

FINAL

ENVIRONMENTAL ASSESSMENT (EA)

WILDLIFE DAMAGE MANAGEMENT IN THE ROSEBURG ADC DISTRICT
IN SOUTHWESTERN OREGON

including the counties of



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FOREST SERVICE:
WINEMA NATIONAL FOREST
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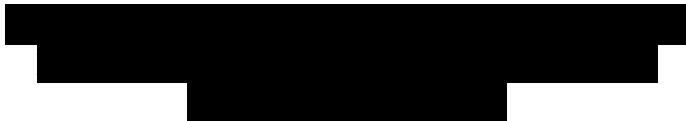


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1.0 CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

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, segments of the public strive for protection for all wildlife; this protection can create localized conflicts between human and wildlife activities. The ADC Final Environmental Impact Statement (FEIS) 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 generally is 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."

USDA/APHIS/Animal Damage Control (ADC) is charged by law with managing a program to reduce human/wildlife conflicts, and this Environmental Assessment (EA) evaluates ways by which this mandate can be carried out within the Roseburg ADC District (District) located in southwestern Oregon.

ADC is a cooperatively funded and service oriented program. Before any wildlife damage management is conducted, *Agreements for Control* or *ADC Annual Work Plans* must be signed by ADC and the land owner/administrator. ADC cooperates with land and wildlife management agencies, as requested, to effectively and efficiently resolve wildlife damage problems in compliance with all applicable federal, state and local laws.

ADC Program

ADC's mission, developed through its strategic planning process, is twofold. Its mission is to: 1) provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and 2) safeguard public health and safety. This is accomplished through:

- A) training of wildlife damage management professionals;
 - B) development and improvement of strategies to reduce economic losses and threats to humans from wildlife;
 - C) collection, evaluation, and dissemination of management information;
 - D) cooperative wildlife damage management programs;
 - E) informing and educating the public on how to reduce wildlife damage and;
 - F) providing data and a source for limited-use management materials and equipment, including pesticides.
- (USDA 1989)

Purpose

This EA analyzes wildlife damage management related to the protection of livestock, poultry and big game, and to protect human safety on specified private and public lands in the District. The area encompassed by the District is over 22 million acres (Keisling 1993); ADC has agreements to conduct wildlife damage management on about 2.5 million acres within the District, or 11% of the area (MIS 1993). The District includes federal lands under the jurisdiction of the Forest Service, [REDACTED], National Park Service (NPS) and U.S. Fish and Wildlife Service (USFWS), plus state, county and private lands.

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Within the District, cattle and sheep are permitted to graze on federal lands under the jurisdiction of the Forest Service and ██████████ in spring, late summer and fall and some winter grazing is permitted on ██████ lands. In addition, 547 private livestock owners in ██████████ ██████ and ██████ Counties participate in the cooperative ADC program. This represents about 16% of the farms and ranches in the District that produced livestock on public and private lands during 1993 (OSU 1993).

Currently, ADC does not conduct wildlife damage management on Forest Service lands because none of the National Forests (NF) in the District have an EA for wildlife damage management. This EA constitutes the required National Environmental Policy Act (NEPA) document for Forest Service lands in the District. No wildlife damage management has been requested on NPS or USFWS to protect livestock, poultry or game animals, or for human safety. ADC does conduct wildlife damage management on one ██████████; these activities are evaluated in an existing ██████████. This EA will replace the existing ██████ EA. During 1993, the ADC program conducted one wildlife damage management project on tribal lands at the request of the ██████████ in response to badgers (*Taxidea taxus*) digging in and around burial sites. The District also encompasses three non-cooperating counties (██████████) in which wildlife damage problems are managed through county-administered and funded programs and/or private self-help programs without federal funding or ADC program involvement.

1.1 NEED FOR ACTION

1.1.1 Summary of Proposed Action

The proposed action is to implement livestock and wildlife protection in the District that would expand beyond that presently conducted. Currently, wildlife damage management occurs on federal lands administered by the ██████; ADC proposes to conduct activities, as requested, on Forest Service lands in the District. An Integrated Wildlife Damage Management (IWDM) approach would be implemented which would allow use of all legal techniques and methods, used singly or in combination, to meet requestor needs. Livestock producers would be provided with information and training regarding the use of effective animal husbandry methods, nonlethal and lethal techniques. Lethal methods used by ADC would include calling and shooting, aerial hunting, trapping and snaring, M-44s, denning, dogs, DRC-1339, euthanasia, and the Livestock Protection Collar (LPC) if approved for use in Oregon. Wildlife damage management would be allowed in the District, when requested, on Forest Service lands, ██████ lands, other federal lands, state and county lands where there are Annual Work Plans, and private lands where there are signed *Agreements for Control*. No wildlife damage management would be conducted in areas receiving heavy human use, or those with legal or policy restrictions. All management would comply with appropriate federal, state and local laws. An ADC Annual Work Plan would be developed cooperatively with ██████████, each National Forest within the District as appropriate, ██████ and American Indian Tribes (if there is a request). These work plans would be reviewed annually. See Chapter 3 for a more detailed description of the current program and the proposed action.

1.1.2 Need for Wildlife Damage Management for Protection of Livestock and Poultry

Contribution of Livestock to the Economy

Agriculture makes up more than 25% of Oregon's economy, generating \$2.9 billion in farm and ranch sales annually. Livestock production, primarily cattle, sheep and poultry, is one of the primary

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agricultural industries and accounts for about 32% of the total farm and ranch economy (OAFS 1992-93).

Livestock production in the District contributes significantly to the economy and is becoming increasingly important as local economies become stressed due to reduced timber harvests on public lands. About 22% of all sheep and lambs and 20% of all cattle and calves produced in Oregon are raised in the six cooperating counties in the District (OAFS 1992-1993). Livestock inventories from the six counties included about 276,000 head of cattle and calves and 95,000 sheep and lambs, valued at over \$150 million dollars (OAFS, 1992-1993). In 1992, the OAFS reported an increase in the value of all livestock and poultry sold at market, with livestock production representing over 45% of the gross farm product sales in the District. Table 1 displays livestock¹ and gross farm sales for each cooperating county (OSU 1993).

Scope of Livestock Losses

Cattle and calves are most vulnerable to predation (killing, harassment, or injury resulting in monetary losses to the owner) at calving and less vulnerable at other times of year. However, sheep and especially lambs, can sustain high predation rates throughout the year (Henne 1977, Nass 1977, 1980, Tigner and Larson 1977, O'Gara et al. 1983, ██████████ 1993a, 1993b). This killing of livestock causes economic hardships to livestock owners.

Without effective wildlife damage management to protect livestock, predation would be higher (Nass 1977, 1980, Howard and Shaw 1978, Howard and Booth 1981, O'Gara et al. 1983).

Many studies have shown that coyotes (*Canis latrans*) 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). Other predators that cause predation on cattle, calves, sheep and lambs in the District are black bear (*Euarctos² americanus*), cougar (*Felis concolor*), and feral or free-roaming dogs (*Canis familiaris*). Black bear and cougar predation on livestock can be severe

**Table 1
Livestock Product Sales
and
Total Gross Farm Sales
Roseburg ADC District
1992 - 1993**

(Source: Oregon County & State Agriculture Estimates)

County	Livestock Products (\$)	Total Gross Farm Sales (\$)	% Of Total Sales
██████	16,551,000	41,404,000	39.9%
██████	3,550,000	14,430,000	24.6%
██████████	10,744,000	19,153,000	56.1%
██████████	55,236,000	96,058,000	56.0%
██████	24,592,000	35,835,000	68.6%
██████	29,130,000	105,859,000	27.4%
TOTAL	150,520,000	331,928,000	45.3%

¹ Livestock includes cattle, calves, sheep, lambs, poultry, and dairy products.

² Species also known as *Ursus*

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(NASS 1991, 1992; █████ 1993a, 1993b, MIS 1993). The █████ (1993a, 1993b) reported that most bear and cougar damage management efforts are concentrated in the northeastern and southwestern part of the State, including the District, although the problem seems to be increasing statewide. Southwestern Oregon has more reported cougar predation than any other part of the state; much of this predation is related to the fact that ranching operations are located in or near cougar habitat (█████ 1993b). Dogs are responsible for considerable predation on livestock and wildlife. The National Agricultural Statistical Service (NASS) (1991) reported that 1,200 adult sheep and 7,100 lambs were killed by dogs in Oregon.

Connolly (1992) determined that only a fraction of the total predation attributable to coyotes is reported to or confirmed by ADC. He also stated that based on scientific studies and recent livestock loss surveys from the NASS, ADC only confirms about 19% of the total adult sheep and 23% of the lambs actually killed by predators. In the District, 17% of the sheep and lambs and 6% of the calves reported killed were confirmed by ADC Specialists (MIS 1993). ADC Specialists do not attempt to locate every head of livestock reported by ranchers to be killed by predators, but rather to verify sufficient losses to determine that a problem exists that requires management action.

Although it is impossible to accurately determine the amount of livestock saved from predation by ADC, it can be estimated. Scientific studies reveal that in areas without some level of wildlife damage management, losses of adult sheep and lambs to predators can be as high as 8.4% and 29.3%, respectively (Henne 1975, Munoz 1977, O'Gara et al. 1983). Conversely, other studies indicate that sheep and lamb losses are much lower where wildlife damage management is applied (Nass 1977, Tigner and Larson 1977, Howard and Shaw 1978; Howard and Booth 1981). An Oregon State University study suggests that about 2% of adult sheep, 4.7% of the lambs and 0.9% of the calves produced in Oregon are typically lost to coyote predation each year with standard wildlife damage management being conducted (DeCalesta, 1987).

