

Introduction

This chapter consists of four parts: 1) an introduction, 2) description of the alternatives considered and analyzed in detail, including the Proposed Action (Alternative 2), 3) a description of alternatives considered but eliminated from detailed study, and 4) a discussion of mitigating measures and standard operating procedures. Six alternatives have been identified, developed, and analyzed in detail by a multi-agency review team (ADC, BLM, Forest Service, IDFG, IDA, IDL) and four alternatives were considered but not analyzed in detail. The six alternatives analyzed in detail are:

1) Alternative 1 - Continue the Current Northern and Central Idaho Analysis Area Program (No Action)- consists of the current program of technical assistance and operational Integrated Wildlife Damage Management (IWDM) (ADC Directive 2.105) by ADC on Federal, State, county and private lands under Cooperative Agreement, Agreement for Control, and Work Plans with ADC.

2) Alternative 2 - Current Program (as described in Alternative 1) Plus Use of the Livestock Protection Collar (LPC) (Proposed Action)[1].

3) Alternative 3 - A Corrective Only Predator Damage Management Program (No Preventive Control).

4) Alternative 4 - A Predator Damage Management Program with Only Mechanical Methods (No Use of Chemicals)

5) Alternative 5 - Technical Assistance Program. Under this alternative, ADC would not conduct predator damage management in the analysis area. The entire program would consist of only technical assistance.

6) Alternative 6 - No ADC Predator Damage Management in the Analysis Area. This alternative would terminate the Federal predator damage management program within the analysis area.

3.1 Description of the Alternatives

3.1.1 Alternative 1 - Continue the Current Northern and Central Idaho Analysis Area Program: (No Action)

The No Action alternative is a procedural NEPA requirement (40 CFR 1502.14(d)), is a viable and reasonable alternative that could be selected, and serves as a baseline for comparison with the other alternatives. The No Action Alternative, as defined here, is consistent with CEQ's definition (CEQ 1981).

Overview

The No Action alternative would continue the current ADC predator damage management program in the analysis area. The current program is a collection of cooperative programs with other Federal, State and local agencies, and private individuals and associations to protect primarily livestock, poultry and public safety (described in Chapter 1). ADC personnel in the analysis area conduct

[1] The LPC is registered for producer or ADC use nationwide under FIFRA. Before the LPC can be used in Idaho, ADC would receive approval from the IDA. ADC has applied to the IDA for approval to use the LPC. If the LPC is approved for use, it would be incorporated into the IWDM program.

technical assistance, and corrective (in response to current loss or hazard) and preventive (in response to historical loss) predator damage management on BLM, Forest Service, State, county and private lands under MOUs, Cooperative Agreements, Work Plans, and *Agreements for Control on Private Property*. All predator damage management is based on interagency relationships, which require close coordination and cooperation because of overlapping authorities, policies, regulations and legal mandates.

On Federal lands, ADC Work Plans describe the predator damage management that would occur. During the work planning and review process with the BLM, Forest Service, IDFG, and IDL, plans and maps would be discussed which describe and delineate where predator damage management would be conducted and which methods would be used. Before management is conducted on private lands, *Agreements for Control on Private Property* are signed with the landowner or administrator that describe the methods to be used and the species to be managed. Management is directed toward individual problem animals (i.e., in the case of mountain lions, bears, or certain coyote damage problems) or localized populations in the problem area (i.e., in the case of some coyote damage complaints), depending on the circumstances.

Integrated Wildlife Damage Management (IWDM)

During more than 70 years of resolving wildlife damage problems, ADC has considered, developed, and used numerous methods of managing damage problems. These efforts have involved the research and development of new methods, and the implementation of effective strategies to resolve wildlife damage.

The most effective approach to resolving wildlife damage is to integrate the use of several methods simultaneously or sequentially. IWDM is the implementation and application of safe and practical methods for the prevention and control of damage caused by wildlife based on local problem analyses and the informed judgement of trained personnel. The ADC Program applies IWDM, commonly known as Integrated Pest Management (ADC Directive 2.105), to reduce damage through the ADC Decision Model discussed on page 3-4.

The philosophy behind IWDM is to implement effective management techniques, in a cost-effective manner while minimizing the potentially harmful effects to humans, target and nontarget species and the environment. IWDM draws from the largest possible array of options to create a combination of techniques appropriate for the specific circumstances. IWDM may incorporate cultural practices (i.e., animal husbandry), habitat modification, animal behavior (i.e., scaring), local population reduction, or any combination of these, depending on the characteristics of the specific damage problems. In selecting management techniques for specific damage situations consideration is given to:

- Species responsible
- Amount of the damage
- Geographic extent of damage
- Duration and frequency of the damage
- Prevention of future damage (lethal and nonlethal techniques)

The IWDM strategies authorized for use by ADC personnel in the analysis area consist of:

Technical Assistance Recommendations (implementation is the responsibility of the requester): ADC personnel provide information, demonstrations and advice on available predator damage management techniques. Technical assistance includes demonstrations on the proper use of management devices (propane exploders, electronic guard, cage traps, etc.) and information on animal husbandry, habitat management, and animal behavior modification. Technical assistance is generally provided following an on-site visit or verbal consultation with the requester. Generally, several management strategies

are described to the requester for short and long-term solutions to damage problems; these strategies are based on the level of risk, need and practical application. Technical assistance may require substantial effort by ADC personnel in the decision making process, but the actual operational management is generally the responsibility of the requester.

Direct Control Assistance (activities conducted or supervised by ADC personnel): Direct control assistance is implemented when the problem cannot be practically resolved through technical assistance and when Cooperative Agreements provide for ADC direct control assistance. The initial investigation defines the nature and history of the problem, extent of damage, and the species responsible for the damage. Professional skills of ADC personnel are often required to effectively resolve problems, especially if restricted use pesticides are proposed, or the problem is complex requiring the direct supervision of a wildlife professional. ADC personnel consider the biology and behavior of the damaging species and other factors using the ADC decision model (Slate et al. 1992). The recommended strategy (ies) may include any combination of preventive and corrective actions that could be implemented by the requester, ADC or other agencies, as appropriate. In the case of localized lethal control, the U.S. General Accounting Office (GAO 1990) has concluded that according to available research, these efforts have been effective in reducing predator damage. Two strategies are available:

1. **Corrective Damage Management** Corrective damage management is applying predator damage management to stop or reduce current losses. As requested and appropriate, ADC personnel provide information and conduct demonstrations, or take action to prevent additional losses from recurring. For example, in areas where verified and documented lamb depredation is occurring, ADC personnel may provide information about guarding dogs, fencing or husbandry techniques, and/or conduct operational damage management to stop the losses.

2. **Preventive Damage Management.** Preventive damage management is applying predator damage management strategies before damage occurs, based on historical damage problems and data. The rationale for conducting preventive control to reduce coyote damage differs little in principle from holding controlled hunts for deer or elk in certain areas where agricultural damage has been a historic problem. By reducing the number of deer or elk near agricultural fields, or the number of coyotes near a herd of sheep, the likelihood of damage is reduced.

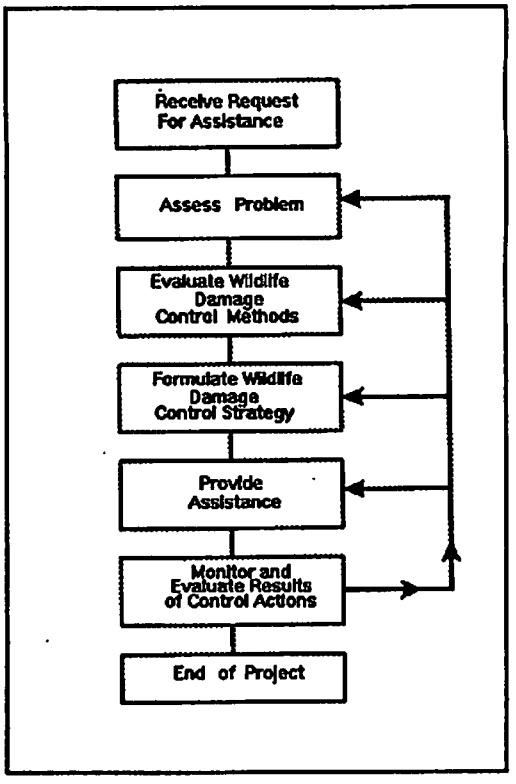
   Shelton and Klindt (1974) documented a strong correlation between coyote densities and levels of sheep loss in Texas, and Robel et al. (1981) found a similar correlation in Kansas. In southeastern Idaho, Stoddart and Griffiths (1986) documented an increase followed by a decrease in lamb losses as coyote populations rose and fell. Gantz (1990) concluded that late winter removal of territorial coyotes from mountain grazing allotments would reduce predation on sheep grazing on those allotments the following summer.

   For preventive damage management on Federal lands, historical loss areas are reviewed and discussed with representatives of the land management agencies during the Work Plan process to identify areas where preventive predator damage management may be conducted. Maps delineating the current year's planned control areas are available for public review at the appropriate Federal office. In addition, when conducting predator damage management on Federal lands, ADC must receive a request from the livestock owner or individual that has experienced the damage.

ADC Decision Making

The ADC EIS (USDA 1994, Chap. 2, pp. 23-34 and Appendix N) describes the procedures used by ADC personnel to determine management strategies or methods applied to specific damage problems.

Figure 3-1
APHIS ADC Decision Model



As depicted in the Decision Model (Figure 3-1), consideration is given to the following factors before selecting or recommending predator damage management methods and techniques:

- Species responsible for damage
- Magnitude, geographic extent, frequency, and duration of the problem.
- Status of target and nontarget species, including T&E species
- Local environmental conditions
- Potential biological, physical, economic, and social impacts
- Potential legal restrictions
- Costs of control options[2]

The ADC decision making process is a procedure for evaluating and responding to damage complaints. ADC personnel are frequently contacted only after requesters have tried nonlethal techniques and found them to be inadequate for reducing damage to an acceptable level. ADC personnel evaluate the appropriateness of strategies, and methods are evaluated in the context of their availability (legal and administrative) and suitability based on biological, economic and social considerations. Following this evaluation, the methods deemed to be practical for the situation are formed into a management strategy. After the management strategy has been implemented, monitoring is conducted and evaluation continues to assess the effectiveness of the strategy. If the strategy is effective, the need for management is ended. USDA (1994), Appendix N provides detailed examples of how the ADC Decision Model is implemented for coyote predation to sheep on public and private lands.

On most ranches, predator damage may occur whenever vulnerable livestock are present, because no cost-effective method or combination of methods that permanently stops or prevents coyote predation are available. When damage continues intermittently over time, the ADC Specialist and rancher/livestock owner monitor and reevaluate the situation frequently. If one method or combination of methods fails to stop the damage, a different strategy is implemented.

In terms of the ADC Decision Model, most damage management efforts consist of a continuous feedback loop between receiving the request and monitoring the results with the control strategy reevaluated and revised periodically.

[2] The cost of control may be a secondary concern because of overriding environmental, legal, public health and safety, animal welfare, or other concerns.

Predator Damage Management Methods Authorized for Use or Recommended in the Northern and Central Idaho Analysis Area

Mechanical Management Methods:

1. **Livestock producer practices** consist primarily of nonlethal preventive methods such as animal husbandry, habitat modification and animal behavior modification. Livestock husbandry and other management techniques are implemented by the livestock producer. Producers are encouraged to use these methods, based on the level of risk, need, and practicality. Idaho ADC personnel cooperate with the ADC Livestock Guarding Dog Specialist to maintain a current file of guarding dog suppliers and to offer technical assistance to producers. More than 75% of the range sheep operations in Idaho used guard dogs in 1994 (R. Tratz, 1996, IASS, pers. comm.). Livestock producer practices recommended by ADC may include:

    - Animal husbandry, which generally includes modifications in the level of care or attention given to livestock which may vary depending on the class, age and size of the livestock. Animal husbandry practices include but are not limited to techniques such as guard dogs, herders, shed lambing, carcass removal, night penning, etc.

    - Habitat modification alters habitats to attract or repel certain wildlife species, or to separate livestock from predators. Habitat modification practices would be encouraged when practical, based on the type and extent of the livestock operation. For example, on private lands, clearing brushy or wooded areas in or adjacent to lambing or calving pastures may be appropriate to reduce available cover for predators.

    - Animal behavior modification refers to tactics that alter the behavior of wildlife and reduce predation. Animal behavior modification could be scare tactics or fencing to deter or repel animals that cause loss or damage to livestock or property. Some but not all devices used to accomplish this are[3]:

        - Predator-proof fences
        - Electronic guards (siren strobe-light devices)
        - Propane exploders
        - Pyrotechnics

2. **Leg-hold traps** can be effectively used to capture a variety of mammals, but are used most often within the analysis area to capture coyotes and red fox. Two primary advantages of the leg-hold trap are that they can be set under a wide variety of conditions, and that pan-tension devices can be used to reduce the incidence of capturing smaller nontarget animals. Effective trap placement and use of appropriate lures by trained personnel also contribute greatly to the leg-hold trap's selectivity. An additional advantage is that leg-hold traps can allow for the on-site release of some nontarget animals, and the relocation and release of animals such as wolves.

    Disadvantages include the difficulty of keeping traps operational during rain, snow, or freezing weather. In addition, they lack selectivity where nontarget species are of a similar or heavier weight than the target species. The use of leg-hold traps requires more work force than some methods, but they are indispensable in resolving some depredation

[3] Scare devices will often only produce the desired result for a short time period until wildlife individuals become accustomed to the disturbance (Pfeifer and Goos 1982; Conover 1982).

problems. In FY 95, 170 coyotes (22% of the analysis area take) and three red fox (60% of the analysis area take) were captured in leg-hold traps.

3. **Cage traps**, typically constructed of wire mesh, are sometimes used or recommended to capture smaller animals like raccoons or skunks. Larger cage traps constructed of sections of culvert pipe are sometimes use to capture black bears or grizzly bears. Cage traps pose minimal risk to humans, pets and other nontargets, and they allow for on-site release or relocation of animals, but they cannot be used effectively to capture warier species such as coyotes or wolves.

4. **Snares**, like traps, may be used as either lethal or live-capture devices. Snares may be used wherever a target animal moves through a restricted area (i.e., crawl holes under fences, trails through vegetation, etc.). They are easier to keep operational during periods of inclement weather than are leg-hold traps. Snares set to catch an animal by the neck can be a lethal use of the device, whereas snares positioned to capture the animal around the body or leg can be a live-capture method. Careful attention to details in placement of snares and the use of a "stop" on the cable can also allow for live capture of neck-snared animals. Spring-activated foot snares are sometimes used to capture depredating mountain lions or bears.

5. **Ground shooting** is highly selective for target species and may involve the use of spotlights, decoy dogs and predator calling. Removal of one or two specific animals by shooting in the problem area can sometimes provide immediate relief from a predation problem. Shooting is often tried as one of the first lethal control options because it offers the potential of solving a problem more quickly and selectively than some other options, but it does not always work. Shooting may sometimes be one of the only control options available if other factors preclude the setting of equipment.

6. **Hunting dogs** are essential to the successful tracking and capture of problem bears and mountain lions. Dogs are also trained and used for coyote damage management to alleviate livestock depredation (Rowley and Rowley 1987, Coolahan 1990). Trained dogs are used primarily to find coyotes and dens, and to pursue or decoy problem animals.

7. **Denning** is the practice of finding coyote or red fox dens and eliminating the young, adults, or both to stop ongoing predation or prevent future depredation on livestock. Till and Knowlton (1983) documented denning's cost-effectiveness and high degree of efficacy in resolving predation problems due to coyotes killing lambs in the spring. Coyote and red fox depredations on livestock often increase in the spring and early summer due to the increased food requirements for rearing and feeding litters of pups. Removal of pups will often stop depredations even if the adults are not taken. When adults are taken and the den site is known, the pups are usually killed to prevent their starvation. Pups are typically euthanized in the den through use of an EPA registered gas fumigant cartridge. (See discussion of gas cartridge under Chemical Management Methods.) In reviewing simulation models involving predator control and coyote populations, Connolly (1978b) suggested that den hunting should remain quite effective as a control method even at high rates of control.

8. **Aerial hunting** typically involves the use of a small fixed-wing aircraft or helicopter to search for coyotes or red fox in the problem area, and shooting them with a shotgun from the aircraft. Shooting results in a relatively quick and humane death. Local depredation problems can often be resolved quickly through aerial hunting. Cain et al. (1972) rated aerial hunting as "very good" in effectiveness for problem solving, safety, and lack of adverse environmental impacts. Smith et al. (1986) cited cost-effectiveness and efficacy as benefits of aerial hunting for protection of pronghorn antelope from coyote predation. Connolly

(1987) documented that at least 55% of the coyotes taken by aerial hunting in his study area were confirmed sheep-killing coyotes.

Good visibility is required for effective and safe aerial hunting operations and relatively clear and stable weather conditions are necessary. Summer conditions limit the effectiveness of aerial hunting as heat reduces coyote activity, and visibility is greatly hampered by vegetative ground cover. High temperatures, which reduce air density, affect low-level flight safety and may further restrict aerial hunting activities.

Aerial hunting is one of the most important coyote control methods available to ADC in the analysis area. In FY 95, 223 coyotes (29% of the analysis area take) were taken by this method. Approximately 65% of the fixed-wing aerial hunting hours (and 47% of the coyotes taken by this method) were for corrective control, with the remainder being for preventive control purposes. No coyotes were taken with helicopter aerial hunting in the analysis area in FY 95.