Loss of Livestock and Poultry

NASS (1991) reported that predators killed 5,100 adult sheep valued at \$296,000, 18,800 lambs valued at \$583,000, and 4,500 calves valued at \$1,440,000 (NASS 1992) in Oregon. Substantial livestock losses from predators have also been documented in the District since 1919 (USDA 1919 to 1993). A typical statement from early reports reads:

"Coyotes continue, as in the past by virtue of their numbers, to be the most serious menace to livestock, poultry and game of all the predatory animals in the District" (USDA, 1925 Annual Report).

In the District, verified losses to all classes of livestock from coyote predation are higher than the losses caused by cougar and black bear and other predators combined. Coyote predation accounted for about 59% of the verified total value of all livestock and poultry lost to predators in the District in 1993, with █████ County sustaining the highest economic livestock loss, followed by █████ and █████ counties (Table 2). Coyotes were responsible for about 61% of all livestock and poultry verified by ADC personnel as being killed by predators, followed by cougar 8.5%, bobcat (*Lynx rufus*) 8.3%, raccoon (*Procyon lotor*) 7.9%, black bear 4.8%, dogs 2.3%, red fox (*Vulpes vulpes*) 1.7%, opossum (*Didelphis virginiana*) 1.1%, skunks (*Mephitis mephitis* and *Spilogale putorius*) 0.7%, gray fox (*Urocyon cinereoargenteus*) 0.6%, raven (*Corvus corax*) 0.3%, and other 2.9% (MIS 1993). Table 2 is a summary of reported livestock killed by predators in 1993 for the District. These losses represent

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2.9% of the adult sheep, 4.6% of the lambs, 2.6% of the calves, and 0.07% of adult cattle protected by ADC in the District in 1993.

On the **Winema** and **Fremont** National Forests (NF), wildlife damage management for livestock protection has not been authorized since 1989. Prior to 1989, ADC protected sheep and cattle on the Forests and on private lands adjacent to Forest Service lands. In 1988-89, the last year ADC worked on the **Winema NF**, two permittees and three adjacent land owners reported 5 adult sheep, 5 lambs and 19 calves killed by coyotes (ADC 1989). Presently, two sheep grazing allotments and 15 cattle grazing allotments are permitted on the **Winema NF** and no sheep allotments and 71 cattle allotments are permitted on the **Fremont NF**. Current wildlife damage management efforts on these allotments consist of the permittee providing herders and guard dogs. No current livestock loss data are available for these NF allotments.

About 40 livestock producers adjacent to the National Forests reported 168 calves valued at \$87,050 and 10 adult sheep and 35 lambs valued at \$2,650 were killed by predators (MIS 1993). On private lands adjacent to the **Winema** and **Fremont** NF, ADC personnel verified that coyotes killed 3 adult sheep and 42 lambs, 1 cow and 20 calves valued at \$10,000 (MIS 1992, 1993).

**Table 2
Number of Reported Livestock & Poultry Killed by Predators
Roseburg ADC District
1993**

County	Lambs	Sheep	Cattle	Calves	Poultry and Other	Value (\$)
█	627	365	2	47	365	\$177,622
█	912	396	0	11	208	\$80,180
█	11	6	0	4	0	\$1,730
█	178	30	27	310	0	\$194,746
█	63	11	47	2,010	8,722	\$1,433,149
█	1,212	388	14	67	187	\$148,716
TOTAL	3,003	1,196	90	2,449	9,482	\$2,036,143

The primary need for wildlife damage management for livestock protection in █ County occurs on grazing allotments administered by the █. Because of the mobility and large home ranges of coyotes, it is often necessary to conduct wildlife damage management on both private and adjacent public lands to provide adequate livestock protection. Forty-six █ County livestock producers requested ADC assistance during 1993 and reported 2,010 calves killed by predators, of which 1,992 were killed by coyotes.

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ADC personnel verified that predators killed 9 adult cattle, 140 calves, 173 adult sheep, 499 lambs, and 398 other livestock and poultry in the six cooperating counties in the District in 1993 (MIS 1993). Using livestock market values from the OAFS (1992-1993), the value of this livestock was \$106,200. Table 3 shows the number of ADC verified livestock killed by predators.

In 1993, livestock producers who reported that predators killed 1,196 adult sheep, 3,003 lambs, 2,499 calves, 90 adult cattle, and 394 head of poultry in the District valued at more than \$2,000,000. These losses occur in spite of current control efforts by producers, who often entail substantial indirect costs (Jahnke et al. 1987), and ADC program personnel. Table 4 shows the types and numbers of livestock protected in the District during 1993 (MIS 1993).

1.1.3 Need for Wildlife Damage Management to Protect Big Game Herds

Revenue derived from recreation, especially recreation related to wildlife and the outdoors, is increasingly important to the economy of southwestern Oregon. Southwick (1993) estimated the total economic impact from deer hunting in the United States in 1991 to be \$16.6 billion. In Oregon, local economies also benefit from these recreational activities. As a result, the maintenance of big game populations is important to the ██████████ which has the responsibility for managing wildlife for the benefit of the State of Oregon. Wildlife damage management is periodically requested by the ██████████ to reduce predation to mule deer (*Odocoileus hemionus*) and pronghorn antelope (*Antilocapra americana*) populations, especially on winter ranges for deer and spring ranges for antelope.

Under certain conditions, predators, primarily coyotes, have been documented as having a significant adverse impact on deer and pronghorn antelope 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). 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 some populations of white-tailed deer (*Odocoileus virginianus*), black-tailed deer (*Odocoileus hemionus columbianus*), pronghorn antelope and bighorn sheep (*Ovis canadensis*). Mackie et al. (1976) documented high winter losses of mule deer due 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 contain nearly 90% deer during May and June. They concluded from work conducted at the ██████████, Texas that coyotes take a large portion of the fawns each year during the first few weeks of life. Fawn remains were also common in coyote scats (feces) during the first 4 to 8 weeks of life in studies from Steele (1969), Cook et al. (1971), Holle (1977), Litvaitis (1978), Litvaitis and Shaw (1980).

Mule deer fawn survival was significantly increased and more consistent inside a predator-free enclosure in Arizona (LeCount 1977, Smith and LeCount 1976). 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 fall and winter was limiting the ability of the

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**Table 3
Number of Verified Livestock & Poultry Losses to Predation
Roseburg ADC District
1993**

County	Lambs	Sheep	Cattle	Calves	Poultry & Other	Value (\$)
█	54	50	0	2	66	\$6,656
█	106	84	1	1	106	\$18,438
█	21	5	1	41	53	\$1,670
█	68	17	2	18	12	\$13,458
█	9	4	3	66	4	\$35,650
█	248	39	2	12	174	\$30,329
TOTAL	506	199	9	140	415	\$106,201

**Table 4
Number of Livestock & Poultry Protected
Roseburg ADC District
1993**

County	Lambs	Sheep	Cattle	Calves	Poultry & Other	TOTAL
█	9,791	10,127	3,421	3,201	828	27,368
█	15,705	15,557	1,385	2,248	447	35,342
█	227	193	121	86	0	627
█	5,465	4,211	27,178	22,242	0	59,096
█	4,509	2,715	83,385	63,140	44,275	198,024
█	30,273	8,226	4,635	3,585	736	47,455
TOTAL	65,970	41,029	120,125	94,502	46,286	367,912

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population to maintain or increase itself (recruitment). Their study concluded that predation, primarily by coyotes, was the major cause for low fawn crops on ██████████ in Oregon. Other authors observed that coyotes were responsible for the majority of fawn mortality during the first few weeks of life (Knowlton 1964, White 1967).

Guthery and Beasom (1977) demonstrated that after coyote control, deer fawn production was 70% greater after the first year, and 43% greater after the second year on their southern Texas study area. Another Texas study (Beasom 1974a) found that predators were responsible for 74% and 61% of the fawn mortality for two consecutive years. 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. 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 about 88% to 97% of the mortality. Knowlton and Stoddart (1992) reviewed deer productivity data from the ██████████ following coyote reduction. Deer densities tripled compared to those outside the enclosure, but without harvest management, ultimately returned to original densities due primarily to malnutrition and parasitism. Clearly, predator damage management can be an important tool in maintaining big game productive and management objectives.

Neff et al. (1985) concluded from radio tracking studies that the majority of coyotes who hunted pronghorn antelope fawns on ██████████, Arizona were resident. This means that most of the depredating coyotes were present on the fawning grounds during fawning times. 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). 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 damage management this increase was not noted. Similar observations of improved pronghorn antelope fawn survival and population increase following damage management have been reported by Riter (1941) and Udy (1953). Major losses of pronghorn antelope fawns to predators have been reported from more recent radiotelemetry studies (Beale 1978, Beale and Smith 1973, Barrett 1978, Bodie 1978, Von Gunten 1978, Hailey 1979, and Tucker and Garner 1980). Coyote damage management on ██████████, Arizona increased the herd from 115 animals to 350 in three years, and peaking at 481 animals in 1971. After coyote damage management was discontinued, the pronghorn fawn survival dropped to only 14 and 7 fawns per 100 does in 1973 and 1979, respectively. Initiation of another coyote damage management program began with the reduction of an estimate 22% of the coyote population in 1981, 28% in 1982, and 29% in 1983. Pronghorn antelope populations on ██████████, during 1983, indicated a population of 1,008 antelope, exceeding 1,000 animals for the first time since 1960. Fawn production increased from a low of 7 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 5-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 ██████████, Arizona. Coyote reduction was found to be necessary and cost effective in pronghorn antelope management, as shown by Smith et al. (1986).

Predation was the leading cause of pronghorn antelope fawn loss, accounting for 91% of the mortalities that occurred during a 1981-82 study in southeastern Oregon (Trainer et al. 1983). Trainer et al. (1983) also noted that most pronghorn antelope fawns were killed by coyotes and that known probable coyote kills comprised 60% of fawn mortality. In addition, a coyote reduction study in southeastern Oregon documented that in 1985, 1986 and 1987 an estimated reduction of 24%,

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48%, and 58% of the spring coyote population in the study area resulted in an increase in antelope fawns from 4 fawns/100 does in 1984 to 34, 71, and 84 fawns/100 does in 1985, 1986, and 1987, respectively (Willis et al. 1993). [REDACTED] has recently identified a need to conduct predator control within portions of [REDACTED], [REDACTED], and [REDACTED] for the purpose of improving antelope recruitment. Should [REDACTED] decide to go forward with this proposal, it will be conducted in accordance with [REDACTED], [REDACTED], whichever applies.

Factors such as predator densities, alternate prey densities, weather conditions, deer and antelope numbers densities and vulnerability can influence survival and maintenance of young into a population. Based on research and experience, [REDACTED] has found that coyote damage management can increase deer and pronghorn antelope fawn survival where predation is affecting the ability of these populations to maintain or increase their densities (recruitment). If [REDACTED] management objectives for these species are to be met, monitoring and periodic coyote damage management may be needed. Under an existing Cooperative Agreement with ADC, [REDACTED] could request predator damage management for the protection of mule deer and pronghorn antelope. Predator damage management would be requested when [REDACTED] determines predation is detrimental to management objectives. Only after [REDACTED] has made such a determination will ADC respond. The factors used by [REDACTED] to determine when to request predator damage management to protect mule deer and pronghorn antelope are:

Mule Deer

- Less than 25 to 40 fawns per 100 adults counted on the particular range, depending on the management unit objective.
- Populations below [REDACTED] population management objectives for a particular range.
- Relative coyote population levels.

Pronghorn Antelope

- Antelope populations fall below the [REDACTED] management objectives with a declining trend.
- Less than 20-30 fawns per 100 does, dependent on management objectives.
- Less than 25 bucks per 100 does with a declining trend.
- Relative coyote population levels.

1.1.4 Need for Wildlife Damage Management for Black Bears and Cougar Determined to be Dangerous (For Public Safety)

[REDACTED] is responsible for responding to dangerous black bear and cougar complaints relating to human safety and has entered into and MOU and *Cooperative Agreement* with ADC to assist them wherever and whenever necessary. Within the District, human interactions with bears and cougars could occur wherever habitat or food sources overlap with human activities. For black bear, a species

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that is difficult to census, [REDACTED] estimates that current harvest rates, whether by hunting, damage management, or unknown causes, are not causing a decline in the bear population statewide. Black bear damage complaints, primarily regarding damage to conifers and livestock, continue to increase at a steady rate, which may partly indicate an increasing black bear population. Human encroachment into black bear habitat also increases the possibility of human-bear interactions ([REDACTED] 1993a). Cougar populations are estimated to be growing by 4 to 5% per year. Increasing cougar observations, road kills and damage complaints over the last 10 years indicate the statewide cougar population has increased substantially since 1980. Between 1918 and 1973, when the statewide bounty was eliminated, the largest number of cougar taken by bounty came from [REDACTED] [REDACTED] and [REDACTED] Counties, indicating that these populations have historically been healthy ([REDACTED]).

When bears or cougars damage property or threaten human health and safety, immediate action is taken. Normally, [REDACTED] responds to nuisance bear and cougar complaints by providing technical assistance and advice to individuals or property owners. When technical assistance does not resolve the problem, [REDACTED] attempts to live-trap and relocate the offending animal or requests ADC to do so. Other [REDACTED] management alternatives may also be implemented, such as the lengthening of the hunting season and increasing the number of hunting permits in areas experiencing problems.

Relocation of problem animals is the preferred management strategy however, success is often dependent on the age and sex of the offending animal. Relocated bears may return to their original location (Rogers 1986) or create similar problems in their new location. [REDACTED] policies addressing the relocation of black bear and cougar and state:

If a bear or cougar is a confirmed livestock killer it is not to be relocated. If the animal is determined to be a threat to human safety it is not to be relocated. Any nuisance bear or cougar that is to be relocated is to be at the very least ear tagged. It is recommended that the animal be radio collared and monitored regularly to determine the fate of the relocation attempt. If a marked animal causes damage a second time, it is to be destroyed ([REDACTED] [REDACTED]).

Historically, nuisance or dangerous bear interactions with humans occur every year in the District. Bears may become dangerous when they habituate to urban or residential locations, recreation areas such as campgrounds and picnic areas, or garbage dumps or refuse sites where food is easily obtained. These bears may become an attraction for local residents and tourists, posing potential threats to human safety. In 1993, ADC responded to about 104 requests for assistance from [REDACTED]. Over the last four years (1989-1993) Siskiyou NF personnel reported human/bear encounters have ranged between 5 and 15 per year (Lee Webb, Siskiyou NF, pers. comm. 1993).

Although rare, cougar attacks on humans in the western United States and Canada have increased markedly in the last two decades, primarily due to increased cougar populations and human use of cougar habitats (Beier, 1992). Recently, numerous incidents have been reported to [REDACTED] and ADC. Between January 1, 1993 and May 1, 1994, ADC personnel in the District responded to 13 requests for assistance involving confirmed cougar sightings in close proximity to human habitation. Between January 1 and May 20, 1994, [REDACTED] personnel responded to 11 cougar complaints in [REDACTED] and [REDACTED] Counties involving human safety ([REDACTED] 1994). In [REDACTED] County, cougars recently killed domestic dogs in residential areas in close proximity to schools and other populated areas. No cougar-caused human fatalities have been documented in Oregon, but the recent fatal attacks in California and Colorado emphasize the need for awareness.

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1.1.5 ADC OBJECTIVES

The need for wildlife damage management in the District helped ADC and [REDACTED] define the management objectives for the District. The following objectives were developed by ADC, [REDACTED] and the Interdisciplinary (ID) Team, during the preparation of this EA.

A. Livestock Protection: For active Cooperative Agreements and Agreements for Control, ADC's objectives are to:

A-1 Respond to 100% of the requests with the appropriate action, using the ADC Decision Model (see Chapter 3 p 3-4) as determined by the Specialist.

A-2 Hold lamb losses to due to predation to less than 5%/year in areas with cooperative agreements.^{3,4}

A-3 Hold adult sheep losses due to predation to less than 3%/year in areas with cooperative agreements.^{3,4}

A-4 Hold calf loss due to predation to less than 1%/year in areas with cooperative agreements.^{3,4}

A-5 Provide 100% of cooperators and cooperating Federal, state and local agencies with information on nonlethal management techniques proven to be effective for reducing predation within:

- 1 year of the signed decision for this EA;
- 3 weeks of signing of new cooperative agreements;
- 1 year of new information becoming available.

A-6 Maintain the lethal take of nontarget animals by ADC personnel during damage management to less than 5% of the total animals taken.

A-7 Monitor the implementation of producer implemented (nonlethal) techniques.

B. Protection of Mule Deer and Pronghorn Antelope Herds:

B-1 Respond to 100% of [REDACTED] requests for wildlife damage management on selected deer and antelope management units.

C. Human Protection From Dangerous Bears and Cougars:

³ District personnel will use MIS reported losses, which involves annual standardized interviews with livestock owners and operators, to determine levels of predation. These losses will be calculated as a proportion of total inventory of livestock owned or grazed by cooperators in the District. These objective levels were selected based on statewide loss proportions, as historical data do not exist for the District alone.

⁴ This Objective may be met overall, but may not be met on each ranch or in each county.

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C-1 Respond to 100% of █████ black bear and cougar requests.

1.2 Relationship of this Environmental Assessment to Other Environmental Documents

- 1.2.1 ADC Programmatic EIS.** ADC has issued a Final EIS on the national APHIS/ADC program (USDA 1994). Pertinent and current information available in the FEIS has been incorporated by reference into this EA. When the Record of Decision (ROD) for the FEIS is published, this EA will be evaluated for consistency with the ROD. If inconsistencies are found, the EA will be supplemented pursuant to NEPA.
- 1.2.2 National Forest Land and Resource Management Plans (LRMPs).** The National Forest Management Act (NFMA) requires that each National Forest prepare a Land and Resource Management Plan (LRMP) for guiding long-range management and direction. A careful review of the LRMPs for the National Forests in the District found that wildlife damage management was discussed only in the LRMP for the █████ Winema NF. Wildlife damage management is not specifically mentioned in the LRMP's for the █████ Fremont and Siskiyou NFs, however, this silence does not necessarily denote inconsistency with the "Forest Plans" and these forests will make a consistency determination.
- 1.2.3 National Forest EAs for Wildlife Damage Management.** None of the National Forests within the District have EAs for wildlife damage management related to the protection of livestock or wildlife. The █████ Fremont National Forest has several EAs related to gopher and ground squirrel control. Therefore, the District is not conducting any activities on Forest Service lands, although needs may exist. Any future wildlife damage management efforts would be conducted according to the decisions made from this EA.
- 1.2.4 █████.** The █████ currently uses █████/EISs to guide management on lands they administer. █████/EISs generally replace older land use plans known as management framework plans. Five western Oregon █████ Districts (█████, and the █████ District) lie within the Roseburg ADC District and are currently in the process of preparing final █████. Draft █████ for each of these districts were published in August 1992 (█████) and are available for review by contacting the appropriate █████ District office. None of these draft plans address wildlife damage management in a comprehensive way. The █████ and █████ Districts historically have not needed such activities and do not anticipate a need, therefore, these █████ Districts do not have an ADC Annual Work Plan.
- 1.2.5 █████ EAs for Wildlife Damage Management.** The █████ District has an EA for wildlife damage management (█████). This EA addresses agency responsibilities, guidance and restrictions for various management objectives and land classes, and will supersede the 1989 EA. Wildlife damage management will continue on the █████ District in accordance with the 1989 EA and the ADC Annual Work Plan until officially superseded by the final decision from this EA. Additional NEPA documentation would be required to conduct wildlife damage management that is outside the scope of this EA within the other four █████ Districts, should the need arise in the future.
- 1.2.6 █████ Wildlife Management Plans.** █████ has prepared wildlife management plans for mule deer (█████ 1990), black bear (█████ 1993a), and cougar (█████ 1993b). These plans outline the

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management goals, objectives, strategies and methodologies for these species. These criteria will be incorporated by reference into this EA and used for the analysis.