Chemical Management Methods:

All chemicals used by ADC are registered under FIFRA and administered by the EPA and the IDA, or are registered with the Food and Drug Administration (FDA). All ADC personnel in the analysis area are certified as pesticide applicators by the IDA. No chemicals are used on public or private lands without authorization from the land management agency or property owner/manager. The chemical methods used and/or currently authorized for use in the analysis area include:

1. **Sodium cyanide** is used in the M-44 device. The M-44 is a spring-activated ejector device developed specifically for coyote damage management (EPA Reg. No. 56228-15). The M-44 consists of a capsule holder wrapped in an absorbent material, an ejector mechanism, a capsule containing about 0.9 grams of a powdered sodium cyanide mixture and an inert biological marker, and a 5-7 inch hollow stake. To set an M-44, a good location is found, the hollow stake is driven into the ground, and the ejector unit is cocked and fastened into the stake by a slip ring. The wrapped capsule holder containing the cyanide capsule is then screwed onto the ejector unit and a bait is applied to the capsule holder. An individual warning sign is placed within 25 feet to alert others of the device's presence, and area warning signs are placed at commonly used access points to the area. A canid attracted to the bait will bite and try to pick up the baited capsule holder. When the M-44 is pulled, the spring-activated plunger propels cyanide into the animal's mouth, resulting in a quick death. Coyotes killed by M-44s present no secondary poisoning risks to other animals that may scavenge on the coyote's carcass (USDA 1994, Appendix P, pp. 269-271).

   The M-44 can be used very effectively during winter months when leg-hold traps are more difficult to keep functional, and M-44s are typically more selective for target species than leg-hold traps. They may also be more economical as a control tool, because they do not have to be monitored as often as traps or snares.

   The M-44 is very selective for canids because of the attractants used and the unique requirement that the device be triggered by pulling straight up on it. Connolly (1988), in an analysis of M-44 use by the ADC program from 1975-1986, documented a 99% selectivity rate for target species in Idaho. Dogs are susceptible to M-44s, and discretion must be used when setting M-44s in areas that may be frequented by dogs. The 26 EPA use restrictions also preclude use of the M-44 in areas where it may pose a danger to T&E species. In FY 95, 222 coyotes (29% of the analysis area take) were taken with M-44s. Four nontarget animals (one wolf and three dogs) were taken in the analysis area during FY 95 by M-44s, representing about 2% of the total M-44 take.

M-44s are used for corrective and preventive damage management on private lands where authorized by landowner agreement and on State and Federal lands where authorized by Work Plans. Most M-44 use in the analysis area occurs on private lands; no M-44s have been used on any National Forest or BLM lands in the analysis area within the past 3 years. ADC personnel comply with the EPA label and 26 use restrictions (see USDA 1994, Appendix Q, pp. 9-12).

2. The **gas cartridge** is registered as a fumigant by the EPA (EPA Reg. No. 56228-21) and is used in conjunction with denning operations in the analysis area. When ignited, the cartridge burns in the den of an animal and produces large amounts of carbon monoxide, a colorless, odorless, tasteless, poisonous gas. The combination of carbon monoxide exposure and oxygen depletion kills the pups in the den. This technique is used on private and public lands in the analysis area, where livestock killing can be attributed to food procurement for young. In FY 95 in the analysis area, one coyote den was fumigated using one gas cartridge.

3. **DRC-1339** (3-chloro-4-methylbenenamine hydrochloride) is a slow acting avian toxicant that is rapidly metabolized and/or excreted. Because of the rapid metabolism of DRC-1339 in the body, it poses little risk of secondary poisoning to nontarget animals (Cunningham et al. 1979, Schafer 1981, Knittle et al. 1990). This compound is also unique because of its relatively high toxicity to most pest birds but low-to-moderate toxicity to most raptors and almost no toxicity to mammals (DeCino et al. 1966, Palmore 1978, Schafer 1981).

   DRC-1339 is registered with the EPA (EPA Reg. No. 56228-29) to control crows, ravens and magpies that prey on newborn livestock or on the eggs or young of wildlife species needing special protection. The DRC-1339 is incorporated into either whole egg or small meat baits. The feeding habits of the birds are observed before placing any treated baits in an area to reduce the risks to nontarget animals. Corvids (ravens, crow, magpies) are opportunistic feeders and by determining when and where the birds are feeding, the baits can be found more quickly and easily, thereby reducing the risks to nontarget animals. Selective damage management can be applied because corvids learn to exploit a readily available food source and they will continue to focus on that source until the availability declines. DRC-1339 has been used in egg baits at the McArthur Lake Wildlife Management Area in northern Idaho at the request of the IDFG to reduce raven damage to nesting waterfowl. DRC-1339 has also been used in meat baits on several ranches in northern Idaho to reduce raven predation on newborn lambs and calves.

4. **Chemical Immobilization/Euthanasia.** Several chemicals are authorized for use in immobilization and euthanasia by ADC. All ADC personnel in the analysis area have received training in the safe use of authorized immobilization/euthanasia chemicals and are certified by ADC. This training involves hands-on application of state-of-the-art techniques and chemicals.

   Telazol™ , Ketaset™, and Capture-All 5 are the immobilizing agents used by ADC, and are approved by the FDA. Telazol, Ketaset, and Capture-All 5 are rapid acting, nonnarcotic, nonbarbiturate injectable anesthetic agents, having a wide margin of safety. All three drugs produce unconsciousness known as "dissociative" which in general terms means reflexes needed to sustain life (breathing, coughing, swallowing, etc.) are not affected by the drugs. These agents are used to immobilize live-trapped animals for relocation or administered before euthanasia. They may also be used in tranquilizer darts fired from a helicopter to capture depredating gray wolves. As other drugs are approved by the FDA and ADC, they could be incorporated into the program within the analysis area.

Telazol is a combination of equal parts of tiletamine hydrochloride and zolazepam hydrochloride. The product is generally supplied sterile in vials, each containing 500 mg of active drug, and when dissolved in sterile water has a pH of 2.2 to 2.8. Telazol produces a state of unconsciousness in which protective reflexes, such as coughing and swallowing, are maintained during anesthesia. Schobert (1987) listed the dosage rates for many wild and exotic animals. Before using Telazol, the size, age, temperament, and health of the animal are considered. Following a deep intramuscular injection of Telazol, onset of anesthetic effect usually occurs within 5 to 12 minutes. Muscle relaxation is optimum for about the first 20 to 25 minutes after the administration, and then diminishes. Recovery varies with the age and physical condition of the animal and the dose of Telazol administered, but usually requires several hours.

Ketaset is supplied as a slightly acidic solution (pH 3.5 to 5.5) for intramuscular injection. Ketaset also produces a state of unconsciousness that interrupts association pathways to the brain and allows for the maintenance of the protective reflexes, such as coughing, breathing, swallowing, and eye blinking. Ketaset is detoxified by the liver and excreted by the kidney. Following administration of recommended doses, animals become immobilized in about 5 minutes with anesthesia lasting from 30 to 45 minutes. Depending on dosage, recovery may be as quick as 4 to 5 hours or may take as long as 24 hours; recovery is generally smooth and uneventful.

Xylazine is a sedative which produces a transitory hypertension followed by prolonged hypotension, and respiratory depression. Recommended dosages are administered through intramuscular injection allowing the animal to become immobilized in about 5 minutes and lasting from 30 to 45 minutes.

Capture-All 5 is a combination of **Ketaset** and **Xylazine**, and is regulated by the FDA as an investigational new animal drug. The drug is available, through licensed veterinarians, to individuals sufficiently trained in the use of immobilization agents. Capture-All 5 is administered by intramuscular injection; it requires no mixing, and has a relatively long shelf life without refrigeration, all of which make it ideal for the sedation of various species.

Potassium chloride, a common laboratory chemical, is injected by ADC personnel as a euthanizing agent after an animal has been anesthetized (ADC Directive 2.430).

3.1.2 Alternative 2 - Current Program (as described in Alternative 1) Plus Use of the LPC (Proposed Action)

Livestock Protection Collars (LPCs), containing sodium fluoroacetate, are registered with the EPA (EPA Reg. No. 56228-22) for producer or ADC use nationwide. Before use in individual states, the registrant must receive approval from the agency within the state that oversees pesticide usage; ADC has applied to use the LPC through the IDA. If the LPC is approved for use, it would be incorporated into the IWDM program for Alternative 2, if selected. If approved, use of the LPC would follow EPA registration and IDA requirements, and would be restricted to specially trained and certified ADC employees.

The LPC consists of two rubber reservoirs, each of which contains about 15 ml. of a 1% solution of sodium fluoroacetate (Compound 1080). The collar has velcro straps for attachment around the neck of the sheep, with the reservoirs fitting on the throat just behind the jaw. Coyotes typically attack sheep by biting them on the throat and holding on until the animal suffocates or stops struggling. Coyotes that attack collared sheep generally puncture the collar with their teeth (about 75% of the time) and receive a lethal oral dose of the toxicant. In this usage, there are no significant secondary hazards (USDA 1994, Appendix P, pp. 273-277).

Label restrictions limit use of the LPC to fenced pastures; it cannot be used on open rangelands. Use of the LPC typically involves establishment of a "target flock" of 50-100 animals, 20-30 of which would be collared lambs. These animals would be exposed in a high risk pasture where coyote attacks have occurred. Other (uncollared) sheep would be moved to a safe area or penned until a coyote attacks a collared animal and punctures a collar, and predation stops.

The outstanding advantage of the LPC is its selectivity in eliminating only those individual coyotes that are responsible for killing sheep. Disadvantages include the limited applicability of this technique, death of collared livestock that are attacked, the logistics of having to collar and monitor the collared sheep, and the management efforts required to protect livestock other than the target flock (Connolly et al. 1978, Burns et al. 1988). From an efficacy standpoint, use of the LPC is best justified in areas with a high frequency of predation (at least one kill per week).

Sodium fluoroacetate has been a subject of wide research in the United States and elsewhere and has been widely used as a toxicant for pest management programs in many countries. Fluoroacetic acid and related chemicals occur naturally in plants in many parts of the world and are not readily absorbed through intact skin (Atzert 1971). Sodium fluoroacetate is discriminatingly toxic to predators, being many times more lethal to them than to most nontarget species (Atzert 1971, Connolly and Burns 1990). A detailed risk assessment for use of sodium fluoroacetate in the LPC is provided in Appendix P of USDA (1994).

3.1.3 Alternative 3 - A Corrective Only Predator Damage Management Program (No Preventive Predator Damage Management).

This alternative would only provide for predator damage management in places where predation on livestock or wildlife are presently occurring. Incumbent in this alternative is ADC verification of the loss and the species responsible. Producers could still implement any legal non-lethal and/or lethal methods they determine to be practical and effective. Lethal control by ADC would be limited to an area near the loss to maintain the integrity of the corrective only situation. The full variety of mechanical and chemical control methods described for Alternatives 1 and 2 would be available, once losses have occurred and are verified by ADC.

3.1.4 Alternative 4 - A Predator Damage Management Program with Only Mechanical Methods (No Use of Chemical Methods).

This alternative would only provide for predator damage management with the mechanical methods described for Alternative 1. These include livestock producer methods, such as animal husbandry, habitat modification, and animal behavior modification. Producers would be encouraged to use these methods, based on the level of risk, need, and practicality. ADC personnel would conduct predator damage management through the use of leg-hold and cage traps, neck and foot snares, ground shooting, aerial hunting, denning (without the use of gas cartridges), and by using hunting dogs where signed *Agreements for Control on Private Property* are in place, or on Federal lands according to the provisions of ADC Work Plans. For technical assistance requests, cage traps could be recommended or distributed to the requester for use in resolving problems caused by small mammals.

ADC would not use sodium cyanide (in the M-44), the gas cartridge, the LPC, DRC-1339, or any immobilizing or euthanizing agents under this alternative.

3.1.5 Alternative 5 - Technical Assistance Program.

Under this alternative, ADC would eliminate operational predator damage management in the analysis area. The entire ADC program would consist of technical assistance only, with ADC making recommendations when requested. However, private landowners, contractors, or others could

conduct their own predator damage management on Federal, State, county and private lands under the provisions of Idaho Code 36-1107.

This "technical assistance only" alternative would place the immediate burden of operational control work on State agencies, individuals and livestock producers. Individuals experiencing predator damage would, independently or with ADC recommendations, carry out and fund control activities. Individual producers could implement predator damage management as part of the cost of doing business, or a State agency could assume a more active role in providing operational predator damage management. If Alternative 5 was selected, ADC could not direct how a State agency or individuals would implement predator damage management. Some agencies or individuals may choose not to take action to resolve predator damage. Other situations may warrant the use of legally available management methods because of public demands, mandates, or individual preference. Damage management methods and devices could be applied by people with little or no training and experience, and with no professional oversight or monitoring for effectiveness. This in turn could require more effort and cost to achieve the same level of problem resolution, and could cause harm to the environment, including a higher take of nontarget animals.

3.1.6 Alternative 6 - No ADC Predator Damage Management in the Analysis Area.

This alternative would terminate all ADC or any other Federal program for predator damage management (operational and technical assistance) on all land classes within the analysis area. However, State and county agencies, and private individuals could conduct predator damage management. ADC would not be available to provide technical assistance or make recommendations to livestock producers. In some cases, control methods applied by non-agency personnel could be used contrary to their intended or legal use, or more than what is recommended or necessary. A "no control" alternative was analyzed by the USFWS (USDI 1979) and was dismissed as an invalid alternative. However, due to interest in this option, an analysis of this alternative has been included. A "no control" alternative was also evaluated in USDA (1994).

3.2 Alternatives Considered but not Analyzed in Detail, with Rationale.

Several alternatives were considered but not analyzed in detail. These were:

3.2.1 Compensation for Predator Damage Losses

The Compensation alternative would direct all ADC program efforts and resources toward the verification of losses from predators, and providing monetary compensation to the affected producers. ADC services would not include any direct control nor would technical assistance or nonlethal methods be available.

This option is not currently available to ADC because ADC is charged by law to protect American agricultural and natural resources (Animal Damage Control Act of 1931, and Rural Development, Agricultural and Related Agencies Appropriation Act of 1988). Analysis of this alternative in the EIS indicates that it has many drawbacks (USDA 1994):

- It would require larger expenditures of money and workforce to investigate and validate all losses, and determine and administer appropriate compensation.
- Compensation would most likely be below full market value. It is difficult to make timely responses to all requests to assess and confirm losses, and many losses could not be verified.
- Compensation would give little incentive to livestock owners to limit predation through improved animal husbandry practices and other management strategies.

- Not all ranchers would rely completely on a compensation program and unregulated lethal control of predators would most likely continue as permitted by state law.

- Congress has not appropriated funds to compensate for predation or other wildlife damage to agricultural products.

3.2.2 The Humane Society of the United States (HSUS) Alternative

The HSUS proposed an alternative that requires: 1) "*permittees evidence sustained and ongoing use of nonlethal/husbandry techniques aimed at preventing or reducing predation prior to receiving the services of the ADC Program*"; 2) "*employees of the ADC Program use or recommend as a priority the use of appropriate nonlethal techniques in response to a confirmed damage situation*"; 3) "*lethal techniques are limited to calling and shooting and ground shooting, and used as a last resort when use of husbandry and/or nonlethal controls have failed to keep livestock losses below an acceptable level*"; and 4) "*establish higher levels of acceptable loss levels on public lands than for private lands.*"

The components of this proposed alternative by the HSUS have been analyzed in detail in the alternatives contained in this EA and through court rulings. The HSUS alternative would not allow for a full range of IWDM techniques to resolve predator damage management problems. In addition, ADC is charged by law to protect American agriculture, despite the cost of such operations. Further, in the Southern Utah Wilderness Society, The Wilderness Society et al. v. Hugh Thompson et al. U.S. Forest Service (United States District Court of Utah, 1993) the court clearly stated that, "*The agency need not show that a certain level of damage is occurring before it implements an ADC program . . . Hence, to establish need for an ADC, the forest supervisors need only show that damage from predators is threatened.*" In other words, it is not necessary to establish a criterion, such as percentage of loss of a herd to justify the need for an ADC. The alternatives selected for detailed analysis in this EA include many of the suggestions in the HSUS proposal, and it is believed that inclusion of this alternative would not contribute new information or options for consideration and analysis that are not already being considered and available in IWDM as used by ADC.

3.2.3 Bounties

Payment of funds for killing predators (bounties) suspected of causing economic losses is not supported by Idaho State agencies such as IDFG and IDA. ADC concurs with these agencies because:

- Bounties are generally not as effective in controlling damage.
- Circumstances surrounding take of animals are completely unregulated.
- No process exists to prohibit taking of animals from outside the damage management area for compensation purposes.
- ADC does not have the authority to establish a bounty program.

3.2.4 Provide economic incentives for herd protection

Providing economic incentives for herd protection alternative would direct all ADC program efforts and resources toward the verification of herd protection methods, and providing monetary compensation to the producers. ADC services would not include any direct control nor would technical assistance or nonlethal methods be available.

This option is not currently available because ADC is mandated to protect American agricultural and natural resources (Animal Damage Control Act of 1931, as amended; and the Rural Development, Agricultural and Related Agencies Appropriation Act 1988).

- It would require larger expenditures of money and workforce to investigate and validate all protective methods, and to determine and administer appropriate compensation.
- Making prompt responses to all requests to assess and confirm herd protection would be difficult, and many losses could occur when and if the protection methods failed to adequately protect the livestock.
- Not all ranchers would rely completely on a herd protection/compensation program and unregulated lethal control of predators would most likely continue as permitted by State law.
- Congress has not appropriated funds to compensate livestock producers for herd protection or other wildlife damage to agricultural products.

3.2.5 No Predator Damage Management Within any Wilderness or Proposed Wilderness

Under the current and proposed ADC programs (Alternatives 1 and 2), the amount of predator damage control that would occur in wilderness areas is so minor that the effects of either of those alternatives would not likely be significantly different from the effects of a "No Control in Wilderness Areas" alternative. ADC has not conducted work in any wilderness area or wilderness study area in the analysis area for at least the last 3 years. Any minor amount of predator damage control work that might be conducted by ADC in wilderness or proposed wilderness areas would conform to legislative and policy guidelines as administered by the responsible land management agency. ADC and the land management agency meet annually to review work plans that delineate what, when, why and where predator damage management would be conducted. Mitigations specific to this issue are listed in the table at the end of Chapter 3.

3.2.6 Management Techniques Not Considered for Use in the Integrated Wildlife Damage Management Strategy, with Rationale

Lithium Chloride as an Aversive Agent

Lithium chloride has been tested as a taste aversion agent to condition coyotes to avoid livestock, especially sheep. Despite extensive research, the efficacy of this technique remains unproven (Conover et al. 1977; Sterner and Shumake 1978; Burns 1980, 1983; Horn 1983; Johnson 1984; Burns and Connolly 1980, 1985). In addition, lithium chloride is not currently registered as a predacide by the EPA or IDA, and therefore cannot legally be used or recommended for this purpose.

3.3 Mitigation and Standard Operating Procedures For Predator Damage Management Techniques

3.3.1 Mitigation in Standard Operating Procedures

Mitigation measures are any features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result from that action. The current ADC program, nationwide and in Idaho, uses many such mitigation measures and these are discussed in detail in Chapter 5 of the EIS (USDA 1994). The following mitigation measures apply to some or all of the alternatives, as indicated in the columns on the right hand side of the chart. Mitigation measures for alternatives 5 and 6 are listed together since these alternatives are so similar.

Mitigation Measures	1	2	3	4	5/6
Activities in Wilderness and Special Management Areas (BLM and National Forest System Lands)					
Predator damage management would follow guidelines as specified and agreed upon in ADC Work Plans.	X	X	X	X	
Vehicle access would be limited to existing roads, unless otherwise authorized by the responsible land management agency.	X	X	X	X	
Predator damage management would be conducted only with the concurrence of the land management agency.	X	X	X	X	
Predator damage management would be conducted only when and where a need exists.	X	X	X	X	
No aerial hunting would be conducted in any wilderness areas.	X	X	X	X	
No toxicants would be used in any wilderness or other special management areas.	X	X	X	X	
No preventive control work would be conducted in any wilderness area.	X	X	X	X	
Predator damage management methods used by ADC in NRA's would be restricted to the methods that are allowed to the general public in these areas.	X	X	X	X	
Should any of BLM's existing WSAs be officially designated as Wilderness Areas in the future, predator damage management would be performed in accordance with BLM Wilderness Management Policy (BLM 1988)	X	X	X	X	
Animal welfare and humaneness of methods used by ADC					
Research would continue to improve the selectivity and humaneness of management devices.	X	X	X	X	
Pan-tension devices would be used to reduce the incidence of nontarget animal capture in leg-hold traps.	X	X	X	X	
Breakaway snares have been developed and implemented into the program. (Breakaway snares are designed to break open and release with tension exerted by larger nontarget animals such as deer, antelope and livestock.)	X	X	X	X	
All ADC employees that use immobilization and euthanasia chemicals would be trained and certified for their use.	X	X	X		
Chemical immobilization/euthanasia procedures that do not cause pain are used.	X	X	X		
Traps and snares would be checked at intervals consistent with State of Idaho regulations.	X	X	X	X	
Safety concerns regarding ADC's use of toxicants, traps and snares					
All pesticides are registered with the EPA and IDA.	X	X	X		
EPA-approved label directions are followed by ADC employees.	X	X	X		

Mitigation Measures	1	2	3	4	5/6
The ADC Decision Model is designed to identify the most appropriate predator damage management strategies and their impacts.	X	X	X	X	
Most use of toxicants would be restricted to private lands.	X	X	X		
ADC employees that use pesticides are trained to use each specific material and are certified to use pesticides under EPA approved certification programs.	X	X	X		
ADC employees who use pesticides participate in continuing education programs to keep abreast of developments and to maintain their certifications.	X	X	X		
Traps and snares would be placed so that captured animals would not be readily visible from any designated recreation road or trail shown on Forest Transportation Maps, or from Federal, State, or county roads.	X	X	X	X	
Warning signs would be posted on main roads and/or trails leading into any areas where traps, snares or M-44s were being used. These signs would be removed at the end of the control period.	X	X	X	X	
In addition to area warning signs, individual warning signs would be placed within 25 feet of each M-44 device.	X	X	X		
No M-44 devices would be used on any public lands during the regular upland bird hunting seasons.	X	X	X	X	X
No traps, snares, or M-44s would be allowed within 1/4 mile of any residence, community, or developed recreation site, unless requested by the owner of a privately-owned property or an official from the appropriate land management agency.	X	X	X	X	
Concerns about impacts of ADC's activities on threatened and endangered species and other species of special concern					
ADC has consulted with the USFWS regarding the nationwide program and would continue to implement all applicable measures identified by the USFWS to ensure protection of T&E species.	X	X	X	X	
All cage (culvert) traps and foot snares set for black bears in grizzly bear recovery areas would be checked at least daily.	X	X	X	X	
Neck snares would not be used for coyotes, black bears or mountain lions in grizzly bear recovery areas.	X	X	X	X	
All leg-hold traps would be checked at least daily in areas identified by the USFWS as "occupied gray wolf range."	X	X	X	X	
M-44s would not be used in areas identified by USFWS as "occupied gray wolf range," unless approved on a case-by-case basis south of I-90.	X	X	X	X	
No neck snares would be used in occupied gray wolf range unless they were set specifically to take a wolf as a target species.	X	X	X	X	
ADC would initiate informal consultation with USFWS within at least 5 days following any incidental take of a gray wolf.	X	X	X	X	

Mitigation Measures	1	2	3	4	5/6
Only ADC personnel trained in wolf identification would be used as aerial gunners in areas where gray wolves may be encountered.	X	X	X	X	
The LPC would not be used in areas identified by the USFWS as occupied gray wolf or grizzly bear recovery areas without prior approval from the USFWS.		X	X		
No leg-hold traps or snares would be set within 30 feet of any exposed bait or animal carcass (except when attempting to catch black bears or mountain lions) to preclude capture of bald eagles or other raptors.	X	X	X	X	
Leg-hold traps or snares set near exposed baits to capture black bears or mountain lions would incorporate tension devices to preclude capture of bald eagles and other nontarget species.	X	X	X	X	
ADC personnel would contact cooperating agencies to determine bald eagle nest and roost locations in areas where ADC activities are proposed.	X	X	X	X	
If bald eagles are encountered during aerial gunning operations, the aircraft would leave the immediate vicinity as soon as possible.	X	X	X	X	
Potential hazards to wolverines on National Forest lands would be minimized by restricting use of leg-hold traps on forest lands to summer months, when wolverines are less responsive to the scents used as attractants.	X	X	X	X	X
If wintering big game are encountered during aerial hunting operations and begin reacting to the aircraft, the aircraft would leave the area.	X	X	X	X	
Only coyotes, red fox and depredating gray wolves would be taken by APHIS-ADC during aerial hunting operations, unless otherwise mutually agreed upon by the IDFG.	X	X	X	X	
Bear, lion, and wolf damage management would be restricted to offending individuals, unless otherwise authorized by the responsible management agency.	X	X	X	X	
When practical, ADC would cooperate with IDFG to facilitate removal of depredating black bears and mountain lions by licensed sport hunters during the legal sport hunting seasons.	X	X	X	X	
The use of non-lethal methods such as guard dogs, scare devices, llamas, and other methods which may become available, would be encouraged when appropriate.	X	X	X	X	X
The appropriate land manager and the USFWS would be notified as soon as possible, and always within at least 5 days, if a gray wolf is caught or killed.	X	X	X	X	

4.0 CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

Introduction

Chapter 4 provides information needed for the decision maker to make an informed decision on the wildlife damage management program as outlined in Chapters 1 and 3, and the issues and affected environment discussed in Chapter 2. Chapter 4 consists of: 1) analyses of how each alternative meets the objectives, and 2) analyses of the environmental consequences of each alternative.

4.1 Objective Analysis

4.1.1 Objective 1 - Respond to 100% of the requests for assistance with the appropriate action to most effectively resolve the problem, as determined by ADC personnel when applying the ADC Decision Model (Slate et al. 1992).

4.1.1.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

The current analysis area wildlife damage management program responds to requests by providing both technical assistance and operational wildlife damage management. This service is provided on State, county, private, National Forest System and BLM lands where signed Cooperative Agreements, Agreements for Control or Work Plans are in place. The current program, however, cannot consider the use of the Livestock Protection Collar (LPC).

Fully meeting Objective A-1 is not always possible for ADC since use of the LPC is not currently allowed, and implementing the ADC Decision Model (Slate et al. 1992) is compromised under the current program. Alternative 1 only partially allows ADC to meet Objective 1.

4.1.1.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action).

Availability of the LPC would allow for the use of all available and legal methods in the analysis area. When authorized the LPC would be added as a method for ADC to use to resolve certain coyote depredation problems on sheep and lambs.

Alternative 2 would allow ADC to best meet Objective 1.

4.1.1.3 Alternative 3. - A Corrective Only Wildlife Damage Management Program (No Preventive Control):

Alternative 3 would limit lethal damage management of coyotes and red fox to situations where livestock losses from these species have been recently verified. Livestock damage caused by mountain lions and black bears would still be conducted on a strictly corrective basis. Alternative 3 would preclude preventive damage management in areas where historical losses have occurred. Many livestock producers have predictable patterns of depredation that result in requests for damage management to be implemented before damage begins again. Under some circumstances, preventive damage management is an important part of an integrated approach to reduce losses.

Alternative 3 would not allow ADC to fully meet Objective 1 and the ADC Decision Model would be compromised.

4.1.1.4 Alternative 4 - Only Mechanical Methods (No Use of Chemical Methods):

Alternative 4 would limit ADC's damage management of predators to the use of only mechanical methods and eliminate the use of registered and legally available chemical methods and tools. Chemical methodologies are an important part of the analysis area IWDM program and are used according to EPA label requirements.

Fully meeting Objective A-1 would be impossible for ADC since use of chemical methods would not be allowed, and implementing the ADC Decision Model (Slate et al. 1992) would be compromised. Based on these restrictions, Alternative 4 would not allow ADC to respond with a full array of wildlife damage management strategies and methods, and Objective 1 would only partially be met.

4.1.1.5 Alternative 5. - Technical Assistance Program and Alternative 6. - No Federal ADC Program:

Alternative 5 would limit ADC to providing only technical assistance to livestock producers concerning the use of available and legal methods, make recommendations, and provide instructional literature on wildlife damage management. ADC would not provide any operational wildlife damage management on Federal, State, or private lands within the analysis area. State agencies, individuals, livestock producers or other entities would be responsible for conducting all wildlife damage management. Under Alternative 6, there would be no Federal ADC program, and ADC could not respond in any manner.

Alternative 5 would only allow ADC to partially meet Objective 1, and Alternative 6 would not allow ADC to meet this objective at all.

4.1.2 Objective 2. - Hold lamb losses due to predation to 5% or less annually, and adult sheep losses to 3% or less annually[1].

4.1.2.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

As shown in Table 4.1, predation losses to adult sheep in the analysis area have been held to 3% or less for the last three years, but overall lamb losses to predation have not always been held to 5% or less. It is also important to recognize that with an overall average predation rate on lambs of 5%, some individual producers are undoubtedly suffering a much higher loss rate than this, while others may experience very little predation. Predation losses can vary widely due to a variety of factors, including: 1) variable effectiveness of various nonlethal predation management practices being employed, 2) density of predator populations in the local area, 3) terrain, weather, and vegetative cover that may restrict access and limit the array of available methods, 4) too few ADC personnel for the work load, and 5) restrictions on, or effectiveness of methods allowed on public lands.

We believe that Alternative 1 only partially allows ADC to meet the criteria of Objective 2 for average predation losses, and may not be met for each producer in the analysis area for the reasons stated above.

Table 4.1
Sheep and Lamb Losses in the
Northern and Central Idaho Analysis Area *

	1993	1994	1995
Analysis Area Lamb Crop	16,000	14,820	14,438
Lambs Killed by Predators	678	866	711
% Predation Loss	4.2%	5.8%	4.9%
Analysis Area Adult Sheep	16,960	14,250	13,818
Adult Sheep Killed by Predators	275	217	203
% Predation Loss	1.6%	1.5%	1.5%

* Analysis area lamb crop and adult sheep figures are extrapolated from IASS figures for the whole state of Idaho, based on the fact that about 6% of the total statewide sheep numbers occur in the analysis area.

4.1.2.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action):

The analysis for Alternative 2 would be similar to Alternative 1 with the addition of the LPC.

We believe that Alternative 2 would come closer to meeting Objective 2 than the current program, but still might only partially meet the target criteria for

[1] Percent predator loss would be determined annually using survey data gathered by the IASS.

average losses. Some individual producers could still suffer higher than average losses for the same reasons as discussed under Alternative 1.

4.1.2.3 Alternative 3. - A Corrective Only Wildlife Damage Management Program (No Preventive Control):

Alternative 3 would limit lethal control of coyotes and red fox to situations where livestock losses from these species had been recently verified. Livestock damage caused by mountain lions and black bears is currently conducted only on a corrective basis.

This alternative would preclude preventive damage management in areas where historical losses have occurred. Many livestock producers have predictable patterns of depredations that result in requests for damage management before damage begins. The rationale for preventive control in keeping loss levels lower was discussed on page 3-3. Alternative 3 would only allow ADC to partially meet Objective 2 and the ADC Decision Model would be compromised.

4.1.2.4 Alternative 4. - Only Mechanical Methods (No Use of Chemical Methods):

Alternative 4 would restrict ADC to using only mechanical methods of wildlife damage management. The M-44 is an important chemical control method in the analysis area, accounting for almost one third of the coyotes taken during FY 95. Not having this tool available would sometimes result in not being able to resolve a problem as quickly, if at all.

Alternative 4 would only allow ADC to partially meet Objective 2 and the ADC Decision Model would be compromised

4.1.2.5 Alternative 5. - Technical Assistance Program and Alternative 6. - No Federal ADC Program:

Under Alternative 5, a technical assistance only program, ADC could only provide information and training to requesters. Implementation of wildlife damage management would be the responsibility of the requester. Without an effective wildlife damage management program, lamb losses could be 3 to 6 times higher than those currently being experienced (Gee 1977, O'Gara et al. 1983). Under Alternative 6, no ADC assistance would be provided, and losses would be expected to increase at least as much as under Alternative 5.

Neither Alternative 5 or Alternative 6 would allow ADC to meet the criterion for Objective 2.

4.1.3 Objective 3. - Provide 100% of requesting livestock owners and cooperating agencies with information on effective nonlethal management techniques for reducing predation.

4.1.3.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

ADC is providing information on nonlethal management techniques to livestock producers, and any other individuals that request such information. Currently, the program must modify the MIS before it can be used to track who was provided with information. When all the components of the MIS are fully modified and operational, ADC would be able to determine who has been provided information on nonlethal and other producer implemented methods; until then manual compilation of the data would be conducted.

Alternative 1 would allow ADC to meet the criterion of Objective 3.

4.1.3.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action):

The analysis is the same as Alternative 1. Alternative 2 would allow ADC to meet the criterion of Objective 3.

4.1.3.3 Alternative 3. - A Corrective Only Wildlife Damage Management Program (No Preventive Control):

Nothing in this Alternative would preclude the distribution of information regarding the use of non-lethal methods. The analysis is the same as Alternative 1 and therefore, Alternative 3 would allow ADC to meet the criterion for Objective 3.

4.1.3.4 Alternative 4. - Only Mechanical Methods (No Use of Chemical Methods):

Nothing in this Alternative would preclude the distribution of information regarding the use of non-lethal methods. The analysis is the same as Alternative 1 and therefore, Alternative 4 would allow ADC to meet the criterion for Objective 3.

4.1.3.5 Alternative 5. - Technical Assistance Program:

Under Alternative 5, a technical assistance only program, ADC would still provide information, demonstrations and training on lethal and non-lethal methods for resolving wildlife damage problems. Under current reporting procedures, however, ADC does not maintain names and addresses for those requesters for whom ADC provides *only* technical assistance. Information on these recipients of ADC's services is maintained only at the county level.

Alternative 5 would only allow ADC to partially meet the criterion of Objective 3.

4.1.3.6 Alternative 6. - No Federal ADC Program:

Under this alternative, no direct control services or technical assistance could be provided. Alternative 6 would not allow ADC to meet the criteria for Objective 3.

4.1.4 Objective 4. - Ensure that the lethal take of nontarget wildlife by ADC personnel during predator damage management does not exceed 5% of the total take in the analysis area.

4.1.4.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

During the FY 93 to 95 analysis period, the number of nontarget animals killed during ADC's predator damage management in the analysis area ranged from 1.5% to 4.5% of the total animals taken, for an average rate of about 2.9%. Relatively few nontarget animals are taken by ADC in the analysis area, but the most commonly taken nontarget species have been porcupines (average of 4 nontarget porcupines killed annually), badgers (average of 3 nontarget badgers killed annually), raccoons (average of 3 nontarget raccoons killed annually), striped skunks (average of 2 nontarget skunks killed annually), and bobcats (average of 2 nontarget bobcats killed annually). The criteria for Objective 4 are being met under the current program.

4.1.4.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action):

The LPC is one of the most selective control tools available, not only for the target species, but also for target individuals. As LPC use increased, reliance on less selective control tools (traps, snares, and M-44s), could be decreased. Implementation of Alternative 2 would allow ADC to keep nontarget capture rates at least as low as Alternative 1, and would probably allow ADC to slightly reduce the incidence of nontarget kill.