1.2.7 Alternative 9 and FEIS on Amendments of Forest Service and [REDACTED] Management Planning Documents with in the Range of the Northern Spotted Owl. In April 1994 the Secretaries of Agriculture and Interior selected Alternative 9 in the ROD based on the FEIS on "Amendments of Forest Service and [REDACTED] Planning Documents Within the Range of the Northern Spotted Owl." (Forest Service/[REDACTED] 1994a, 1994b) Attachment A of the ROD provides all the standards and guidelines for management within the range of the owl; those standards and guidelines apply unless standards and guidelines in Forest Service Forest Plans or [REDACTED] [REDACTED] are more restrictive. A careful review of the ROD and Attachment A found no references to wildlife damage management or how they may effect the Northern Spotted Owl (*Strix occidentalis*). Therefore, there would be no need for this EA to evaluate consistency with Alternative 9.

1.3 DECISION TO BE MADE

Based on agency relationships and legislative mandates, ADC is the lead agency for this EA, and therefore responsible for the scope, content and decisions made. As cooperating agencies the Forest Service and [REDACTED] will provide input and make recommendations to ADC on when and where wildlife damage management will be conducted on National Forest System and [REDACTED] lands and ensure proposed activities are consistent with Forest Plans (LRMP), [REDACTED] and Forest Service and [REDACTED] policy. Annual operating plans will be reviewed by the Forest Supervisor and District Manager to ensure activities are in compliance with LRMPs and [REDACTED] and terms of the MOUs. Forest Supervisors and District Managers will provide input and cooperation with ADC in conducting wildlife damage management activities.

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

- Should wildlife damage management as currently implemented be continued in the District (the "no action" alternative)?
- If not, how should ADC fulfill their legislative mandate and responsibilities in the District.
- Might the proposal have significant impacts needing an EIS.

1.4 SCOPE OF THIS ENVIRONMENTAL ASSESSMENT ANALYSIS

1.4.1 Actions Analyzed. This EA evaluates wildlife damage management to protect livestock and poultry, mule deer, and pronghorn antelope predation caused by coyotes, black bears, cougars, bobcat, gray fox, red fox, raccoon, striped skunk, and common ravens within the District. This EA will also analyze dangerous human encounters with black bears and cougars. Protection of other agricultural resources and commodities and other program activities will be addressed in other NEPA documents. Cultural and archeological concerns will be considered and addressed in this document as they relate to the proposed action.

1.4.2 Wildlife Species Potentially Protected by ADC in Addition to Mule Deer and Pronghorn Antelope. [REDACTED] may request ADC assistance to achieve management objectives for white pelicans (*Pelecanus erythrorhynchos*), sage grouse (*Centrocercus urophasianus*), rednecked grebes (*Podiceps griseigena*), sandhill cranes (*Grus canadensis*), and Colombian white-tailed deer (*Odocoileus*

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virginianus leucurus). If [REDACTED] identifies additional species are in need of protection, a determination will be made on a case-by-case basis if additional NEPA analysis is needed. NEPA analysis of wildlife damage management for species under the jurisdiction of another federal agency (for example migratory birds, and endangered or threatened species) will be conducted by the authorized federal agency.

1.4.3 Counties Not Part of the Operational ADC Wildlife Damage Management Program.

[REDACTED] and [REDACTED] Counties do not have Cooperative Agreements with ADC. However, [REDACTED] County does conduct a County-administered program, and information regarding take of predators has been included in the "Other Harvest" data for cumulative effects analyses in Chapter 4. Should [REDACTED] and [REDACTED] Counties decide to enter into Cooperative Agreements, this EA will be supplemented by ADC pursuant to NEPA.

1.4.4 American Indian Lands and Tribes.

Presently, no tribes have Cooperative Agreements with ADC for wildlife damage management. If a tribe enters into a Cooperative Agreement, this EA will be supplemented by ADC pursuant to NEPA.

1.4.5 Period for Which this EA is Valid.

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

1.4.6 Site Specificity.

This EA addresses all lands under Cooperative Agreement, Agreement For Control or ADC Annual Work Plans in the District. These lands are under the jurisdiction of the Forest Service, [REDACTED], state, county, and private ownership. The EA emphasizes significant issues as they relate to specific areas whenever possible; however, many issues apply wherever wildlife damage and resulting management occur, and are treated as such. The standard ADC Decision Model (Slate et al. 1992) and ADC Directive 2.105 will be the site-specific procedure for NEPA compliance for individual actions conducted by ADC in the District (See Chapter 3 p 3-4 for the ADC Decision Model and its application).

1.4.7 Summary of Public Involvement Efforts

Issues related to the proposed action were identified during the scoping process conducted with members of the livestock industry, environmental interest groups, the general public, American Indians, [REDACTED] and Forest Service resource specialists, and state and county agencies, and other federal agencies. The public was notified about the proposed action through a scoping letter and invited to comment on the District program. This letter was mailed on December 1, 1993 to 188 individuals, organizations and agencies, and legal notices were published in 10 daily newspapers throughout the District (some newspapers in which the notice was published have statewide distribution).

Scoping responses were documented from 19 letters and telephone calls. The responses represented a wide range of opinions, both supporting and opposing the proposal. Key interest groups were the Oregon Natural Resource Council, Predator Project, Wildlife Damage Review, The Humane Society of the US, The Oregon Wildlife Federation, and the [REDACTED]. All comments are maintained in the administrative file.

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A team of resource specialists with expertise in range management, wildlife biology, wildlife damage management, cultural resources and environmental coordination evaluated the issues identified in the public involvement process. Issues determined to be significant and relative to the analysis are discussed in Chapter 2 and evaluated in Chapter 4. Concerns that were not significant were not analyzed in detail.

Other Agency Involvement

To assure that the concerns of other federal and state agencies have been addressed, the Forest Service, [REDACTED], [REDACTED] and [REDACTED] were asked to participate on the ID team, and are cooperating agencies in the development of the EA. In addition, the Draft EA was circulated to each National Forest in the District, the Forest Service Regional Office, [REDACTED] State and District Offices and other federal agencies within the area of coverage. American Indian Tribes were provided a copy of the Draft EA and asked to review and comment.

Results of Review of Draft Environmental Assessment

More than 200 copies of the Draft EA were mailed to organizations and individuals as well as public agencies and local American Indian Tribes for review and comments. In addition, a news release and formal public notice was published in ten regional newspapers prior to analysis that announced the availability of the Draft EA. Fourteen individuals, organizations or agencies provided written comments on the Draft EA.

The documentation on the public involvement effort, including the written responses, is available for public review. They are located in the administrative file in the ADC State Directors Office in Portland, Oregon.

1.5 AUTHORITY AND COMPLIANCE

1.5.1 Authority of Federal and State Agencies in Wildlife Damage Management in Oregon⁵

ADC Legislative Mandate

The primary statutory authority for the ADC program is the Animal Damage Control Act of 1931, 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

⁵ Detailed discussions of the legal mandates, state statutes and relationships of all pertinent federal, state and local wildlife and land management entities, and key legislation pertinent to wildlife damage management are found in Appendix F. Also see Chapter 1 of USDA 1994.

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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 mandate 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."

██

The ██████ has the responsibility to manage all protected and classified wildlife in Oregon, except federally listed threatened and endangered (T&E) species, regardless of the land class on which the animals are found (Oregon Revised Statutes (ORS) 496.012, 496.118). ██████ is also authorized to cooperate with ADC and the ██████ for controlling predatory animals (ORS 610.020). Oregon State law allows a landowner or lawful occupant to take any black bear, cougar, red fox or bobcat that is causing damage without first obtaining a permit from ██████ (ORS 610.105). The law, however, does require the landowner to notify ██████ of the methods used, and species and number of animals taken.

In Oregon, black bear and cougar management is the responsibility of the ██████. However, the current Memorandum Of Understanding (MOU) and Cooperative Agreement between the ██████ and ADC authorizes ADC to independently respond to livestock damage caused by black bear and cougar. The ██████ is then notified within 24 hours of any action taken to resolve the problem.

Generally, either the ██████ or ADC receives requests to handle wildlife damage to livestock. The ██████ may choose to ask ADC to respond to the request or may respond itself. Under existing agreements, ADC is authorized to respond independently to livestock damage caused by black bears and cougar.

██

Coyotes are not protected in Oregon and are classified as predatory animals under ORS 610, administered by the ██████. The ██████ is also authorized to enter into Cooperative Agreements with ADC and local entities for controlling coyote damage (ORS 610.010, .015, .020, .025, .030, .032). The ██████ is responsible for the issuance of permits for aerial hunting per the Fish and Wildlife Act of 1956, as amended, and for administering a program to reduce damage caused by predatory animals (ORS 610.002, .003, .005, .035). The ██████ currently has a MOU, Cooperative Agreement, and

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Annual Work Plan with ADC. These documents establish a cooperative relationship between ADC and [REDACTED], outlines responsibilities, and sets forth annual objectives and goals of each agency for resolving wildlife damage management conflicts in Oregon.