4.1.4.3 Alternative 3. - A Corrective Only Wildlife Damage Management Program (No Preventive Control):

Under Alternative 3, ADC lethal damage management could only be implemented following recently documented losses of livestock to predation. Following documented losses, ADC could employ any of the methods available under Alternative 2. The ratio of non-target to target captures would probably be similar to that under Alternative 2 since the same methods would be used under both of these alternatives.

Alternative 3 would allow ADC to meet the criterion for Objective 4.

4.1.4.4 Alternative 4. - Only Mechanical Methods (No Use of Chemical Methods):

This alternative would not allow for use of the M-44, the LPC, or DRC-1339, and would probably result in a need to increase reliance on traps and snares. Leghold traps and snares are less selective than M-44s or LPCs, and increased reliance on these mechanical control methods would probably result in a slight increase in the percentage of nontargets taken. In some years, this might result in exceeding the 5% nontarget take level.

Alternative 4 would probably only partially allow ADC to meet the criteria for Objective 4.

4.1.4.5 Alternative 5. - Technical Assistance Program and Alternative 6. - No Federal ADC Program:

Under Alternatives 5 and 6, no operational wildlife damage management would be conducted and therefore no target or nontarget animals would be killed by ADC.

Implementation of either Alternative 5 or 6 would satisfy the criteria for Objective 4.

4.1.5 Objective 5 - Monitor the use of nonlethal, cooperator-implemented damage management methods.

4.1.5.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

The ADC program collects data on nonlethal and producer implemented methods recommended by ADC personnel, and those used by producers. The ADC MIS can store the data needed to satisfy this objective, however, the output report programming has not been completed. Until this MIS capability can be met, information would be collected and tabulated manually to address this Objective.

Alternative 1 would allow ADC to meet the criterion for Objective 5.

4.1.5.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action:

The analysis for Alternative 2 is the same as Alternative 1. Alternative 2 would allow ADC to meet the criterion for Objective 5.

4.1.5.3 Alternative 3. - A Corrective Only Wildlife Damage Management Program (No Preventive Control):

Nothing in Alternative 3 precludes the monitoring of producer implemented non-lethal methods, and the analysis is the same as Alternative 1. Alternative 3 would allow ADC to meet the criterion for Objective 5.

4.1.5.4 Alternative 4. - Only Mechanical Methods (No Use of Chemical Methods):

Nothing in Alternative 4 precludes the monitoring of producer implemented non-lethal methods, and the analysis is the same as Alternative 1. Alternative 4 would allow ADC to meet the criterion for Objective 5.

4.1.5.5 Alternative 5. - Technical Assistance Program:

ADC would continue to provide information, demonstrations and training to livestock producers on lethal and nonlethal methods for resolving wildlife damage. Under current reporting procedures, however, ADC does not maintain names and addresses for those requesters for whom ADC provides *only* technical assistance. Information on these recipients of ADC's services is maintained only at the county level. Monitoring would be limited to tracking the number of demonstrations and training sessions, etc., conducted within a county. It would not provide for tracking the methods implemented by individual producers.

Alternative 5 would only partially allow ADC to meet the criterion of Objective 5.

4.1.5.6 Alternative 6. - No Federal ADC Program:

Under Alternative 6 there would be no Federal ADC program and therefore no monitoring of cooperators' use of nonlethal control methods. This alternative would not satisfy the criteria for Objective 5.

4.1.6 Objective 6 - Respond to 100% of requests from IDFG.

4.1.6.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

The ADC program in the analysis area has responded to all requests from the IDFG to protect specific wildlife species and to assist in reducing damage caused by species for which IDFG has management responsibility.

Alternative 1 would allow ADC to meet the criterion of Objective 6.

4.1.6.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action):

The analysis for Alternative 2 would be the same as Alternative 1. ADC would meet the criterion of Objective 6.

4.1.6.3 Alternative 3. - A Corrective Only Wildlife Damage Management Program (No Preventive Control):

Alternative 3 provides only for wildlife damage management where confirmed predation on livestock or wildlife is occurring or has recently occurred. This would not allow ADC to respond to all of the requests received from IDFG.

Alternative 3 would only partially allow ADC to meet the criterion for Objective 6.

4.1.6.4 Alternative 4. - Only Mechanical Methods (No Use of Chemical Methods):

Alternative 4 would only allow ADC to use mechanical methods when responding to predator damage management requests from the IDFG. DRC-1339 would not be available to protect nesting waterfowl or upland birds from raven or magpie predation.

Alternative 4 would probably only allow ADC to partially meet the criterion for Objective 6.

4.1.6.5 Alternative 5. - Technical Assistance Program and Alternative 6. - No Federal ADC Program:

Under Alternatives 5 and 6, no operational ADC program would be available, and neither of these alternatives would allow ADC to meet the criterion for Objective 6.

4.1.7 Summary of Objectives and Alternatives

Table 4-2 summarizes how each alternative would either: best meet each objective, meet each objective, partially meet each objective, or not meet the objective.

Table 4-2 Objectives/Alternatives Comparison

Program Objectives	*Alternative 1 No Action*	*Alternative 2 Proposed Action*	*Alternative 3 No Preventive Control*	*Alternative 4 No use of Chemicals*	*Alternative 5 Tech. Asst. Only*	*Alternative 6 No Federal Program*
1. Respond to Requests	Partially Meets	Best Meets	Partially Meets	Partially Meets	Partially Meets	Does not Meet
2. Percent Predation Losses	Partially Meets	Best Meets	Partially Meets	Meets	Does not Meet	Does not Meet
3. Provide Information	Meets	Meets	Meets	Meets	Partially Meets	Does not Meet
4. Nontarget Take	Meets	Meets Better than Alts. 1,4,5, or 6	Meets as well as Alt. 2	Partially Meets	Not Applicable	Not Applicable
5. Monitor Methods	Meets	Meets	Meets	Meets	Partially Meets	Does not Meet
6. IDFG Requests	Meets	Meets	Partially Meets	Partially Meets	Does not Meet	Does not Meet

4.2 Environmental Consequences

This section analyzes the environmental consequences using Alternative 1 (the current program) as the baseline for comparison with the other alternatives to determine if the real or potential impacts are greater, lesser or similar. Table 4.5 (at the end of Chapter 4) summarizes a comparison of the issues and impacts of each Alternative.

The following resource values within the analysis area (soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, timber and range, and cultural, archeological, and historic resources) would not be significantly impacted by any of the alternatives analyzed. These resources will not be analyzed further.

Social and Recreational Concerns: Social and recreational concerns are discussed throughout the document as they relate to issues raised during public involvement, and they are discussed throughout ADC's programmatic EIS (USDA 1994).

Target and Nontarget Wildlife Species: Cumulative impacts to potentially affected wildlife species are addressed in detail under section 4.2.1.

Cumulative and Unavoidable Impacts: Cumulative and unavoidable impacts are discussed in relationship to each of the key wildlife species and the environmental impacts are analyzed in this chapter. This EA recognizes that the total annual removal of individual animals from wildlife populations by all causes is the cumulative mortality. It is not anticipated that the proposed action will result in any adverse cumulative impacts to T&E species populations, or to WSAs or WAs.

Irreversible and Irretrievable Commitments of Resources: Other than relatively minor uses of fuels for motor vehicles and electrical energy for office maintenance, there are no irreversible or irretrievable commitments of resources. Based on these estimates, the analysis area program produces negligible impacts on the supply of fossil fuels and electrical energy.

Issues Analyzed in Detail

4.2.1 Cumulative impacts on viability of wildlife populations.

Analysis of this issue will be limited primarily to those species most often taken during ADC's predator damage management activities. This includes coyotes, red fox, striped skunks, badgers, raccoons, bobcats, black bears, mountain lions, and ravens. Although ADC has not typically targeted magpies for lethal control in the analysis area, control of magpie damage is included as a potential component of the current program and the proposed action, and potential impacts to magpie populations are also addressed.

The analysis for magnitude of impact on these species' populations generally follows the process described in the ADC EIS (USDA 1994, Chap. 4). Magnitude is described in the EIS as "*...a measure of the number of animals killed in relation to their abundance.*" Magnitude may be determined either quantitatively or qualitatively. Quantitative determinations are based on population estimates, allowable harvest levels, and actual harvest data. Qualitative determinations are based on population trends and harvest data when available. When population estimates are used to make a quantitative determination, conservative estimates are used to better ensure that impacts of predator removal are adequately assessed.

4.2.1.1 Alternative 1. - Continue the Current Program: (No Action).

Coyotes typically are responsible for the largest portion of predation losses inflicted on livestock producers in the analysis area. During the 3-year period of 1993-1995, for example, an average of 78% of the predator-caused losses to sheep and lambs in Idaho were caused by coyotes (IASS 1996). Most of ADC's predator damage control efforts are therefore directed at coyotes, and Idaho ADC takes more coyotes than it does any other predator species.

Coyote Population Information

Determinations of absolute densities for coyote populations are frequently limited to educated guesses (Knowlton 1972). The cost of studies to accurately determine absolute coyote densities over large areas would be prohibitive (Connolly 1992b) and would not appear to be warranted for this EA given the coyotes' relative abundance. ADC's take of coyotes per hour of aerial hunting effort, however, may represent some of the best information available on the relative abundance of coyotes in Idaho. An analysis of 40 years worth of ADC's aerial hunting data from southern Idaho (USDA 1996) suggested that coyote populations are somewhat cyclical, and that coyote populations today are significantly higher than they were back in the '50s and '60s when toxicants were used extensively to reduce coyote populations. Although ADC conducts much less aerial hunting for coyotes in the northern and central Idaho analysis area than in southern Idaho, these inferences about coyote densities in southern Idaho are probably applicable to northern Idaho as well.

Coyotes are highly mobile animals with home ranges (territories) that vary by sex and age of the animal and season of the year (Pyrah 1984, Althoff 1978, Todd and Keith 1976). Coyote population densities will vary depending on the time of year, food abundance, and habitat. In reviewing a series of studies where coyote abundance was assessed, Knowlton (1972) concluded that coyote densities may range as high as 5-6/mi^2 under extremely favorable conditions, with 0.5-1.0/mi^2 seemingly realistic over much of their range. Davison (1980) reported that coyote densities were 0.7/mi^2 in an area of Butte County in southeastern Idaho. Clark (1972) conducted a study of coyotes in the Curlew valley area of southeastern Idaho and northern Utah. Coyotes in this study area were subject to significant predator damage control efforts as well as heavy private fur harvesting efforts. Clark's five year average population density, which included an apparent nine year low, was estimated at 0.63/mi^2.

In some areas of Idaho, coyote densities are probably much higher than the 0.5-1.0/mi^2 range discussed above. During a 1-week period in April of 1993, in response to a severe depredation problem, ADC removed 56 coyotes from an approximately 15/mi^2 area near Jump Creek and Poison Creek in southwest Idaho, suggesting a minimum density of at least 3.7 coyotes/mi^2 (Bangerter 1993). This take of coyotes was during the lowest

seasonal density (immediately prior to whelping) and does not account for coyotes that likely remained in the area after the conclusion of ADC's efforts. A minimum density estimate was obtained similarly on the Soda Springs Ranger District of the Caribou National Forest in 1978, when 307 coyotes were removed from an approximately 300 square mile area during winter aerial hunting operations, suggesting a minimum winter density of about 1 coyote/mi^2 (USFWS 1978).

Based on a review of the information cited above, coyote densities for purposes of this assessment will be estimated conservatively at 0.6/mi^2 throughout the analysis area. The 35,546 mi^2 analysis area would then hold an estimated population of about 21,000 coyotes.

Coyote Population Impact Analysis

During 1993-95, ADC took an average 776 coyotes annually in the analysis area, or less than 4% of the estimated population. The average annual private trapper harvest in the analysis area from 1992-1994 has been about 575 coyotes. Sport hunting undoubtedly accounts for an additional number of coyotes taken every year, but numbers on this take are not available. For purposes of this analysis, we will assume that the harvest by sport hunters equals the harvest by private trappers. The combined annual coyote take then probably averages about 1,926 coyotes in the analysis area, or about 9% of the estimated population. Although coyote densities in small localized areas may be temporarily reduced through ADC's control actions, immigration of coyotes from surrounding areas eventually repopulates these areas. Henke (1992) noted that in his study area, coyote density returned to pre-removal levels within 3 months following removal efforts.

A population model developed by Connolly and Longhurst (1975), and revisited by Connolly (1995), suggests that coyotes can withstand an annual removal of 70% of their numbers and still maintain a viable population. Evaluating the data using standards established in USDA (1994), removal of 9% of the coyote population in the analysis area would result in cumulative impacts of a low magnitude. This conclusion is consistent with the U.S. GAO (1990) assessment regarding ADC's impacts on coyote populations in the western U.S.

Red Fox Population Information

Red fox predation in the analysis area is confined mainly to poultry and lambs. Verified damage amounted to about $265 in 1995 (MIS 1995). Additionally, red fox predation on nesting waterfowl and nesting and winter concentrations of pheasants are sometimes of concern to IDFG.

Red foxes are the most common and well-known species in the genus *Vulpes* and are the most widely distributed nonspecific predators in the world (Voigt 1987). Foxes are regarded as nuisance predators in many regions, preying on wildlife and livestock, and have become notorious in many areas of the world as carriers of diseases (Ables 1969, Andrews et al. 1973, Tabel et al. 1974, Tullar et al. 1976, Pils and Martin 1978, Sargeant 1978, Voigt 1987, Allen and Sargeant 1993). Because of its importance to humans, it has been the subject of much study during the last 20 years. Investigations have revealed that red foxes are extremely adaptive with much diversity in their behavior and habitats. Voigt and Earle (1983) and Gese et al. (1996) showed that red foxes avoided coyotes but coexisted in the same area and habitats.

The density of red fox populations is difficult to determine because of the species secretive and elusive nature. However, the red fox has a high reproductive rate and dispersal capacity similar to coyotes, and can withstand high mortality within the population (Allen and Sargeant 1993, Voigt 1987, Voigt and MacDonald 1984, Harris 1979, Pils and Martin 1978, Storm et al. 1976, Andrews et al. 1973, Phillips and Mech 1970). Storm et al. (1976) stated that 95% of the females (43.6% were less than 1 year old) bred successfully in a population in Illinois and Iowa. Rowlands and Parkes (1935) and Creed (1960) reported that male red fox breed in their first year. Litter sizes averaged about 4.7 for 13 research studies and litters with as many as 14 and 17 offspring have been reported (Storm et al. 1976, Voigt 1987). Ables (1969) and Sheldon (1950) reported that more than one female was observed at the den and suggested that red fox have "helpers" at the den, a phenomena observed in coyotes and other canids. Reported red fox population densities have been as high as over 50/mi^2 (Harris 1977,

MacDonald and Newdick 1982, Harris and Rayner 1986) where food was abundant; Ontario population densities are estimated at 2.6 animals/mi² (Voigt 1987), and Sargeant (1972) reported 1 fox den/3 mi².

Red fox dispersal serves to replace and equalize fox densities over large areas and over a wide range of population densities. Annual harvests in localized areas in one or more years will likely have little impact on the overall population in subsequent years, but may reduce localized predation (Allen and Sargeant 1993). Phillips (1970) stated that fox populations are resilient and in order for fox control operations by trapping to be successful, pressure on the population must be almost continuous. Phillips (1970) and Voigt (1987) further stated that habitat destruction that reduces prey numbers, water and cover will affect fox populations to a greater extent than a short-term over harvest.

Red fox populations in the analysis area appear to be stable to increasing (IDFG 1995). For purposes of this analysis, we will conservatively estimate red fox densities at 1.0/mi² on 20% of the analysis area. This would equate to a total population in the analysis area of about 7,100 red fox.

Red Fox Population Impact Analysis

ADC removed 8 red fox in the analysis area in FY 95, 3 of which were nontarget. The IDFG reported an estimated 2,513 red foxes harvested by fur trappers statewide in 1994/95. A total of 453, or 18% (IDFG 1995 furbearer harvest estimates for 25% of Region 3 and all of Regions 1, 2, and 7) of these were harvested within the analysis area. The combined total known take of red fox in the analysis area was 461 animals.

The allowable harvest level cited for red fox (USDA 1994, Chap. 4, p.12) is 70% of the total population. The data for 1995 suggest that the ADC kill in the analysis area was less than 1% of the estimated population. The total known take was less than 7% of the total estimated population. Because this harvest level is well below 70%, the magnitude of impact is determined to be low.

Black Bear Population Information

Black bears occur throughout much of Idaho except in the southwestern portion of the state. Bears can present problems concerning livestock predation, property damage, threats to human safety, and nuisance situations in the analysis area. ADC verified black bear damage to sheep, lambs, and beehives amounting to about $2,640 in the analysis area in FY 95.

The age structure of bear populations is one indicator of population health. Because bears are relatively long-lived animals, bears in the older age classes should be found in a healthy population. If a population is overexploited, the older aged bears would not be present or would be in low proportions (IDFG 1992).

In Idaho, female black bears generally reach reproductive maturity at about 4 years of age. Following a 7-8 month gestation (about 220 days), they produce an average of 1.5-1.8 cubs per female. Lightly hunted areas in Idaho have a high ratio of adults to subadults (70:30), a high percentage of adult males (35%), and a median age of 7.5 years. Data collected from heavily hunted populations showed adult:subadult ratios at 40:60, fewer adult males (21%), and a median age of 2.5-3.5 years (IDFG 1992).

IDFG has estimated the statewide black bear population at about 25,000 animals (USDA 1994). For purposes of this analysis, we will be more conservative and assume an estimated statewide population of 20,000 black bears. About 70% of the annual black bear harvest occurs in the analysis area, which would indicate an estimated population of about 14,000 black bears in the analysis area (J. Beecham. IDFG. 1995. pers. comm.).

Black Bear Population Impact Analysis

Current black bear harvest, whether by hunting, IDFG, ADC, livestock producers or other causes, is not causing a decline in bear populations, and black bear populations in Idaho appear to be stable (J. Beecham, IDFG. 1995. pers. comm.). During the 1992-1994 period, the total known harvest in the analysis area averaged about 1472 bears per year, while ADC took an average of about 4 bears per year. ADC's take amounted to less than 0.1% of

the total estimated population, while the total known kill was about 11% of the estimated population. The allowable harvest level cited for black bears in USDA (1994) is 20% of the population. IDFG biologists feel that a harvest level of 10% would be more appropriate for Idaho (J. Beecham. IDFG. 1996 pers. comm.). While the impact of ADC's take of black bears would be considered very low, the qualitative assessment of the cumulative impact would be considered moderate. It should be noted that although ADC took a very small proportion of the black bear in relationship to the total population, the effort is significant in resolving black bear damage problems and meeting black bear damage management goals.

Mountain Lion Population Information

ADC verified mountain lion predation on 19 sheep and lambs, 3 goats, 2 calves, and 3 pets in the analysis area in FY 95. ADC also responded to five instances within the analysis area in FY 95 where mountain lions were considered by IDFG and ADC to be a threat to public safety (MIS 1995).

Mountain lions occur in many habitat types from desert to alpine environments, indicating a wide range of adaptability. They are closely associated with deer and elk because of their dependence upon these species for food.

Female mountain lions typically breed for the first time between 22 and 29 months of age (Ashman et al. 1983) but initial breeding may be delayed until a territory has been established (Hornocker 1970). Mountain lions breed and give birth year round but most births occur during late spring and summer following about a 90 day gestation period (Ashman et al. 1983, Seidensticker et al. 1973, Robinette et al. 1961). One to six offspring per litter is possible, with an average of two to three young per litter.

Mountain lion density is related closely to prey availability and the social tolerance for other mountain lions. Prey availability is directly related to prey habitat quality that directly influences mountain lion nutritional health, and reproductive and mortality rates. Studies indicate that as available prey increases, so do lion populations, but because mountain lions are territorial animals, the rate of population increase tends to decrease as lion density increases. As lion population density increases, mortality rates from intraspecific fighting and cannibalism also increase, and/or lions disperse into unoccupied or less densely occupied habitat. The relationship of the mountain lion to its prey and to other lions is why their densities do not reach levels observed in a number of other wildlife species (ODFW 1993).

Mountain lion densities in other states, based on a variety of population estimating techniques, range from a low of about 1/100 mi^2 to a high of 24/100 mi^2 (Johnson and Strickland 1992). An average density estimate for the western states was 7.5/100 mi^2 (Johnson and Strickland, 1992). In Idaho, mountain lion harvest rates have risen from 250 animals harvested in 1985 to 452 in 1994. Analysis of harvest data suggests that mountain lion populations are increasing throughout Idaho. IDFG biologists believe that the number of mountain lions currently harvested represents about 10% of the existing population (J. Beecham. IDFG. 1995. pers. comm.). Based on this assumption, Idaho's statewide mountain lion population would be about 4500 animals. The 1992-1994 average total take of mountain lions in the analysis area has been about 318 animals, suggesting a population of about 3,180 lions, or a density of about 9/100mi^2.

Mountain Lion Population Impact Analysis

Mountain lion populations can sustain relatively moderate to heavy losses of adults and still maintain viable populations. Robinette et al. (1977) reported an annual mortality of 32% in Utah, while Ashman et al. (1983) noted a sustained annual mortality of at least 30% in Nevada. Ashman et al. (1983) believed that under "moderate to heavy exploitation (30%-50%)" mountain lion populations on their study area had the recruitment (reproduction and immigration) capability to rapidly replace annual losses. The allowable annual harvest level for mountain lion cited by the USDA (1994) is 30% of the population.

The 1992-1994 average annual sport harvest in the analysis area has been about 318 animals, or about 10% of the total estimated population (J. Beecham. IDFG. 1995. pers. comm.). The ADC average annual kill for FY 1993-1995 was about 3 mountain lions, or less than 0.1% of the total estimated population in the analysis area.

No nontarget mountain lions were killed. These figures are well within the parameters for a determination of "low magnitude" of impact as determined by USDA (1994).

Bobcat Population Information

Bobcat predation on livestock in the analysis area is primarily on sheep and poultry. In 1995, ADC confirmed bobcat predation on 1 lamb, 4 chickens, and documented an injury to a horse caused by a bobcat. Bobcat damage confirmed by ADC within the analysis area in FY 95 amounted to $330.

Bobcats reach reproductive maturity at approximately 9 to 12 months of age and may have one to six kittens following a two-month gestation period (Crowe 1975; Koehler 1987). Reported bobcat densities, as summarized by McCord and Cardoza (1982), have ranged between 0.1-7.0/mi^2. They may live up to 14 years, but annual mortality is as high as 47% (Rolley 1985). Analysis of Idaho bobcat harvest data suggests that populations are healthy and productive, and that current harvest levels are not detrimental to bobcat populations (IDFG 1995). Knick (1990) estimated that bobcat densities on his study area in southeastern Idaho ranged from 0.35/mi^2 during a period of high jackrabbit densities, to about 0.04/mi^2 during a period of low jackrabbit densities. Bailey (1974) estimated bobcat densities in the same area to average about 0.14/mi^2. For this analysis we will estimate bobcat densities at .05/mi^2 in the analysis area, or about 1,775 animals.

Bobcat Population Impact Analysis

The IDFG reported an estimated statewide bobcat harvest by trappers of 324 bobcats in 1994-95. Of this total, about 59% (191 bobcats) were probably taken within the analysis area (IDFG 1995 furbearer harvest estimates for 25% of Region 3 and all of Regions 1,2 and 7). ADC killed 3 bobcats in the analysis area in 1995, 2 of which were nontarget animals. Two other nontarget bobcats were captured and released. The total known take for 1995 was 194 bobcats within the analysis area, or about 11% of the estimated population. The allowable harvest for bobcats cited in USDA (1994) is 20% of the total population. Because the total take is substantially less than the 20% allowable harvest level, this magnitude of impact is considered low.

Raccoon Population Information

Raccoon damage in the analysis area is confined primarily to poultry. In 1995, ADC verified raccoon depredation to domestic turkeys and livestock feed valued at $170.

Raccoons are one of the most omnivorous of animals, feeding on carrion, garbage, birds, mammals, insects, crayfish, mussels, a wide variety of grains, various fruits, other plant materials, and most or all foods prepared for human or animal consumption (Sanderson 1987).

Sanderson (1987) stated that absolute population densities of raccoons are difficult if not impossible to determine because of the difficulty in knowing what percentage of the population has been counted or estimated, and the additional difficulty of knowing how big an area the raccoons are using. Twichell and Dill (1949) reported one of the highest densities, with 100 raccoons removed from winter tree dens on 101 acres of a waterfowl refuge in Missouri. Other studies have found raccoon densities that ranged from 9.3/mi^2 to 80/mi^2 (Yeager and Rennels 1943, Urban 1970, Sonenshine and Winslow 1972, Hoffman and Gottschang 1977, and Rivest and Bergerson 1981). Specific estimates of raccoon densities are not available for northern and central Idaho, but the IDFG believes that current populations are stable or increasing (IDFG 1995).

Raccoon Population Impact Analysis

In 1995, raccoon harvests for Idaho totaled 509. About 339 of these were harvested within the analysis area (IDFG 1995 furbearer harvest estimates for 25% of Region 3 and all of Regions 1,2, and 7). ADC killed a total of 10 raccoons in the analysis area in FY 95, 6 of which were nontargets, and freed 1 other nontarget raccoon.

Because raccoon populations are judged to be stable or increasing in spite of the present level of overall harvest, the qualitative determination of the cumulative impacts on raccoon populations would be of low magnitude.

Badger Population Information

Badgers sometimes cause damage to pasture and agricultural lands through their digging activities, and are less frequently responsible for the deaths of small lambs. ADC did not verify any economic losses due to badgers in the analysis area in FY 95 and badgers are only occasionally taken as target animals. Badgers are more often taken as a nontarget species when attempting to capture coyotes in leghold traps. The badger is classified as a furbearer within the State of Idaho but there is no closed season.

Little is known about badger densities other than a few intensely studied populations. Lindzey (1971) estimated that Curlew Valley on the Utah-Idaho border supported 1 badger/mi^2. Messick and Hornocker (1981) believed that the Snake River Birds of Prey Natural Area and adjacent lands in southwestern Idaho supported badger densities of up to 13/mi^2. For purposes of this analysis we will conservatively estimate the badger density to be 0.2/mi^2 throughout the analysis area, or a total of about 7,100 badgers.

Badger Population Impact Analysis

Badger populations can safely sustain an annual harvest rate of 30-40% annually (Boddicker 1980). The IDFG reported an estimated 137 badgers taken by private trappers statewide during the 1994/95 season. An estimated 32 badgers, or 23% of the statewide harvest occurred within the analysis area (IDFG 1995 furbearer harvest estimates for 25% of Region 3 and all of Regions 1,2, and 7). ADC removed a total of 8 badgers in the analysis area during FY 95, 6 of which were nontarget animals. One additional nontarget badger was released. The combined private trapping harvest and ADC harvest of badgers within the analysis area was about 40 badgers in 1995, or less than 1% of the estimated population. Because this is substantially less than the allowable harvest level, and because badger populations in Idaho appear to be stable (IDFG 1995), cumulative impacts are likely of low magnitude.

Striped Skunk Population Information

Skunks primarily cause odor problems around homes, transmit diseases such as rabies to humans and domestic animals, and prey on poultry. Verified losses due to skunks during FY 95 in the analysis area included odor damage to a residence valued at $25.

The striped skunk is the most common member of the *Mustelidae* family. Striped skunks have increased their geographical range in North America with the clearing of forests, however there is no well-defined land type that can be classified as skunk habitat (Rosatte 1987). Striped skunks are capable of living in a variety of environments, including agricultural lands and in urban areas.

The home range of striped skunks is not sharply defined over space and time, but is altered to accommodate life history requirements such as raising young, winter denning, feeding activities, and dispersal (Rosatte 1987). Home ranges reported in the literature averaged between 0.85 to 1.9/mi^2 for striped skunks in rural areas (Houseknecht 1971, Storm 1972, Bjorge et al. 1981, Rosatte and Gunson 1984). Skunk densities reported in the literature range from 0.85 to 67/mi^2 (Jones 1939, Ferris and Andrews 1967, Verts 1967, Lynch 1972, Bjorge et al. 1981). Many factors may contribute to the widely differing population densities, including type of habitat, food availability, disease, season of the year, and geographic area (Storm and Tzilkowski 1982). Specific population density estimates for striped skunks in Idaho are not available. For purposes of this analysis, we will conservatively estimate skunk densities at 0.3/mi^2 throughout the analysis area, for an estimated population of about 10,600 animals.

Striped Skunk Population Impact Analysis

Skunk populations can reportedly sustain a 60% annual harvest level indefinitely (Boddicker 1980). Fur harvest data shows that during 1995, 44 skunks or 13% of the statewide skunk harvest occurred within the analysis area

(IDFG 1995 furbearer harvest estimates for 25% of Region 3 and all of Regions 1,2, and 7). During 1995, ADC personnel killed 5 skunks in the analysis area, 4 of which were nontarget animals. The combined harvest by private trappers and ADC totaled about 49 skunks, or less than 1% of the estimated population. Because this level of harvest is substantially less than the sustainable harvest level, cumulative impacts are likely of a low magnitude.

Raven Populations and Impact Analysis

The raven is an omnivorous species known to feed on carrion, crops, eggs, birds, small mammals, amphibians, reptiles, fish and insects (Nelson 1934). Larsen and Dietrich (1970) noted that ravens are sometimes responsible for lamb mortality on spring lambing ranges. During FY 95 in the analysis area, ADC investigated several complaints of raven predation and verified raven predation on 4 calves valued at $3000. Representatives from the IDFG have also requested ADC's assistance in controlling ravens that prey on nesting waterfowl at the McCarthur Lake Wildlife Management Area in northern Idaho.

Knight and Call (1981) summarized a number of studies on raven territories and home ranges in the western U.S. Nesting territories ranged in size from 3.62/mi^2 to 15.7/mi^2 in Wyoming and Oregon and home ranges varied from 2.53/mi^2 to 3-6/mi^2 in Utah and Oregon. Information on actual raven densities in the analysis area is not available, but population trend information is available from two different sources. Breeding Bird Survey data maintained by the USFWS, and National Audubon Society Christmas Bird Count data both suggest that raven populations in Idaho are increasing. Christmas Bird Count data (1959-1988) shows a trend of raven numbers increasing at about 5% annually in Idaho. More recent trend data from the Breeding Bird Survey (1980-1994) shows a trend of raven numbers in Idaho increasing at about 12% annually. If current raven densities in the analysis area were conservatively estimated at about 1 raven/15mi^2, there would be an estimated minimum population of about 2,100 ravens in the analysis area. If raven populations are increasing at an annual rate of just 10%, then about 210 ravens could presumably be removed from the population annually without reducing the current population level. During FY 95, ADC removed a total of 18 ravens in the analysis area in response to raven depredation problems. Cumulative impacts to raven populations are likely of a low magnitude.

Magpie Populations and Impact Analysis

Like ravens, magpies are omnivorous and very opportunistic in their feeding habits (Hall 1994). In Idaho, Gazda and Connelly (1993) confirmed that magpie predation was the single most important factor limiting waterfowl nesting success on their study area. Farmers growing alfalfa for seed in southern Idaho have also confirmed that magpies are a significant problem when they prey on valuable leaf-cutter bees. The bees are raised as pollinators for alfalfa seed crops, and magpies can cause significant economic damage as they feed on the pupae emerging from the bee boards housed near the alfalfa fields.

The black-billed magpie is common throughout Idaho, and analysis of Breeding Bird Survey data suggests that magpie populations in Idaho are stable. The Audubon Christmas Bird Count data suggests that magpies are much more abundant than ravens in Idaho, with a mean of 92.83 magpies seen per 100 observer hours, versus only 6.47 ravens seen per 100 hours. Specific population estimates for magpies in Idaho are not available, but Gazda and Connelly (1993) documented a nesting density of 35 active magpie nests per square mile on the Sterling Wildlife Management Area in southeastern Idaho. Magpie populations are apparently healthy enough, and the problems they cause great enough, that the USFWS has established a standing depredation order for magpies. Under this regulation (50 CFR 21.43), no Federal permit is required by anyone to take magpies if they are causing damage or creating a nuisance.

ADC typically takes few magpies during predator damage control operations in the analysis area, but could be requested to remove greater numbers of magpies in the future. Because magpie populations appear to be stable in spite of the liberal take allowed, removal of up to several hundred additional magpies annually by ADC would likely result in a only a low magnitude of impact.

4.2.1.2 Alternative 2. - Current Program Plus Use of the LPC (Proposed Action):

Because the LPC is selective not only for the target species, but also for target individuals, fewer coyotes and nontarget animals would be taken to resolve complaints of coyote depredation on pastured sheep. The LPC would not be used extensively, however, because of the limited circumstances under which the label allows its use. While total take of coyotes and nontarget species would probably decrease slightly, it would not likely be enough to appreciably change the impacts as assessed under Alternative 1.

4.2.1.3 Alternative 3. - No Preventive Control:

Total numbers of coyotes taken by ADC would probably decrease under this alternative, and impacts to coyote populations would be reduced to some degree. But because ADC's take of coyotes under the current program results in only a low level of impact, the impacts on coyote populations resulting from implementation of a "no preventive control" alternative would not likely differ significantly from the impacts of the current program. Impacts on other species would likewise not be expected to differ significantly from impacts of the current program.

4.2.1.4 Alternative 4. - No Use of Chemical Methods:

Alternative 4 would not allow for use of M-44s, LPCs, or DRC-1339 in predator damage control operations within the analysis area. Almost one third of the coyotes taken in the analysis area in FY 95 were taken by M-44s. If M-44 use was precluded, additional coyotes would probably have to be taken using other methods such as traps, snares, or shooting. While this might result in decreased cost-effectiveness and reduced efficacy in resolving predation problems, it would not likely result in any impacts to wildlife populations that differed significantly from the impacts of the current program.

4.2.1.5 Alternative 5. - Technical Assistance Program, and Alternative 6.- No Federal ADC Program:

Because neither of these alternatives would provide for any operational ADC activities, there would be no ADC impacts on the viability of any wildlife populations. There would likely be increased impacts on some wildlife populations, particularly coyotes, from other sources, to address damage problems. This could take the form of increased private aerial hunting or other control efforts by individual livestock producers, and/or the establishment of organized State, county, or private predator damage control programs. Because ADC's current activities result in such a low magnitude of impact on the viability of wildlife populations, it is not expected that these other compensatory forms of predator damage control would result in significantly different impacts.

4.2.2 Concerns About Effectiveness and Selectivity of Wildlife Damage Management Methods.

Chapter 3 included discussion about the relative effectiveness and selectivity of the various methods used by ADC and that discussion will not be repeated here. Under the current program, all methods are used as selectively and humanely as practically possible, in conformance with the ADC Decision Model (Slate et al. 1992) and ADC Program Directives. The selectivity of each method is based, in part, on the application of the method and the skill of the ADC Specialist, and the direction provided by ADC Directives and policies.

The selectivity and effectiveness of each alternative is based on the methods employed under that alternative. ADC personnel are trained in the use of each method and are certified by the IDA as pesticide applicators for each pesticide that is used during damage management activities. Effectiveness of the various methods may vary widely depending on local circumstances at the time of application. Some methods may be more or less effective or applicable depending on weather conditions, time of year, biological considerations, economic considerations, legal and administrative restrictions, or other factors. Because these various factors may at times preclude use of certain methods, it is important to maintain the widest possible selection of control tools to most effectively resolve wildlife damage problems.