Oregon Statutes - Animal Control Laws

Under Oregon state law (ORS 609.150 (*Animal Control Laws*)), any dog found in the act of killing or injuring livestock may be killed immediately by any person. In Oregon, dog control is generally the responsibility of local governmental agencies. Local animal control officials or County Sheriffs are responsible for dealing with dogs that threaten, damage, or kill livestock. ADC policy provides for ADC to assist at the request of local authorities upon approval of the ADC State Director.

U.S. Forest Service and [REDACTED]

The Forest Service and [REDACTED] have the responsibility to manage 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 [REDACTED] recognize the importance of managing 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 Directors Office in Portland, Oregon.

- 1.5.2 COMPLIANCE WITH FEDERAL LAWS.** Several federal laws regulate ADC 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 decision can be developed and implemented. Before 1993, each National Forest (and occasionally individual Ranger Districts) and each [REDACTED] District would prepare its own NEPA document. This resulted in different requirements and procedures for different agencies, and omitted analysis of ADC activities on private lands. This EA, with ADC as the lead agency, is the first time that all land classes under Cooperative Agreements, Agreements for Control and ADC Annual Work Plans will be analyzed in a comprehensive manner.

ADC also coordinates specific projects and programs with other agencies. The purpose of these contacts is to coordinate any wildlife damage management that may affect resources managed by these agencies or affect other areas of mutual concern. Federal agencies that request ADC assistance to protect resources are responsible for NEPA compliance. For example, the USFWS would be responsible for NEPA compliance regarding protection of endangered species.

Endangered Species Act (ESA) It is federal policy, under the ESA, that all federal agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of the Act (Sec.2(c)). ADC conducts Section 7 consultations with the USFWS to use the expertise of the USFWS to ensure that "any action authorized, funded or carried out by such an agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species. . . Each agency shall use the best scientific and commercial data available" (Sec.7(a)(2))

Migratory Bird Treaty Act The Migratory Bird Treaty Act provides the USFWS regulatory authority to protect species of birds that migrate outside the United States. The law prohibits any

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"take" of these species, except as permitted by the USFWS; therefore the USFWS issues permits for managing wildlife damage situations.

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 integrated into the ADC program in the District are registered with and regulated by the EPA and the ODA, and used by ADC in compliance with labeling procedures and 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 properties in areas of these federal undertakings.

1.6 PREVIEW OF THE REMAINING CHAPTERS IN THIS EA

The remainder of this EA is composed of four (4) chapters and 7 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 analyzes the environmental impacts associated with each alternative considered in detail, how well each alternative meets the objectives, determines consistency with Forest Service Land and Resource Management Plans (LRMPs), and determines the economic impacts of each alternative. Chapter 5 contains the list of preparers of this EA.

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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 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

The Interdisciplinary Team, consisting of representatives from the lead and cooperating agencies, determined the issues to be:

- The potential for the ADC kill of predators to cause predator population declines, when added to other mortality.
- The potential for the ADC kill of predators, in addition to other mortality, to depress populations to the point whereby prey populations such as rabbits and mice (rodents) might increase and cause damage to agricultural products.
- Potential for the incidental take of T&E species, especially the northern bald eagle (*Haliaeetus leucocephalus*).
- Level of kill of nontarget species incidental to ADC wildlife damage management.

2.2 ISSUES USED TO DEVELOP MITIGATION

2.2.1 Wildlife Damage Management in Special Management Areas on Federal Lands

Wilderness or primitive areas are areas that have been designated by Congress to be managed for the preservation of wilderness values. These areas are currently located on Forest Service and USFWS lands, but existing [REDACTED] on [REDACTED] lands could be officially designated in the future.

A number of different types of areas exist on federal lands within the District which currently have a special designation and/or require special management consideration. These include wilderness (WAs) or primitive areas (PAs), [REDACTED], research natural areas (RNA's), areas of critical environmental concern (ACEC's), and wild and scenic rivers. Table 1 lists those areas currently designated within the District. The special management required for these different areas varies considerably by designation, land administrator, and are governed by different legal mandates. The following notes apply to Table 1:

- ¹ In the case of multiple designations for the same area, the total acreage is recorded as the highest acreage value.
- ² Currently proposed for designation or managed as if designated.

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³ Administratively endorsed by Congress as suitable.

⁴ Sources includes: [REDACTED], "Areas of Critical Environmental Concern in Oregon map; [REDACTED] 1992, "[REDACTED]"; [REDACTED].

⁵ Bald eagle management area (BEMA).

ADC has conducted some wildlife damage management in special management areas in the past. Recreationalists 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 experiences.

ADC wildlife damage management is conducted (and is proposed to continue in the future) 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 in Chapter 3 under Mitigation.

[REDACTED] Special Management Areas

[REDACTED]. [REDACTED] are areas that have been studied for their potential to qualify as wilderness areas and are currently awaiting Congressional designation. These are primarily [REDACTED] lands and managed in accordance with the [REDACTED] in a manner that does not diminish their wilderness values ([REDACTED]). However, this interim management does allow for continuation of most prior (non-land disturbing) activities and does not preclude wildlife damage management. Currently, fourteen [REDACTED] occur on the [REDACTED] District (Table 1). In a report to Congress, the [REDACTED] recommended that ten of these areas are suitable and of those some of the acreage is not suitable for wilderness designation. If and when Congress does act on final designation, it is likely that some of the acreage currently in [REDACTED] status will be released back into multiple use management in accordance with the Federal Land Management and Policy Act (FLPMA). In addition, those lands officially designated will then be managed in accordance with the [REDACTED].

Currently, the only [REDACTED] where wildlife damage management has occurred is [REDACTED]. A rancher has routinely requested coyote control for livestock protection in this area. However, as part of the proposed plan, wildlife damage management may be carried out within the [REDACTED], and [REDACTED] to meet [REDACTED] management objectives for antelope fawning success. This effort would be limited to a three-year time frame. Wildlife damage management in these area would be carried out in accordance with the guidelines and restrictions imposed by [REDACTED].

[REDACTED]. [REDACTED] are federal lands managed for the protection of unusual, scientific, or special interest natural characteristics for research and education. Lakeview [REDACTED] District currently has two designated [REDACTED] and a proposed [REDACTED] under interim management ([REDACTED], and [REDACTED]) (Table 1). [REDACTED] policy does not automatically exclude wildlife damage management within these areas, though none has routinely occurred in any of these areas in the past.

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**Table 1
Special Management Areas within the Roseburg ADC District**

Agency	Management Area Name	Designated Wilderness/ Primitive Area			Area of Critical Environ. Concern	Wild and Scenic River	Total Acreage ¹
██████████ District	██████████		X		X		████
	██████████		X				████
	██████████		X				████
	██████████		X				████
	██████████		X		X		████
	██████████		X				████
	██████████		X				████
	██████████		X				████
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	██████████		X				████
	██████████		X				████
	██████████			X	X		████
	██████████				X		████
	██████████				X ²		█
	██████████			X ²			████
	██████████				X ²	X	████
	██████████				X ²		████
	██████████			X ²	X ²		████
	██████████						████
Fremont NF	Gearhart Mountain	X					?
	Sycan River					X	?
	North Fork Sprague River					X	?
Winema NF	Sky Lakes	X					43,300
	Mountain Lakes	X					23,071
	Mount Thielsen	X					26,582
	Cherry Creek RNA			X			1,638

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ACEC's. ACEC's are [REDACTED] lands for which special management was deemed necessary. However, it should be noted that the legal mandate for designation and management for ACEC's comes from the 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.

The [REDACTED] has five existing or potential ACEC's ([REDACTED] [REDACTED]) (Table 1). Historically, wildlife damage management has not been allowed within the [REDACTED] and [REDACTED] ACEC's and [REDACTED]

The [REDACTED] [REDACTED] ACEC was designated in 1990 with a management emphasis on improving waterfowl habitats and waterfowl nesting success ([REDACTED] [REDACTED]). Wildlife damage management did occur in this area prior to ACEC designation and will continue in the future to the extent compatible with the current management plan for the area.

Wildlife damage management also occurred near the proposed [REDACTED] [REDACTED] ACEC. It is expected that the management plan for this area (currently in preparation) will not preclude wildlife damage management.

The [REDACTED] [REDACTED] [REDACTED] Area, during the updating of the land use plan, identified and evaluated thirteen potential ACEC's ([REDACTED] [REDACTED]). As a result of that process, four are being recommended for ACEC designation in the Final RMP/EIS. These areas include: [REDACTED] [REDACTED] (Table 1). Wildlife damage management to protect livestock occurred on an emergency basis near [REDACTED] and [REDACTED]. It is not expected that wildlife damage management will negatively affect resource values which prompted ACEC designation. Therefore, such activities will continue unless specifically excluded by a future management plan.

The [REDACTED] [REDACTED] published a draft RMP/EIS detailing the management of [REDACTED] [REDACTED]. The management emphasis is for wetland restoration, water quality improvement, and fish and wildlife habitat. The preferred plan includes ACEC designation with the management plan outlined in the RMP/EIS. Wildlife damage management would be used, if necessary, to meet management objectives for the area.

Wild and Scenic Rivers.

The Upper Klamath River was recently designated as a scenic river under the Wild and Scenic Rivers Act by the Secretary of the Interior. Until a river management plan is developed, this river segment will be managed in a manner that protects its scenic character, however, this designation does not

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preclude wildlife damage management. Such activities may be conducted to meet other resource management objectives for the area.