4.2.2.1 Alternative 1. - Continue the Current Northern and Central Idaho Analysis Area Program (No Action):

Several of the methods employed under the current program are typically 100% selective for target species. These methods include aerial hunting, shooting from the ground, and denning. Cage trapping may take a few nontarget animals, but these animals can typically be released unharmed. DRC-1339 for controlling depredating ravens and magpies is very selective for the target species because prebaiting and baiting procedures ensure that nontarget species are unlikely to be exposed to the baits. If by some remote chance a nontarget mammal were exposed to DRC-1339 meat or egg baits, risks are very low because of the product's low toxicity to mammals (DeCino et al. 1966, Schafer 1981).

While the methods discussed above are typically near 100% selective in killing only the target species, other methods such as leghold traps, snares, and M-44s are somewhat less selective. Table 4.3 shows the FY 1993-1995 cumulative number of target and nontarget animals killed in the analysis area by these methods, and their selectivity expressed as the average percent of targets taken by each method.

ADC's use of leghold traps would be more humane, and the number of nontargets killed would be lower, if traps could be monitored at least daily. Unfortunately, the amount of territory that each ADC Specialist is responsible for, and the number of requests for assistance is such that ADC personnel are typically not able to monitor traps every day. ADC's trap-checking interval is more often closer to 3-4 days than it is to every 24 hours. ADC uses leghold traps with either offset jaws or rubber-padded jaws to reduce injuries, and ADC's use of pan-tension devices makes use of leghold traps much more selective. Pan-tension devices increase the amount of weight required to set off the trap, and are successful in significantly reducing the incidence of capturing smaller nontarget species (Turkowski et al. 1984, Phillips and Gruver 1996). They are always used by ADC unless their use would preclude capture of the intended target species. ADC personnel often try to reduce the need for setting traps or snares by trying to first remove problem animals by shooting. If shooting is unsuccessful or not feasible, then equipment must be placed to try and resolve the problem. Nontarget animals captured in traps or snares are released whenever it is judged that they would survive after release.

Table 4.3
Selectivity of Leghold Traps, Snares and M-44s as Used by ADC in the Northern and Central Idaho Analysis Area FY 1993-1995, by Method

	Traps [1]	Snares [1,2]	M-44s
Targets			
Coyotes	491	65	466
Red Fox	4	5	0
Badgers	2	0	0
Feral Cat	1	0	0
Bobcats	3	0	0
Raccoon	3	0	0
Black Bear	0	5	0
Mt. Lion	4	0	0
3-Year Total	508	75	466
Non-Targets			
Red Fox	3	0	0
Striped Skunk	6	1	0
Badger	9	0	0
Porcupine	8	0	0
Bobcat	2	0	0
Dog	0	1	6
Wolf	0	0	1
Raccoon	9	0	0
Deer	0	3	0
Feral Cat	1	1	0
3-Year Total	38	6	7
% Selectivity	93%	93%	99%

1 These figures refer only to lethal take of animals caught in leghold traps and snares. Nontarget animals caught and released are not included in these totals.

2 These figures refer primarily to animals caught in neck snares, but also include bears caught in foot snares.

As used by ADC in the analysis area, snares have a similar selectivity as leghold traps. Spring-activated leg snares set for bears or mountain lions are typically near 100% selective for the target species, but neck snares are less selective. The selectivity of snares is largely a function of how and where they are set. Breakaway snares are used to provide for the release of hoofed mammals that might get accidentally caught by the leg.

Use of livestock guarding dogs by sheep producers has been proven effective in preventing at least some predation losses (Green 1987), and use of guard dogs is generally perceived as a selective form of nonlethal control. But use of guard dogs may also involve deaths of target and nontarget animals. Timm and Schmidt (1989) documented that guard dogs in their study regularly killed deer fawns, and anecdotal evidence from ADC field personnel and livestock producers suggests that guard dogs sometimes kill coyote and red fox pups as well as deer fawns and elk calves. Llamas have also been advocated as effective livestock guarding animals (Franklin and Powell 1994), but some degree of nontarget hazard may likewise exist from the use of llamas for this purpose. Llamas are sometimes carriers of paratuberculosis (Johne's disease) which may be transmissible to native ungulates or domestic livestock (Wildlife Management Institute 1995). This disease involves a chronic wasting of the intestinal tract and associated lymphoid tissues, and there is no known cure.

4.2.2.2 Alternative 2. - Current Program Plus Use of the LPC[2] (Proposed Action):

Analysis under this alternative would be similar to the analysis under Alternative 1, except that the LPC could also be used. Use of the LPC under this alternative would allow ADC to be more effective (by broadening the selection of control methods available) and more selective in taking only target coyotes. The more often LPC use could be substituted for other methods, the more selective the program could be.

4.2.2.3 Alternative 3. - No Preventive Control:

Under Alternative 3, ADC would still be able to respond with all the methods included under Alternative 2, but would not be authorized to employ any of these methods under a lethal preventive control strategy. Selectivity of methods would be similar to Alternative 2, but ADC would be less effective at keeping livestock losses low. By restricting corrective control to the immediate vicinity of predation losses, ADC would be unable to effectively resolve some depredation problems. Till (1982), for instance, found that depredating coyotes traveled an average of 2 miles and as far as 6 miles from their den site to the sheep flocks where they were killing lambs. Boddicker (1985) noted that coyotes have been documented to travel as far as 10-15 miles from den sites to depredation sites.

In those limited instances in the analysis area where severe coyote depredation problems occur with sheep being grazed on high mountain summer grazing allotments, ADC would likely be less effective at reducing this type of predation without the option of winter-time helicopter aerial hunting. Decreased effectiveness is tied to the logistics of just getting to these areas and having to use less effective coyote removal methods during the summer months. Till and Knowlton (1983) noted that the coyotes most likely to kill sheep are the ones raising pups, and Gantz (1990) noted that late winter aerial hunting of coyotes on summer sheep grazing allotments removes coyotes that otherwise likely would have produced pups. By conducting preventive control in late winter, the likelihood of transient coyotes reoccupying vacated territories and establishing their own territories in time to produce pups is greatly reduced. Gantz concluded that late winter aerial hunting of coyotes on summer sheep range was an effective method to reduce coyote predation.

4.2.2.4 Alternative 4. - No Use of Chemical Methods:

This alternative would preclude use of the M-44 and the LPC, both of which are more selective than either leghold traps or snares. Use of traps and snares would likely have to increase, so overall selectivity would probably be slightly reduced. The ADC Decision Model would still be used to determine the most appropriate

[2] Use of the LPC, once approved, would be limited due to its label restrictions. Under Alternative 2, we anticipate that at least initially, it would not be used in more than 15 instances per year in the analysis area, resulting in the death of up to 20 coyotes. Similar use patterns would exist under Alternative 3.

method(s) to be used, but without the use of chemical methods the available options and overall effectiveness would be reduced. Producer implemented non-lethal methods would remain unchanged.

4.2.2.5 Alternative 5. - Technical Assistance Only and Alternative 6. - No Federal ADC Program:

Neither of these alternatives would involve use of any control methods by ADC, so concerns about effectiveness and selectivity of methods used by ADC are not relevant. Some type of wildlife damage management would most likely be implemented by livestock producers or private predator control programs, however, and these activities could involve methods that were less selective than ADC's activities. Damage management efforts by individuals with limited training and experience would be less likely to take offending individual animals and more likely to take nontarget species.

4.2.3 Concerns over the Risks Posed by Wildlife Damage Management Methods to the Public and Domestic Pets.

Wildlife damage management activities conducted by ADC in the analysis area are guided by ADC Directives, Cooperative Agreements, MOU and Federal and State laws. Effects on public health and safety include potential benefits caused by ADC fostering a safer environment and potential negative effects that might result from the exposure of the public to wildlife damage management methods. ADC uses chemical and non-chemical methods that are appropriate to reduce or minimize a variety of wildlife damage problems and ADC personnel are aware of the potential risks to nontarget species and humans . The use of toxicants by ADC in all instances is regulated by the EPA through the FIFRA, by State law, and by ADC Directives. Along with effectiveness, cost, and social acceptability, risk is an important criterion for selection of an appropriate damage management strategy. Determination of potential risks to non-target animals, the public, and ADC personnel is thus an important prerequisite for successful application of the IWDM approach. Based on a thorough Risk Assessment, (USDA 1994, Appendix P) APHIS concluded that, when ADC program methods are used in accordance with Directives, policies and laws, and when chemicals are used in accordance with label directions, they are selective for target individuals or populations, and such use has negligible impacts on the environment.

4.2.3.1 Alternative 1. - Current Program (No Action):

ADC implements an analysis area-wide program of wildlife damage management based on an IWDM approach described in Chapter 3 of this EA. Based on the risk assessment from USDA, Appendix P (1994) the environmental and human health and safety risks associated with ADC's wildlife damage management are low. The greatest risks to human health and safety from ADC's use of chemical methods are incurred by the ADC personnel who use these methods. Likewise, the greatest risk to human health and safety from ADC's use of mechanical control methods are incurred by the ADC Specialists who use methods such as aerial hunting. During the FY 93 through FY 95 analysis period, there were no reported injuries to ADC personnel or members of the public related to ADC's use of any chemical or mechanical control methods. Mitigation measures that address safety concerns about ADC's use of toxicants, traps and snares are listed at the end of Chapter 3.

Of the non-chemical wildlife damage management methods used by ADC, leghold traps and neck snares pose the greatest risk to nontarget species. However, domestic pets that may be captured in these devices and accompanied by humans can usually be released unharmed. ADC limits the use of leghold traps and snares on public lands during bird hunting seasons, and warning signs are always posted in those few areas where these devices are set on public or private lands.

Of the chemical methods currently used by ADC, M-44s are the only method that may present some degree of risk to the public or free roaming dogs. As discussed in Chapter 3, this risk is mitigated by restricting M-44 use primarily to private lands (where public access is limited), by not placing M-44s on public lands during the regular bird hunting seasons or any other time when exposure to the public or pets is probable, and by placing warning signs in the general area and adjacent to each M-44 device whenever M-44s are used.

4.2.3.2 Alternative 2. - Current Program Plus Use of the LPC:

Analysis is the same as Alternative 1, except for the inclusion of the LPC (Compound 1080). The LPC was designed to specifically target coyotes, which attack the throat of sheep or goats. Other predators, including dogs, that have attacked collared sheep by the throat have succumbed to the toxicant. Domestic dogs could also be susceptible to poisoning if they scavenged on the 1080-contaminated carcass of a collared lamb or sheep that had been killed by coyotes. The likelihood of this occurrence would be low because LPCs would only be used within fenced pastures on private lands, and the carcasses of any dead sheep would be removed in conjunction with the regular monitoring requirements for use of the collar. Risk would also be reduced because of the tendency for scavengers to feed preferentially in the area of the thoracic cavity and the hind portion of the carcass, while 1080 contamination would be limited primarily to the wool on the sheep's neck. The risk assessment in USDA (1994 Appendix P, p. 274) concluded that use of the LPC would pose little likelihood of a dog being poisoned.

4.2.3.3 Alternative 3.- No Preventive Control:

The analysis for Alternative 3 would be similar to the analysis for Alternatives 1 and 2. The risks posed by corrective control would be no different than the risks posed by the same methods used under a strategy that included preventive damage management.

4.2.3.4 Alternative 4. - No Use of Chemical Methods:

The analysis would be the same as Alternative 1 for the mechanical methods. Overall level of risk to domestic dogs and public safety would be reduced slightly because there would be no risk associated with M-44 use.

4.2.3.5 Alternative 5. - Technical Assistance Program and Alternative 6 - No Federal ADC Program:

Both of these alternatives would result in no Federal operational wildlife damage management program in the analysis area, therefore the use of methods would be at the discretion of individuals or agencies that conduct the activity. The low risks associated with Federal use of wildlife damage management methods would be nonexistent under these alternatives. ADC would make recommendations under Alternative 5, but implementation of the recommendation would be by some other entity. However, increased use of the same methods by less skilled trappers or livestock producers, and greatly reduced restrictions on how wildlife damage management is conducted may result in an increased risk to the public. No program would be available for the protection of aviation safety, and IDFG would not have access to ADC personnel in the event of black bear or mountain lion threats to human safety. These alternatives would likely result in greater risks to public health and safety than any of the other listed alternatives.

4.2.4 Concerns about ADC impacts on Threatened and Endangered Species.

4.2.4.1 Alternative 1. - Current Program (No Action):

ADC has conducted an informal Section 7 consultation with the USFWS regarding the potential impacts of the current program and the proposed action (see Appendix C). The USFWS has concurred with ADC's assessment that neither the current program nor the proposed action is likely to adversely affect any T&E species that may occur within the analysis area. Mitigation measures to address concerns about impacts to T&E species are discussed in Appendix C and in the list of mitigation measures at the end of Chapter 3.

4.2.4.2 Alternative 2. - Current Program Plus Use of the LPC:

Analysis is the same as for Alternative 1. Implementation of this alternative may actually present a lower risk to wolves than would Alternative 1, because as ADC increased reliance on use of the LPC, it could reduce reliance on leghold traps, snares, and M-44s, all of which would be more likely to take a nontarget wolf.

4.2.4.3 Alternative 3.- No Preventive Control:

Analysis is similar to that for Alternative 2.

4.2.4.4 Alternative 4. - No Use of Chemical Methods:

Neither M-44s or the LPC, both of which are more selective than either leghold traps or snares, could be used under this alternative. ADC would likely have to increase reliance on use of leghold traps and snares if chemical methods were not available. The likelihood of accidentally taking a wolf might therefore be slightly higher under this alternative. Risks to wolves would still be low, however, because of the mitigation measures used when setting leghold traps or snares in areas considered "occupied gray wolf range" (see appendix C).

4.2.4.5 Alternative 5. - Technical Assistance Program and Alternative 6 - No Federal ADC Program:

There would be no operational ADC activities under either of these alternatives, and hence no risks to T&E species from ADC. Some type of wildlife damage management would most likely be implemented by livestock producers or private predator control programs, however, and these activities could pose greater risks to T&E species than ADC's activities. Damage management efforts by individuals with limited training and experience would be more likely to take nontarget species, including T&E species. Without the Federal assistance available from ADC, some livestock producers may be motivated to consider use of more economical forms of control than those practiced by ADC. Illegal use of toxicants represents one of the cheapest forms of predator removal, but it also presents the greatest environmental risks. Risks to T&E species would probably be greater under Alternatives 5 and 6 than for any other alternative.

4.2.6 Summary of ADC's Impacts

Table 4.5 presents a relative comparison of the anticipated impacts of each of the 6 alternatives as they relate to each of the 5 major issues identified in Chapter 2.

Table 4.5
Relative Comparison of Anticipated Impacts From Alternatives

Issues/Impacts	*Alt. 1 Current Program*	*Alt. 2 Proposed Action*	*Alt. 3 No Preventive Control*	*Alt. 4 No use of Chemicals*	*Alt. 5 Tech. Asst. Only*	*Alt. 6 No Federal Program*
Cumulative impacts on wildlife populations	low to moderate	low to moderate	low to moderate	low to moderate	low to moderate	low to moderate
Effectiveness and selectivity of methods	good effectiveness and selectivity	greatest effectiveness and selectivity	similar selectivity as Alt. 1, but lower effectiveness	lower effectiveness and selectivity than Alt.1 or 2	probably lower than Alt. 1-4	probably lower than Alt. 1-4
Risks to public and pets	low risks	slightly lower risk than Alt. 1	similar risk as Alt. 2	slightly lower risk than Alt. 1	probably greater risks than Alt. 1-4	probably greater risks than Alt. 1-4
Impacts to T&E species	low risks	slightly lower risk than Alt. 1	similar risks as Alt. 2	slightly lower risk than Alt. 1, probably similar overall risk as Alt. 2	probably greater risks than Alt. 1-4	probably greater risks than Alt. 1-4

APPENDIX A

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APPENDIX B

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APPENDIX C

SECTION 7 CONSULTATION

United States Department of Agriculture

Animal and Plant Health Inspection Service

Animal Damage Control

1828 Airport Way
Boise, ID 83705

July 10, 1996

Robert G. Ruesink, Supervisor
Snake River Basin Office
U.S. Fish and Wildlife Service
4696 Overland Road, Room 576
Boise, ID 83705

Dear Bob:

The purpose of this letter is to request an informal consultation and concurrence of findings pursuant to Section 7 of the Endangered Species Act for those listed species found in ADC's northern and central Idaho analysis area. We received a species list from your office on March 11, 1996, and we have evaluated our proposed action in relation to potential impacts it may have on threatened and endangered species occurring within our analysis area. The U.S. Fish and Wildlife Service's July 28, 1992 programmatic Biological Opinion (attachment A) is pertinent to this review, since ADC is currently adhering to all of the applicable "reasonable and prudent alternatives" and "reasonable and prudent measures" stipulated to preclude jeopardy and minimize incidental take of listed species.

Project Area

The analysis area being considered for purposes of this evaluation consists essentially of all lands in northern and central Idaho north of the southern boundaries of Adams, Valley, Custer and Lemhi counties. This includes Adams, Benewah, Bonner, Boundary, Clearwater, Custer, Idaho, Kootenai, Latah, Lemhi, Lewis, Nez Perce, Shoshone, and Valley counties.

Proposed Action

ADC's proposed action is to continue using the full range of predator damage control methods currently authorized, including frightening devices, calling and shooting, aerial hunting, denning, traps, snares, M-44s, trained dogs, and DRC-1339 (for control of depredating ravens and magpies), *and* to use the Livestock Protection Collar (LPC) in addition to these methods. The LPC would only be used on private lands in fenced pastures where coyote predation on sheep or lambs had already occurred. The LPC is not yet registered for use in Idaho, but the proposed action provides for its use if and when it does become registered. For your reference, I have enclosed information from Appendix P of the ADC Final Programmatic EIS (attachment B), which includes descriptions of all the methods listed above, along with a detailed risk assessment for each method.

Analysis of Potential Impacts to Listed Species

The primary potential for impacts to any listed species would be associated with accidental injury or death of a nontarget listed species during efforts to control predation on livestock or wildlife by coyotes, black bears or mountain lions. None of the activities conducted by ADC under the proposed program will result in habitat modification.

According to the list provided by the Service (letter dated March 7, 1996), the following Federally listed species may occur within the project area:

1.	Peregrine falcon	Endangered
2.	Bald eagle	Threatened
3.	Grizzly bear	Threatened
4.	Gray wolf	Endangered
5.	Woodland caribou	Endangered
6.	Sockeye salmon	Endangered
7.	Kootenai River White Sturgeon	Endangered
8.	Chinook salmon	Threatened
9.	Macfarlane's four-o'clock	Endangered
10.	Water howellia	Threatened

Plants - ADC's proposed action involves no activities that would occur within the specific habitats of either Macfarlane's four-o'clock or the water howellia. ADC activities involve no ground disturbing activities other than driving on dirt roads, and the occasional digging of small, shallow excavations to bury leghold traps. Because the scope of ADC's operational activities are small in area, and for the reasons mentioned above, we believe the proposed action will have no effect on these two species.

Fish - Because ADC's proposed action involves no methods that would likely impact any fish, and involves no activities that would occur within the specific habitats of the 3 fish listed above, we have concluded that implementation of the proposed action would have no effect on Sockeye salmon, Kootenai River White Sturgeon, or Chinook salmon.

Peregrine falcon - Based on our evaluation and a review of the relevant section of the Service's 1992 Biological Opinion, we have concluded that implementation of our proposed action would have no effect on the peregrine falcon. This conclusion is based upon the behavior of peregrine falcons as non-scavengers, making it unlikely for them to be caught in traps or snares, or to pull M-44 devices.

Woodland caribou - In its 1992 Biological Opinion the Service listed the woodland caribou as a species not likely to be adversely affected, stating that although ADC had suggested that leghold traps and neck snares may affect this species, the Service was unaware of any such occurrences in the past. The Service also indicated that the limited area of operational ADC activity further reduces the likelihood of exposure. ADC has not previously conducted any wildlife damage management activities in areas where woodland caribou occur, and there are no plans to conduct any such activities in those areas in the future. If we anticipate a need for activities in those areas in the future we will consult with the Service on a case-by-case basis. For all of these reasons, we conclude that ADC's proposed action is unlikely to adversely affect woodland caribou.

Bald eagle - The Service's July, 1992 Biological Opinion stipulates two reasonable and prudent measures as necessary and appropriate to minimize incidental take of the bald eagle. Neither of these measures relates to ADC's use of the bird toxicant DRC-1339 because 1) EPA label restrictions for this product preclude any probable primary risk to bald eagles, and 2) Available research data suggests little, if any, potential for secondary hazard because the compound is rapidly metabolized and excreted and is not accumulated (DeCino et al. 1966, Schafer 1991). Juve (1987), observed that bald eagles in Arizona showed no interest in DRC-1339 treated eggs.

The first reasonable and prudent measure stipulates that strychnine shall not be used within five miles of an active nest or roost site. This measure is

not applicable in our analysis area because no use of strychnine would take place under the proposed action or any of the other alternatives being considered in our EA.

The second measure requires that when eagles are present in the immediate vicinity of a proposed control program, daily searches must be made for carcasses or trapped individuals. This measure further requires that carcasses of target animals taken with any chemical that may pose a secondary poisoning hazard must be immediately removed and disposed of in manner that prevents scavenging by any non-target species.

Although this measure may have been prescribed primarily to address secondary hazards posed by target animals taken with strychnine, the language does specifically refer to "any chemical that may pose a secondary hazard". ADC's proposed action includes use of the LPC, which contains Compound 1080 (sodium fluoroacetate), but available research suggests that the levels of 1080 residues in coyotes killed by the LPC are so low that their tissues do not present a significant secondary hazard (Burns et al., 1991; Connolly, 1990).

Some degree of primary hazard to non-target species such as eagles could potentially exist from exposure of 1080-contaminated wool on the neck of a collared sheep that had been attacked and killed by a coyote. However, Burns and Connolly (1996) concluded that use of LPCs posed little or no primary hazard to avian scavengers. Potential risk is mitigated by the EPA label requirement that searches be conducted at least weekly for all collared sheep, and that any dead sheep found are promptly removed. It is further mitigated by the tendency for scavengers to avoid the neck area of a carcass and feed preferentially in the area of the thoracic cavity and the hindquarters.

The Service's July, 1992 Biological Opinion also stipulates terms and conditions that ADC must comply with in order to implement the reasonable and prudent measures discussed above. The first of these terms and conditions requires that ADC contact local resource management authorities to determine bald eagle nest and roost locations. ADC maintains contact with local resource managers during the annual work planning process involving the Forest Service, Bureau of Land Management, and Idaho Department of Fish and Game. Biologists from the two Federal land management agencies typically provide information on eagle locations.

The terms and conditions also require that ADC notify the Service within 5 days of finding any dead or injured bald eagle, and we will continue to follow this guidance should any dead or injured bald eagles ever be found.

The final applicable requirement is that ADC not place any leghold traps (except for mountain lions) within 30 feet of any exposed bait. This is a standard operating procedure for all ADC trapping activities. In addition to this mitigation, our policy requires that in those instances where an exposed carcass or bait might conceivably be dragged or moved by scavengers to within 30 feet of a trap or snare (except when attempting to capture depredating bears or mountain lions), the carcass must first be secured to prevent scavengers from moving it.

ADC policy specifically exempts use of traps for lions or footsnares for lions or bears from the 30 foot distance requirement because 1) We need to be able to set equipment close to the carcass to consistently and effectively capture the intended target animal, and 2) We employ the use of pan tension devices with all traps and leg snares set next to carcasses. These pan tension

devices reduce or eliminate the likelihood that eagles or smaller nontarget species could set off the trap or foot snare. The likelihood of an eagle being captured in a trap or footsnare set for a bear or lion is further mitigated by the fact that the exposed baits are usually covered in some kind of bait pen or are back in under a tree. This practice not only increases the likelihood of directing the bear or lion into the trap, it reduces the likelihood of the bait being seen from above by an eagle or other nontarget bird. We are unaware of any instance anywhere in the entire ADC program where an eagle has ever been caught in ADC equipment set near a carcass to catch a bear or lion.

Because ADC implements all of the measures discussed above, we conclude that our proposed action is unlikely to adversely affect the bald eagle.

Grizzly bear - The Service's July, 1992 Biological Opinion acknowledges some potential for incidental take of a grizzly bear during legitimate control operations, and stipulates two reasonable and prudent measures as necessary and appropriate to minimize ADC's potential for incidental take. The first measure requires ADC to take precautions to reduce incidental take, including having employees trained to use drugs for animal immobilization and restraint. By ADC policy, only employees who have been trained and certified in the use of immobilizing drugs may administer such drugs. If ADC were to become involved in capturing a grizzly bear (the last time this occurred was in 1987), ADC would also be cooperating with other government agency personnel. Under the terms of a 1988 Memorandum of Understanding, ADC has lead agency responsibility for capture of nuisance grizzly bears, while the Idaho Department of Fish and Game has responsibility for immobilization, handling, and release of grizzly bears. Most grizzly bear activity in the analysis area occurs on National Forest lands near the panhandle where no ADC activity has occurred, or is anticipated in the future.

The second reasonable and prudent measure requires ADC to monitor incidental take to ensure that anticipated take levels are not exceeded. This monitoring will continue to take place by ADC. ADC continues to implement the following prescribed terms and conditions to comply with the reasonable and prudent measures discussed above. 1) Traps and foot snares set for black bears within grizzly bear recovery areas are checked daily. 2) Neck snares for coyotes without breakaway locks are not used in areas grizzly bear recovery areas. ADC in Idaho has chosen to go beyond this requirement and not use *any* neck snares for coyotes in grizzly bear recovery areas, because we do not feel that breakaway locks would reliably preclude death of a neck-snared grizzly bear. 3) Neck snares are not used for black bears or mountain lions in grizzly bear recovery areas. 4) If any dead or injured grizzly bear were to be found anywhere by an ADC employee, this finding would be reported to the Service and to the Idaho Department of Fish and Game, as well as the appropriate land management agency.

Potential risks to grizzly bears from use of the LPC in Idaho would be mitigated by the EPA labeling requirement that ADC contact the local FWS office to obtain written approval before using the collar in specific areas in Idaho. ADC would not use the LPC in the Selkirk ecosystem grizzly bear recovery area or in the Cabinet-Yaak ecosystem grizzly bear recovery area without first seeking and obtaining this approval on a case-by-case basis from the appropriate office. M-44 devices would not be used in grizzly bear recovery areas or in areas designated as occupied by grizzly bears. ADC will continue to rely on information provided by FWS, the Idaho Department of Fish

and Game, and local resource managers with the U.S. Forest Service to determine where grizzly bears may occur.

The Service's 1992 Biological Opinion states that the ADC program is not likely to jeopardize the continued existence of the grizzly bear, except for the Cabinet-Yaak Grizzly bear ecosystem, where the take of one bear would represent jeopardy. Although not previously addressed, we recommend that the Selkirk ecosystem grizzly bear recovery area be identified in the same fashion as the Cabinet-Yaak grizzly bear ecosystem. These two areas are made up of mostly public lands managed by the Panhandle National Forest. ADC activities have not occurred in these areas in the recent past, nor do we anticipate the need for an operational ADC program in the Cabinet-Yaak or Selkirk recovery areas in the future. If a need for ADC activities in this area does arise in the future, we will consult with the Service on a case-by-case basis.

For all the reasons discussed above, we conclude that ADC's proposed action is unlikely to adversely affect the grizzly bear.

Gray wolf - It is our understanding that in Idaho, north of I-90 wolves are endangered, and that south of I-90 wolves are classified as "experimental, non-essential" under Section 10(j) of the Endangered Species Act. We have broken our analysis into these two separate areas. Discussion regarding occupied gray wolf range and the use of LPCs' will be independent of north of I-90, and south of I-90 discussion.

North of I-90

Pursuant to previous communication between our offices (letter of April 3, 1996) there are no areas identified as occupied gray wolf range. Along with this, ADC has recently concluded (February 3, 1995) a portion of a Section 7 consultation, wherein extensive surveys for wolf presence north of I-90 were conducted, and filed with the ADC Western District Office. Intensive surveys will continue to be performed and results submitted to the District Office before deployment of equipment which might take a wolf. If ADC surveys show evidence indicating the presence of wolves, ADC will notify the Service before placing any equipment which might take a wolf. M-44 devices will be deployed only in areas adjacent to (within a few hundred yards of) confirmed livestock depredation by coyotes, and not within a seven mile radius of confirmed livestock depredations, as allowed by EPA labeling restrictions. Wolves have been documented as moving through some of the area north of I-90, and radio collared wolves occur in the area just south of I-90. Recently (January, 1995) a wolf was killed near Priest River.

South of I-90

It is believed that some unknown number of wolves have occurred south of I-90. The FWS beginning in 1995 reintroduced a total of 35 wolves to central Idaho. At present there is a portion of the area south of I-90 designated by the FWS as occupied wolf range. Section 10(j) provides that for purposes of Section 7 consultation, experimental non-essential populations are treated only as a species *proposed* for listing. Although formal Section 7 consultation with FWS is not required for species proposed to be listed, conferencing is required if the agency action is determined likely to jeopardize a proposed species. Although consultation is not required south of I-90, ADC would like to continue a close level of coordination and cooperation with the FWS in Idaho to ensure that ADC's activities do not adversely affect gray wolves. It is

also our understanding that the reasonable and prudent measures and the terms and conditions stipulated in the Service's July, 1992 Biological Opinion (relative to gray wolves) no longer pertain to areas south of I-90 in Idaho.

Our understanding is that for purposes of Section 9 of the Endangered Species Act, wolves in the experimental, non-essential population area are considered as a threatened species. Therefore, FWS identification of specific areas as occupied gray wolf range is necessary in order for ADC to comply with the EPA prohibition on use of the M-44 sodium cyanide device in areas where threatened or endangered species might be adversely affected. In addition ADC would be required to obtain specific written permission before using LPCs in these areas.

Occupied Gray Wolf Range

ADC will maintain close communication with FWS and representatives from the Nez Perce Tribe regarding locations of all radio-collared wolves. We will also rely on the FWS to identify specific areas within Idaho as "occupied gray wolf range". We have worked on several occasions with Ted Koch from your office in delineating boundaries for the latest update to a map of potentially occupied gray wolf range. We hope to continue the same close level of coordination on this issue that we have maintained over the last several years. It is our understanding that areas currently identified as occupied wolf range have been generously delineated because 1) This allows FWS and ADC to avoid the need to frequently reassess areas identified as occupied gray wolf range. 2) To do so mitigates the need for extreme precision in drawing lines on a map, and 3) As currently delineated, these areas are not unduly restricting ADC's activities. ADC will not set any M-44 devices in areas identified by the FWS as occupied gray wolf range north or south of I-90. In addition ADC will use leghold traps no larger than size 3, and all leghold traps will be checked daily in areas identified by FWS as occupied wolf range. If at some point in the future ADC has a need to use M-44s within areas currently identified as occupied gray wolf range, we understand that we may seek specific case-by-case clearance from your office. The Service would then be responsible for promptly making more specific delineations of occupied gray wolf range, in accordance with specific criteria prescribed for gray wolves which occur north of I-90 (as outlined in the 1992 Programmatic Biological Opinion), and south of I-90 (as outlined on page 6-5 of the Final EIS for Wolf Reintroduction to Yellowstone National Park and Central Idaho).

Livestock Protection Collar - Wolves

EPA label requirements for the LPC stipulate that the collar may not be used in certain areas in Idaho without written approval from the nearest FWS office. Use restriction #15 (on page 17 of Attachment C) provides that if FWS or the user determines that use of collars may adversely impact an endangered species in specific areas requested, collars may not be used in these areas.

Although there may be some potential for use of the LPC to affect wolves, we believe the likelihood would be low. Use of the LPC would also allow ADC to reduce reliance on other less selective control methods such as traps, snares, and M-44s, that may be more likely to accidentally take a wolf. We believe that overall, the more the LPC is used, the lower the likelihood that ADC would inadvertently take a wolf. The primary hazard to a wolf from use of the LPC would be the death of a wolf that actually attacked a collared lamb or sheep by grabbing it at the throat. Although this mode of attack would not be

typical for a wolf, it may sometimes occur. But, if a wolf were to attack a collared lamb or sheep, it would automatically become subject to control actions anyway.

Although existing procedures would call for ADC to first live-capture and relocate such a wolf, it is important to also remember that these collars will be used only on private lands, and private landowners are authorized to kill wolves caught in the act of "killing, wounding, or biting" livestock on their private lands south of I-90. While ADC would indeed be the responsible party for all record-keeping involved in use of the LPC, the responsibility for corralling sheep, attaching collars, and monitoring collared animals would in practice be shared by ADC and the sheep producer. We believe the intent of the Final Rule (to allow private landowners to kill wolves caught in the act of preying on livestock) would be consistent with ADC and private landowners' cooperative use of the LPC.

For lands north of I-90, we request clarification from the Service as to whether wolf packs established in this area would contribute towards recovery goals for the northwest Montana or central Idaho areas. Regardless of which recovery area wolves north of I-90 are designated for, it is our understanding that when six or more wolf packs occur, a depredating wolf or wolf pack may be removed after committing a single offense. Our understanding is that if there were six or more packs of wolves present in the recovery area north of I-90, and a wolf were to attack a sheep wearing an LPC and subsequently die, that wolf would have been subject to removal anyway.

There might be a remote possibility that a nontarget wolf could be killed after scavenging on a 1080-contaminated sheep carcass encountered in a pasture after the collared sheep had been killed by coyotes. The likelihood of this occurring would be mitigated because of the weekly monitoring requirement prescribed in the LPC Technical Bulletin (i.e., pastures are searched at least weekly to locate all collared sheep, and any dead sheep are removed). Typical feeding patterns for animals scavenging a carcass would also reduce the likelihood of a wolf being poisoned (i.e., a small amount of toxicant might be present on the wool of the sheep's neck, but feeding typically would occur in the thoracic region or the hindquarters of the carcass.)

If ADC believes that there is an area within occupied wolf range where LPC use is warranted, we will consult with the Service on a case-by-case basis. One potential mitigating measure when considering use of LPCs' in occupied wolf range would be using radio telemetry equipment to monitor collared wolves which may be in the area. In addition, ADC Specialists using the LPC will interview local residents regarding evidence of wolf presence, and will be vigilant for wolf activity.

To reduce the likelihood of the incidental take of a wolf in a trap or snare, ADC will continue to exercise conservative judgement in deciding when and where these capture devices can be safely used. If FWS or Nez Perce Tribal wolf monitoring information or ADC observations suggest wolves may be present in a specific area, ADC will refrain from using neck snares and will not use leghold traps unless they can be monitored daily and are size 3 or less. If our employees are aware of evidence to suggest wolf presence in an area that has not been identified as occupied gray wolf range, that information will be shared with FWS, Nez Perce Tribal wolf monitoring authorities, and the appropriate land management agency or private property owner.

In summary, ADC will not use M-44s in occupied gray wolf range and we will not use the LPC without first obtaining, at least annually, written authorization from your office to do so. As part of your response to this letter, we are therefore asking for your written authorization to use the LPC in Adams, Benewah, Bonner, Boundary, Clearwater, Custer, Idaho, Kootenai, Latah, Lemhi, Lewis, Nez Perce, Shoshone, and Valley counties.