2.2.2 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.

In this discussion, humaneness applies only to those actions taken by humans to catch, handle and kill problem wildlife.

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). However, such research has not yet progressed to the development of objective, quantitative measurements of pain or stress for use in evaluating humaneness.

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 man has a moral obligation to protect these animals from predators (USDA 1994).

ADC has improved the selectivity of management devices through research and development of pan tension devices, break-away snares, and the Livestock Protection Collar. Research is continuing to bring new findings and products into practical use. ADC personnel in the District are experienced and professional in their use of management methods so that they are as humane as possible. Mitigation measures/standard operating procedures used to maximizing humaneness are listed in Chapter 3.

2.2.3 The public's concern about use of chemicals

The use of toxicants by ADC in all instances is regulated by the EPA through the FIFRA (see Appendix F), 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 selective to target individuals or populations, and such use has negligible impacts on the environment (USDA 1994).

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

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procedures for notifying Tribes of any new discoveries. Senate Bill 61, signed in 1992, sets similar requirements for burial protection and Tribal notification with respect to American Indian burials discovered on state and private lands.

In consideration of American Indian cultural and archeological interests, the ADC program solicited input from the following Tribes within the District:

The Klamath Tribes
The Confederated Tribes of the Coos, Lower Umpqua and Siuslaw
Cow Creek Band of Umpqua Indians
Fort Bidwell Indian Community
Confederated Modoc and Paiute Tribes

Each Tribe was requested to identify any cultural concerns relating to the proposed ADC program and identify a contact person for the Tribe. Those Tribes that responded with concerns were the Klamath Tribes, the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw, and the Confederated Modoc and Paiute Tribes. Concerns ranged from potential impacts to streams and rivers, to fish and wildlife resources such as waterfowl, jackrabbits, eagles, coyotes, cougars, black bears, and plant and insect populations. Potential ground disturbance activities were not specifically identified, but tribes responding requested maps of proposed program activities. To date, no traditional cultural properties or American Indian burials have been identified by the six tribes contacted.

In most cases, wildlife 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. The areas proposed for wildlife damage management on the **Winema** NF are located in areas of high sensitivity for cultural resources. These lands include prehistoric winter villages and vision quest sites that are considered eligible to the National Register of Historic Places; no American Indian burials are known to be present in the damage management areas. Mitigation measures developed to avoid impacts to these sites are listed in Chapter 3.

2.2.4.2 Treaty Rights/Klamath Tribes Consent Decree

The 1981 Consent Decree with the Klamath Tribes established cooperative relationships to ensure that the fish and wildlife resources within areas comprising the former Tribe be afforded protection. The Consent Decree with the Klamath Tribes is related to treaty rights for hunting, fishing and gathering. After reviewing the Draft EA, the Klamath Tribes asked to participate in annual work planning session within their area of legal concern. The Klamath Tribes also requested that an appropriate document be developed between the Tribe and APHIS that meets the intent of the Government-To-Government Relationship Directive of April 29, 1994.

2.2.4.3 Other American Indian Issues

There were no additional American Indian Issues raised as a result of the review of the Draft EA by the Tribes within the District.

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2.3 ISSUES NOT CONSIDERED IN DETAIL WITH RATIONALE

2.3.1 ADC's impact on Biodiversity

No ADC wildlife damage management is conducted to eradicate a 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 soon replace the animals removed. The impacts of the current ADC program on biodiversity are not significant nationwide, statewide, or in the District (USDA 1994). The ADC take is a small proportion of the total population as analyzed in Chapter 4.

2.3.2 Livestock losses are a tax "write off"

There is a belief that livestock producers receive double benefits by having a partially publicly funded program to resolve predation problems and also receive deductions as a business expense on tax returns. The Internal Revenue Service tax code (Internal Revenue Code), Section 1245, 1281) does not allow for livestock losses to be "written off" if the killed livestock was produced on the ranch. About 75% (MIS 1993) of predation occurs to young livestock (lambs and calves) in the District. Many ewes and cows are added to herds as young livestock as replacements for breeding stock, and if lost to predation they cannot be "written off" since they were not purchased. These factors limit the ability of livestock producers to recover against economic losses. Producers do not receive double benefits by having a federal program to manage wildlife damage and federal tax deductions for predation losses.

2.3.3 Threshold of Loss and Livestock losses are a cost of doing business

Concern was raised during public involvement that ADC should not conduct wildlife damage management until economic losses became unacceptable. Although some losses of livestock and poultry can be expected and tolerated by livestock producers, ADC has the legal mandate to respond to requests for wildlife damage management, and it is program policy to aid each requester to minimize losses. ADC uses the Decision Model discussed in Chapter 3 to determine an appropriate strategy.

In the Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie NF, 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 (Civil No. 92-C-0052A January 20, 1993).

2.3.4 Public Land Management Issues

During public involvement, several people responded that they were opposed to public land grazing, timber harvest, that AMP's were out-of-date, etc. These issues are outside the scope of this EA as they fall under the jurisdiction of other Federal agencies. This EA is directed at requested wildlife damage management as implemented by ADC in the District to protect livestock, wildlife, and human safety.

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2.3.5 Objectives are not reasonable

During public involvement, an individual questioned the reasonableness of the objectives established for the District. 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. ADC believes that the objectives established are pertinent to their responsibility and mandate.

2.3.6 Toxicants should be banned

During public involvement, an individual stated that toxicants should not be allowed to be used. ADC only uses toxicants that have been registered by the EPA under the provisions of the FIFRA. A decision to ban toxicants is outside the scope of ADC's authority. ADC could elect not to use toxicants, but those that are registered for use in Oregon are an integral part of IWDM and their selection for use follows criteria in the ADC Decision Model (see Chapter 3 p 3-4).

2.3.7 No wildlife damage management at taxpayer expense, wildlife damage management should be fee based

During public involvement, some respondents felt that wildlife 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 agency 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. Oregon general funds, license fees through ██████, county funds and livestock producer 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.

2.3.8 Wildlife should not be manipulated for hunters and recreation

During public involvement, a respondent felt that wildlife populations should not be manipulated to benefit hunters and recreationalists. This is an individual perception; the jurisdiction for managing resident wildlife rests with the ██████, and ██████ may request ADC's assistance in achieving management objectives.

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3.0 CHAPTER 3: ALTERNATIVES

3.1 INTRODUCTION

This chapter consists of four parts: 1) an introduction, 2) description of alternatives considered and analyzed in detail including the Proposed Action (Alternative 2), with an option for alternative one or two, 3) a description of alternatives considered, but eliminated from detailed study, and 4) a discussion of mitigating measures and Standard Operating Procedures. Four alternatives and one option were recognized, developed, and analyzed in detail by the ID Team (ADC, █████, Forest Service, █████, █████); five alternatives were considered but not analyzed in detail with supporting rationale. The four alternatives and option analyzed in detail are:

- 1) Alternative 1 - Continue the Current Roseburg ADC District Program: (No Action). This alternative consists of the current program of technical assistance and operational Integrated Wildlife Damage Management (IWDM) (ADC Directive 2.105) by ADC on BLM, state, county and private lands under Cooperative Agreement, Agreement for Control, and Annual Work Plans with ADC.
- 2) Alternative 2 - Current program (as described in Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).
- 3) Alternative 3 - Technical Assistance Program. Under this alternative, ADC would not conduct management in the District. The entire program would consist of only technical assistance.
- 4) Alternative 4 - No Wildlife Damage Management in the District. This alternative would terminate the federal program for wildlife damage management on the Roseburg ADC District.
- 5) Livestock Protection Collar (LPC) Option to Alternatives 1 and 2. The LPC is registered for producer or ADC use nationwide (see Appendix F FIFRA). Before the LPC can be used in Oregon, ADC must receive approval from the ODA. ADC has applied to the ODA for approval to use the LPC. If the LPC is approved for use, it could be incorporated into the IWDM program for either Alternative 1 or 2, if selected. Use of the LPC is evaluated separately in this EA.

3.2 DESCRIPTION OF THE ALTERNATIVES

3.2.1 ALTERNATIVE 1 - Current Roseburg ADC District 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 IWDM program in the District. The current program is a collection of cooperative programs with other federal, state and local agencies, and private individuals and associations to protect livestock, poultry and human safety (described in Chapter 1). The District conducts technical assistance, and preventive (in response to historical loss) and corrective (in response to current loss or hazard) operational wildlife damage management on █████, state, county and private lands under MOU, Cooperative Agreements or Agreement for Control

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(Maps of private and [REDACTED] lands worked can be found in Appendix G). All wildlife damage management is based on interagency relationships, which require close coordination and cooperation because of overlapping authorities and legal mandates.

On federal lands, ADC Annual Work Plans describe the wildlife damage management that would occur. During the ADC annual planning process with [REDACTED], [REDACTED], and [REDACTED], plans and maps are prepared which describe and delineate where wildlife damage management will be conducted and which methods will 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 localized problem predator populations or groups and/or individual offending animals, depending on the circumstances.

In [REDACTED] and [REDACTED] Counties, which do not have Cooperative Agreements with ADC, ADC personnel provide only technical assistance to livestock producers when requested. Limited technical assistance is provided in [REDACTED] County because the county conducts its own wildlife damage management program.

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 (USDA 1994, P. 2-15). The 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 (IPM) (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
- Magnitude of the damage
- Geographic extent of damage
- Duration and frequency of the damage
- Prevention of future damage (lethal and nonlethal techniques)

The cost of management may sometimes be secondary because of overriding environmental, legal, human health and safety, animal welfare, or other concerns.

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The IWDM Strategies that the District is using consist of:

- Technical Assistance Recommendations (implementation is the responsibility of the requestor): District personnel provide information, demonstrations and advice on available wildlife damage management techniques. Technical assistance includes demonstrations on the proper use of management devices (propane exploders, cage traps, etc.) and information on animal husbandry, habits and habitat management and animal behavior modification. Technical assistance is generally provided following an on-site visit or verbal consultation with the requestor. Generally, several management strategies are described to the requestor 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 District personnel in the decision making process, but the actual 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 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 pesticides are proposed, or the problem is complex requiring the direct supervision of a wildlife professional. ADC considers 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 requestor, ADC, or other agency, as appropriate. Two strategies are available:
 1. **Preventive Damage Management.** Preventive damage management is applying wildlife damage management strategies before damage occurs, based on historical damage problems. As requested and appropriate, ADC personnel provide information and conduct demonstrations, or takes action to prevent these historical problems from recurring. For example, in areas where substantial lamb depredation has occurred on lambing grounds, ADC may provide information about guarding dogs, fencing or other husbandry techniques, or be requested to conduct predator damage management prior to lambing. Preventive damage management can take place on private, county and state lands without special authorization. For activities on federal lands, historical loss areas are delineated on maps by representatives of the federal agencies and identify areas where preventive wildlife damage management may occur. Maps are available for public review at the appropriate federal office. In addition, when conducting wildlife damage management on federal lands, ADC must receive a request from the livestock owner or individual that is experiencing the damage. Management areas and techniques are colored coded and reviewed during the annual meeting between the appropriate agencies.

 2. **Corrective Damage Management** Corrective damage management is applying wildlife damage management to stop or reduce current losses. As requested and appropriate, ADC personnel provide information and conduct demonstrations, or

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takes action to prevent additional losses from recurring ¹. For example, in areas where verified and documented lamb depredation is occurring, ADC may provide information about guarding dogs, fencing or husbandry techniques, or conduct operational damage management to stop the losses.

ADC Decision Making

The ADC FEIS describes the procedures used by ADC personnel to determine management strategies or methods applied to specific damage problems (USDA 1994 pp. 2-13, 2-20 to 31 and Appendix N).

As depicted in the Decision Model (Figure 1), consideration is given to the following factors before selecting or recommending control 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 (the cost of control may sometimes be a secondary concern because of overriding environmental and legal considerations)

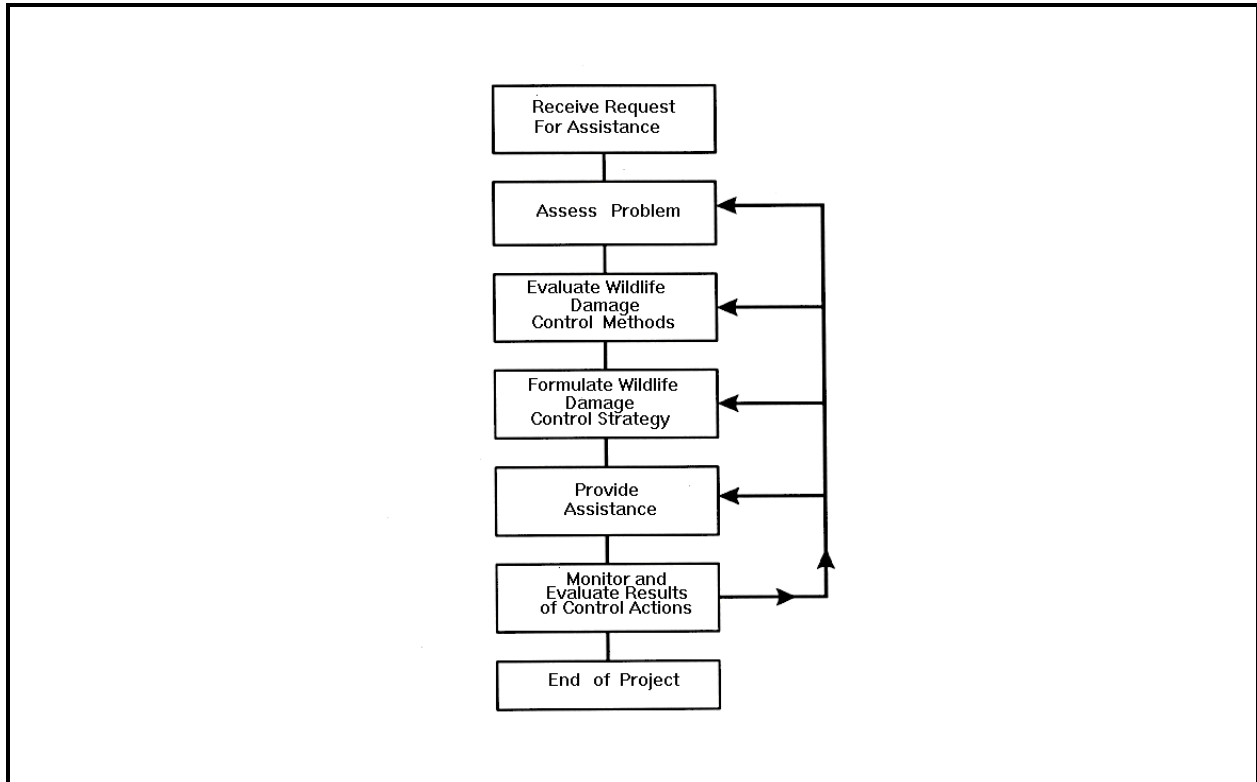
The ADC decision making process is a standardized procedure for evaluating and responding to damage complaints. ADC personnel frequently are contacted only after requesters have tried nonlethal techniques and found them to be inadequate for reducing damage to an acceptable level. ADC personnel evaluate 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. The FEIS provides detailed examples of how the ADC Decision Model is implemented for coyote predation to sheep on public and private lands (USDA 1994).

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 monitor and reevaluate the situation frequently. If one method or combination of methods fails to stop damage, a different strategy is implemented.

¹ Livestock producers enter into a *Agreement For Control On Private Property* with ADC, and rely on professional personnel to carry out the wildlife damage management deemed necessary. Refer to Appendix B for a more detailed description of wildlife damage management methods and techniques.

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Figure 1
APHIS ADC Decision Model



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.

Wildlife Damage Management Methods used in the Roseburg ADC District

Mechanical Management Methods: (Discussed in more detail in Appendix B)

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 (USDA 1992). ADC cooperates with the [REDACTED] and the [REDACTED] to offer technical assistance to producers, and provide sources for guard dog procurement. Livestock producer practices recommended by ADC include:

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- Animal husbandry, which generally includes modifications in the level of care or attention given to livestock which may vary depending on the age and size of the livestock. Animal husbandry practices include but are not limited to techniques such as guard dogs, herders, shed lambing, and carcasses removal.
 - Habitat modification alters habitat 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, 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 may use 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 ²:
 - Predator-proof fences
 - Electronic guards
 - Propane exploders
 - Pyrotechnics
2. Leg-hold and cage traps, and neck and foot snares are used in the District for preventive and corrective damage management only where signed *Agreements For Control On Private Property* are in place, or on federal lands, in accordance with ADC Annual Work Plans. For technical assistance requests, traps may be recommended or distributed to the requestor for use in resolving problems caused by small mammals.
- When resolving black bear and cougar problems, ADC personnel typically use spring-activated foot snares, and culvert or enclosure type cage traps. These techniques allow for chemical immobilization, marking and relocation of the problem animals, or if necessary, euthanasia of animals when the ██████ determines that relocation is not a viable option.
3. Ground shooting is selective for target species and may involve the use of spotlights, decoy dogs and predator calling. Shooting with rifles or shotguns is used to manage livestock depredation problems and human health hazards when lethal methods are determined appropriate.
4. Hunting dogs are essential to the successful tracking and capture of problem black bears and cougars. 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 locate coyotes and dens, and to pursue or decoy problem animals.
5. Denning is the practice of locating coyote or red fox dens (see the gas cartridge under chemical methods).

²

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).

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6. Aerial hunting, the shooting of coyotes and fox from fixed-winged aircraft or helicopters, is used on all lands where authorized and determined appropriate. Aerial hunting consists of visually sighting target animals and shooting them from the aircraft. Aerial hunting is a method used to protect livestock and to protect pronghorn antelope and mule deer because of the technique's cost effectiveness and efficacy (Smith et al. 1986).

Chemical Management Methods: (Discussed in more detail in Appendix B)

All chemicals used by ADC are registered under FIFRA and administered by the EPA and the ODA, Plant Division. All District personnel are certified as public pesticide applicators by the ODA, Pesticide Division; the ODA requires pesticide applicators to adhere to all certification requirements set forth in FIFRA. No chemicals are used on federal or private lands without authorization from the land management agency or property owner/manager (see Mitigation page 3-24 for a more detailed explanation). The chemical methods used and/or available for uses in the District are:

1. Sodium cyanide, the active ingredient in M-44s, is used for many purposes in the United States, including agricultural, pharmaceutical, mining, and for industrial dyes. Sodium cyanide is odorless when completely dry, emits an odor when dampened, is strongly alkaline, and rapidly decomposes in the environment. In 1989, about 215 million pounds of sodium cyanide were used in North America, of which the ADC Program nationwide used about 0.0001% (Knudson 1990). In 1993, about 0.6 pounds of sodium cyanide were used in the District (MIS 1993). Sodium cyanide is freely soluble in water and a fast acting nonspecific toxicant inhibiting cellular respiration. Low concentrations of cyanide have been detected and are frequently found in normal human blood (Feldstein and Klendshof 1954). The [REDACTED] and Forest Service must authorize the use of sodium cyanide (M-44s) on federal lands under their jurisdiction.