Please let us know if you concur with our assessment of the impacts of our proposed action on all the listed species discussed above, and whether wolf packs established north of I-90 contribute to the recovery of central Idaho or northwestern Montana recovery areas. If we do not receive a response from you within the 30-day period as prescribed under 50 CFR 402.12(j), we will assume that you concur with our assessment and that we may proceed with our proposed action.

Sincerely,

Mark Collinge

Mark Collinge
State Director
Idaho ADC

Enclosures: Attachments A, B, and C

cc: Phil Laumeyer, Upper Columbia River Basin FWS Office

REFERENCES

Burns, R.J., H.P. Tietjen, and G.E. Connolly. 1991. Secondary hazard of Livestock Protection Collars to skunks and eagles. J. Wildl. Manage. 55(4):701-704

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Snake River Basin Office, Columbia River Basin Ecoregion
4696 Overland Road, Room 576
Boise, Idaho 83705

August 14, 1996

Mark Collinge
State Director, Animal Damage Control
1828 Airport Way
Boise, Idaho 83705

Subject: Consultation on Predator Control Activities in Northern Idaho (140.0000, 1-4-96-I-103)

Dear Mark:

The U.S. Fish and Wildlife Service (Service) has reviewed your Biological Assessment for Animal Damage Control (ADC) predator control activities in northern Idaho (generally north of the Snake River Plain), prepared pursuant to section 7 of the Endangered Species Act. Upon completion of our review, conducted in cooperation with the Service's Upper Columbia River Basin office in Spokane, Washington, we concur with your findings that the proposed actions would have no effect on peregrine falcons, MacFarlane's Four o'clock, and water howellia, and are not likely to adversely affect bald eagles, woodland caribou, grizzly bears, or gray wolves. Our concurrence is predicated on your implementation of all measures listed in your July 10, 1996, letter to this office.

For grizzly bears, we understand that you will not conduct predator control activities in either occupied grizzly bear habitat, or in identified recovery areas in the Selkirk and Cabinet-Yaak recovery ecosystems. If a need arises in the future to conduct control actions in grizzly bear recovery areas that are otherwise unoccupied, you should reinitiate consultation with the appropriate Service office on a case-by-case basis.

For gray wolves, we support the continued cooperation in implementing ADC activities that we have experienced in the past. Close cooperation, particularly regarding exchange of information on the presence of wolves in the state, is the key to successful implementation of the Service's wolf recovery programs, and probably also to ADC's predator control program in areas where wolves occur. The question you raised regarding which recovery area will wolves north of Interstate highway 90 (I-90) in Idaho be counted will, for the purposes of this consultation, soon be rendered moot: currently more than five wolf packs occur in the Montana recovery area, and six or more will likely soon be documented as occurring in the Idaho recovery area. Once six or more wolf packs are documented in Idaho, any depredation on livestock north of I-90 would result in removal of the wolf would be subject to removal upon the first depredation offense,

regardless of whether the region is considered part of the Idaho or the Montana recovery area. This fact generally supports one of the arguments for using Livestock Protection Collars (LPC's) in Idaho cited in your July 10, 1996, letter to this office.

With this letter the Service provides written authorization to use LPC's in northern Idaho (including Adams, Benewah, Bonner, Boundary, Clearwater, Custer, Idaho, Kootenai, Latah, Lemhi, Lewis, Nez Perce, Shoshone, and Valley Counties). We concur that, when used as you propose, LPC's will reduce the likelihood of incidentally taking a wolf as compared to the use of other conventional predator control devices (e.g. M-44's). We also understand that ADC will consult with the Service on a case-by-case basis in areas where wolves may occur, and within any grizzly bear recovery area, before LPC's are deployed.

If you have any questions, please contact Ted Koch of this office at (208) 334-1931, or Suzanne Audet of the Spokane Office at (509) 891-6839.

Sincerely,

for Supervisor, Snake River Basin Office

cc: FWS, Spokane, WA (Audet)
FWS, Helena, MT (Bangs)
FWS, Missoula, MT (Servheen)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Snake River Basin Office, Columbia River Basin Ecoregion
4696 Overland Road, Room 576
Boise, Idaho 83705

April 3, 1996

Mark Collinge
U.S.D.A. Animal Damage Control
Idaho State Office
1828 Airport Way
Boise, Idaho 83705

Subject: Identification of Occupied Wolf Range, and Additional Review of Predator Control Activities and Wolves In Idaho (File #6007.2012)

Dear Mark:

The U.S. Fish and Wildlife Service (Service) is writing in response to your October 31, 1995, letter requesting identification of occupied wolf range in Idaho. The issue has also been discussed in meetings we have had with you and Layne Bangerter of your staff regarding U.S.D.A. Animal Damage Control (ADC) predator control activities in Idaho. Information in this letter regarding ADC actions and identification of areas as occupied wolf range north of Interstate 90 (I-90) is provided to your office as part of ongoing informal consultation under Section 7 of the Endangered Species Act (Act) evaluating effects to gray wolves listed as an endangered species. Information for areas south of I-90 is provided pursuant to the November 22, 1994, Final Rule for wolf reintroduction to Idaho, and the 1994 Final Environmental Impact Statement for The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho (see informal consultation letter from this office to you on April 17, 1995).

Please use the map from last year's informal consultation, as amended in your February 21, 1996, meeting with Ted Koch of my staff, for the most current areas identified by the Service as occupied wolf range in Idaho. In this letter and via that map, the Service makes the determination of occupied wolf range in Idaho relative to ADC activities only.

<u>North of I-90</u>

Regarding amendments made to the map for areas north of I-90: neither the area identified around Priest River, Idaho, where a wolf was killed last January as a result of ADC actions, nor the area around Priest Lake, Idaho, remain as occupied wolf range. The removal of any designation of occupied wolf range in this area is based on a monitoring report completed by Shane Robinson of your staff, which found no sign of wolves in the area, and on a lack of specific knowledge of any individual wolves in the area. Activities which would be restricted in occupied wolf range north of I-90, on occasions when it is designated in the future, include the following.

- o No indiscriminate lethal predator control measures (such as M-44's or neck snares) will be used in areas identified as occupied gray wolf range north of Interstate-90 in Idaho. Leg hold traps size 3 or less only will be used, and trap check will occur no less frequently than every 24 hours.

In all other areas, to assist ADC in avoiding taking gray wolves, the Service stipulates that indiscriminate lethal predator control measures will only be employed after the following precautions have been taken.

- o Site-specific extensive and intensive surveys must be completed. This means that a broad region (approximately 25 mi^2 or more) around the equipment deployment area will be surveyed for possible wolf sign before deployment. These surveys will consist of driving dirt roads and walking trails, as necessary, to detect wolf sign. An intensive search in the area immediately surrounding the deployment area (0.25 mi^2 or more) will be conducted in a similar manner immediately prior to deployment. Use of scent posts, contact with local residents, contact with local resource professionals, and public reports of the presence of wolves will also be considered. If possible sign of a wolf or wolves is detected, ADC will reinitiate informal consultation with the Service before equipment is deployed. Documentation of these completed surveys should be filed with the ADC District Supervisor.

- o In these areas, M-44's will be deployed only in areas immediately adjacent to (within a few hundred yards of) confirmed livestock depredations by coyotes. The ADC will not continue to deploy the devices within a seven mile radius of confirmed livestock depredations, as authorized by Environmental Protection Agency Labeling restrictions.

- o The ADC will maintain close communication with this office and with the Nez Perce Tribe (Tribe) to remain informed of the current patterns of wolf reports in general, and of the presence of individual wolves known to occur in Idaho.

According to the Service's programmatic Biological Opinion issued to ADC on July 28, 1992, ADC is allowed to incidentally take up to one gray wolf per calendar year north of I-90 in Idaho. Exceeding this level of incidental take would require reinitiation of formal consultation with the Service. In addition, we would encourage ADC to reinitiate informal consultation, as you did last year, even if only one wolf is taken. This would provide the opportunity for the Service and ADC to work together to avoid exceeding allowable incidental take.

<u>South of I-90</u>

South of I-90 wolves are listed as an experimental, non-essential population under the Endangered Species Act. The area including the core wilderness portion of central Idaho remains identified as occupied wolf range, with small additions. Portions of the Beaverhead Range along the Idaho-Montana border, from one-half (½) mile east of state highway 28 to the state line are also considered occupied wolf range.

Some areas south of I-90 identified on the map as occupied wolf range have been drawn more liberally because (1) to do so mitigates the need to be extremely precise when drawing lines on a map, (2) to do so reduces the need for frequently readjusting lines on a map to accurately reflect new occurrences, and (3) the broad areas identified as occupied wolf range do not currently

overlap ongoing ADC activities. South of I-90, only the use of M-44 devices is restricted in occupied wolf range; this is because of Environmental Protection Agency labeling restrictions on M-44 devices. Use of other predator control devices is not restricted, and there is no prescribed level of incidental take. However, we encourage ADC to continue to use good judgement, as you have done in the past, in placing predator control devices in a way that avoids taking gray wolves. Following procedures roughly analogous to those outlined for controlling predators outside of occupied wolf range north of I-90 would help ADC to avoid incidentally killing or harming a wolf.

Although most areas south of I-90 in Idaho are not considered occupied wolf range, it is possible that a wolf could occur almost anywhere north of the Snake River Plain on any given day (south of this area and west of I-15, wolves are not expected to occur in the near future). The Service and the Tribe will continue to monitor wolves in Idaho, including both radio-collared and naturally occurring wolves. Monitoring results will be shared with ADC through Idaho Wolf Updates from the Tribe, and whenever ADC requests information. The ADC livestock depredation specialists in the field are likely to learn of the occurrence of a wolf or wolves in an area before the Service, based on sign in the field. The ADC should use good judgement in determining what degree of consideration is necessary in a given situation to avoid taking gray wolves. The Service recommends that the ADC complete some type of assessment before employment of indiscriminate lethal predator control measures in order to avoid taking gray wolves. Completion of this assessment and its conclusions should be documented.

<u>Future predator control within occupied wolf range:</u>
The ADC may propose use of M-44's in an area currently called occupied wolf range south of Interstate 90, if it is desirable in the future. Pursuant to provisions set forth in the November 22, 1994, Final Rule for wolf reintroduction to Idaho, the Service will evaluate, case-by-case, whether an area is "occupied wolf range" at the time of such a proposal, as defined on page 6-5 of the Service's Environmental Impact Statement for Wolf Reintroduction to Yellowstone National Park and Central Idaho. The Service would respond as quickly as possible (for example, within one to three days, assuming depredation is ongoing and the need for predator control is immediate) to ADC's request, confirming whether an area is occupied wolf range at that time or not. If ADC seeks to make a similar request in areas already identified as occupied wolf range north of Interstate 90, you should reinitiate informal consultation with the Service. Again, the Service will respond as soon as possible after your request.

We reviewed the plan implemented last year to avoid incidental take of wolves, additional information gathered over the last year, and considered our discussions regarding the scope of mitigative actions to be taken to avoid take of gray wolves incidental to predator control activities. With identification of occupied wolf range and implementation of the measures listed above, we believe that ADC will be taking actions necessary to avoid take of wolves. We remind the ADC of their obligation to reinitiate consultation on all specific actions north of I-90 that are not what the Service has traditionally viewed as "predator control activities" in Idaho. We also anticipate the opportunity to review a programmatic Environmental Assessment for predator damage control north of I-90 in the spring of this year, and to consult under section 7 of the Act. We will provide more specific comment on ADC activities at that time.

Two specific instances in 1995 of wolf occurrence south of I-90, but outside of areas previously identified as occupied wolf range, deserve special mention. Reintroduced wolves B2 and B11

both occurred in areas near the town of Salmon, Idaho, outside of areas identified as occupied wolf range. Wolf B2 lived near the community of Leesburg, northwest of Salmon, for several months in 1995. Wolf B11 primarily occupied an area southeast of Salmon near Baker, Idaho, for several weeks. In both instances your staff was made aware of the presence of these wolves immediately, and worked to ensure that no indiscriminate lethal predator control devices were set in the area. The result was that the potential for taking gray wolves was minimized. This is an example of the type of coordination necessary in the future to avoid taking gray wolves outside of areas currently identified as occupied wolf range.

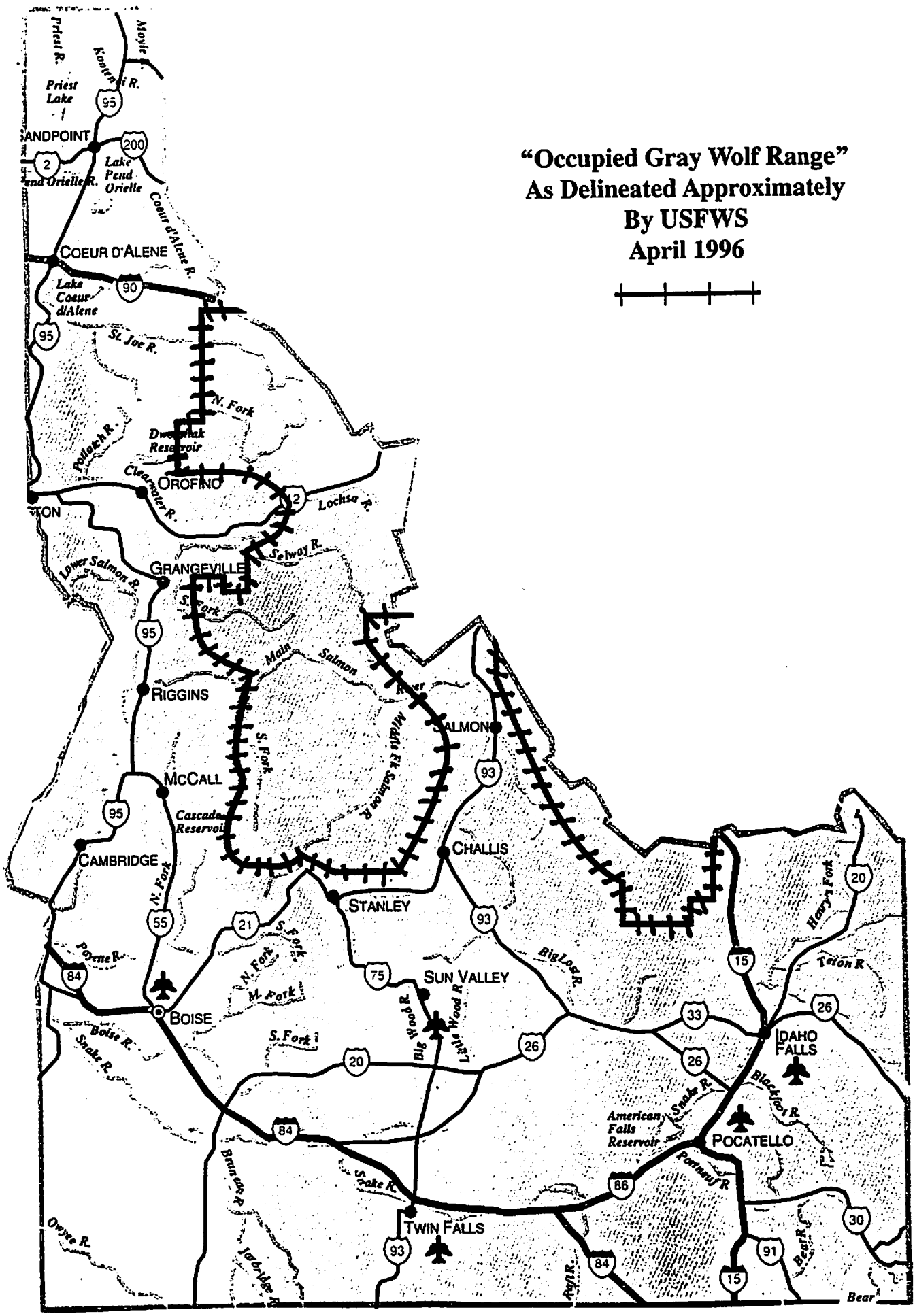
We commend ADC for their efforts to promote the recovery of gray wolves in Idaho. We appreciate your cooperation and support regarding implementation of the Service's wolf recovery program in Idaho. If you have any questions, please contact Ted Koch of my staff at (208) 334-1931.

Sincerely,

Robert H. Ruesink

Supervisor, Snake River Basin Office

cc: P. Laumeier, FWS, Spokane
B. Shake, FWS, Portland
T. Riley, FWS, Boise
K. McMaster, FWS, Helena
E. Bangs, FWS, Helena
C. Niemeyer, ADC, Helena
M. Donahoo, FWS, Pocatello


"Occupied Gray Wolf Range"
As Delineated Approximately
By USFWS
April 1996
Priest R.
Priest Lake
Moyie
Kootenai R.
95
SANDPOINT
200
2
Lake Pend Orielle
Coeur d'Alene R.
COEUR D'ALENE
90
Lake Coeur d'Alene
St. Joe R.
N. Fork
Dworshak Reservoir
Potlatch R.
Clearwater R.
OROFINO
12
Lochsa R.
Selway R.
Lower Salmon R.
GRANGEVILLE
S. Fork
Main Salmon River
RIGGINS
SALMON
Middle Fk. Salmon R.
S. Fork
McCALL
93
Cascade Reservoir
CAMBRIDGE
CHALLIS
N. Fork
55
21
S. Fork
STANLEY
Payette R.
84
N. Fork
M. Fork
75
SUN VALLEY
Big Lost R.
15
Henry's Fork
20
Teton R.
BOISE
Boise R.
S. Fork
Big Wood R.
Little Wood R.
33
26
IDAHO FALLS
Snake R.
Blackfoot R.
American Falls Reservoir
POCATELLO
Portneuf R.
Snake R.
Brunneau R.
TWIN FALLS
Owyhee R.
Raft R.
Bear R.
Bear