The M-44 cyanide ejector is a selective device for use reducing coyote, red fox, gray fox and feral dog predation (EPA Reg. No. 56228-15), and also for protecting endangered species and for certain public health uses (Thomas 1986, Connolly 1988). M-44s are used for preventive and corrective management on state, county and private lands, and on federal lands, where authorized. ADC personnel comply with the EPA label and 26 use restrictions (see USDA 1994, Appendix Q). In 1992, 114 problem coyotes were killed with the M-44, accounting for about 12% of the coyote take by ADC in the District. In 1993, a total of 162 coyotes were killed with the M-44, accounting for about 10% of the District coyote take (MIS 1993).

2. The gas cartridge is registered as a fumigant by the EPA (EPA Reg. No. 56228-2) and is comprised of 35% charcoal and 65% sodium nitrate. When ignited, the cartridge burns in the den of an animal and produces large amounts of carbon monoxide, a colorless, tasteless gas, which kills animals in the den. This technique is used on state, county, private, and on [REDACTED] lands, in the management areas, where livestock killing can be attributed to food procurement for young (Till and Knowlton 1983, Till 1992). In 1992, 18 dens were fumigated using 42 cartridges and in 1993, 15 coyote dens were fumigated using 33 cartridges.
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

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toxicity to most pest birds, but low-to-moderate toxicity to most predatory birds and almost no toxicity to mammals (DeCino et al. 1966, Palmore 1978, Schafer 1981).

DRC-1339 is registered with the EPA (EPA Sec. 24c (OR 780014)) to control ravens. DRC-1339 is incorporated into baits where ravens are killing or injuring livestock (Larsen and Dietrich 1970). The feeding habits of the birds are observed before placing any treated baits in an area to reduce the risks to nontarget animals. Ravens are opportunistic feeders and by determining when and where the birds are feeding, the baits will be found more quickly and easily, thereby reducing the risks to nontarget animals. Selective management can be applied because ravens learn to exploit a readily available food source, they will continue to focus on that source until the availability declines. An estimated 49 ravens were killed with DRC-1339 in the District in 1993 (MIS 1993).

4. **Chemical Immobilization/Euthanasia.** Several chemicals are authorized for immobilization and euthanasia by ADC. Selected District personnel received training in the safe use of all authorized immobilization/euthanasia chemicals by trainers for the ODFW and the California Department of Fish and Game and are certified by ADC. This training involves hands-on application of state-of-the-art techniques and chemicals.

Telazol™ and Ketaset™ are the immobilizing agents used by ADC, and are approved by the Food and Drug Administration (FDA) (NADA 106-111 and NADA 45-290, respectively). Telazol and Ketaset are rapid acting, non-narcotic, non-barbiturate injectable anesthetic agent, having a wide margin of safety. Both Telazol and Ketaset 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. As other drugs are approved by the FDA and ADC, they may be incorporated into the District program.

Telazol is a combination of equal parts of tiletamine hydrochloride, a nonphenothiazine diazepamone having minor tranquilizing properties. 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 is 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 which interrupts association pathways to the brain and allows for the maintenance of the protective reflexes, such as coughing, swallowing, pedal and corneal. Ketaset is detoxified by the liver and excreted by the kidney.

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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.

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).

3.2.2 Alternative 2 - Current Program Plus Similar Operational Activities On U.S. Forest Service Lands As Requested Expanded Program (Proposed Action)

This alternative is the current program as described in Alternative 1, with additional approval for ADC to operate on Forest Service lands within the District as requested. All wildlife damage management would be outlined in ADC Annual Work Plans based on close cooperation and coordination with the National Forests (See Appendix F). Program activities would be conducted after concurrence with the appropriate agencies described in Alternative 1. Maps of the **Fremont** and **Winema** NFs showing the areas where wildlife damage management may be needed can be found in Appendix G.

Integrated Wildlife Damage Management: Same as Alternative 1 with the addition of activities on Forest Service lands under the provision of the MOU between APHIS-ADC and the Forest Service (see pg. 3-3).

Management Methods and Restrictions: Same as Alternative 1 with the addition of activities on Forest Service lands under the provision of the MOU between APHIS-ADC and the Forest Service (see pg. 3-8).

Use of Chemical Toxicants: Same as Alternative 1 with the addition of activities on Forest Service lands under the provision of the MOU between APHIS-ADC and the Forest Service (see pg. 3-13).

3.2.3 Alternative 3 - Technical Assistance Only

This alternative, would eliminate ADC operational wildlife damage management in the District. ADC would only provide technical assistance and make recommendations when requested. However, private landowners, contractors, or others could conduct their own wildlife damage management on federal, state, county and private lands under the provisions of Oregon Revised Statutes (ORS 498.012, 610.003, 610.105).

This "technical assistance only" alternative would place the immediate burden of operational control work on state agencies, individuals and livestock producers. Individuals experiencing wildlife damage would, independently or with ADC recommendations, carry out and fund control activities. Individual producers could implement wildlife damage management as part of the cost of doing business, or a state agency could assume a more active role in providing operational wildlife damage management.

If Alternative 3 was selected, ADC could not direct how a state agency or individuals would implement wildlife damage management. Some agencies or individuals may choose not to take action to resolve wildlife damage. Other situations may warrant the use of legally available management methods because of public demands, mandates, or individual preference. Methods and

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control 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. Illegal use of pesticides could be greater than present (McMullen, pers. comm. 1993).

3.2.4 Alternative 4 - No ADC Program

This alternative would eliminate all ADC wildlife damage management (operational and technical assistance) on all land classes. However, state and county agencies, and private individuals could conduct wildlife 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 in excess of what is recommended or necessary. Illegal use of pesticides could increase (McMullen, Pers. Comm., 1993).

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 evaluated in the FEIS (USDA 1994).

3.3 LIVESTOCK PROTECTION COLLAR (LPC), OPTION TO ALTERNATIVES 1 AND 2

Livestock Protection Collars (LPCs), containing sodium fluoroacetate, are registered with the EPA (EPA Reg. No. 56228-22) for producer or ADC use nationwide (see Appendix F, FIFRA). Prior to 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 ODA. If the LPC is approved for use, it would be incorporated into the IWDM program for Alternative 1 or 2, if selected. If approved, use of the LPC will adhere to EPA registration and ODA requirements, and would be restricted to specially trained and certified ADC employees. The LPC would not be used on [REDACTED] and Forest Service lands in the District because of use restrictions. Use of the LPC is evaluated separately in this EA since it is not currently approved for use in Oregon.

Sodium fluoroacetate (Compound 1080), the toxicant in the LPC, has been used since World War II. 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). Sodium fluoroacetates is a white powder soluble in water and is very stable in solution; it would only be used in the LPC. Sodium fluoroacetate kills by disrupting the Krebs's Cycle, which is the energy producing process for cells. Many EPA imposed restrictions apply to the use LPCs (for more detail see Appendix B).

The individual small and large collars contain 1.1 oz. (30.4 grams) of a 1% solution of sodium fluoroacetate and 99% inert ingredients. The LPC is worn around the neck of lambs, and kills only the animals attacking collar lambs (Connolly et al. 1978, Johnson 1984, Burns et al. 1988). When LPCs are used, lambs are made susceptible to attack so as to prompt target predators to attack collared lambs (Blakesley and McGrew 1984, Scrivner and Wade 1986, Connolly and Burns 1990). LPCs consist of 2 pouches that are punctured when a collard lamb is attacked and bitten on the throat by a predator. Upon puncturing the collar, the offending animal ingests a small volume of the solution and dies a short time later. In this usage, sodium fluoroacetate has virtually no risk of secondary poisoning (USDA 1994, Appendix P).

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3.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL WITH RATIONALE

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

3.4.1 Compensation for Wildlife Damage Losses

The Compensation alternative would direct all ADC program efforts and resources toward the verification of livestock and poultry losses from predators, 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 to ADC because ADC is mandated to protect American agricultural and natural resources (Animal Damage Control Act 1931, and Rural Development, Agricultural and Related Agencies Appropriation Act 1988). Analysis of this alternative in the FEIS indicate that it has many drawbacks (USDA 1994):

- It would require larger expenditures of money and manpower 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.

3.4.2 Bounties

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

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

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3.4.3 Eradication and Suppression

An eradication and suppression alternative would direct all ADC program efforts toward planned, total elimination of native predator species.

Eradication of unprotected predators, such as coyotes, is legal in Oregon (ORS 610.005) but not supported by ODFW or ODA. This alternative will not be considered by ADC in detail because:

- ADC opposes eradication of any native wildlife species.
- ODFW opposes eradication of any native Oregon wildlife species.
- ODA opposes eradication of any native Oregon wildlife species.
- The eradication of a native species or local population would be extremely difficult if not impossible to accomplish and cost prohibitive.
- Eradication is not acceptable to most members of the public.

Suppression would direct ADC program efforts toward managed reduction of certain problem populations or groups.

In localized areas where damage can be attributed to predation by specific groups, [REDACTED] has the authority to increase hunting seasons and hunter tag quotas; [REDACTED] has the authority to control unprotected predators, such as coyotes. When a large number of requests for wildlife damage management are generated from a localized area, ADC would consider suppression of the local population or groups of the offending species, if appropriate.

It is not realistic, practical, or allowable under present ADC policy to consider large-scale population suppression as the basis of the ADC program. Typically, ADC activities in the District would be conducted on a very small portion of the area inhabited by problem species.

3.4.4 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 wildlife damage management problems. In addition, ADC is mandated to protect American agriculture, despite the cost of control. Further, the Southern Utah Wilderness Society, *The Wilderness Society et al. v. Hugh Thompson et al.* U.S. Forest Service (Civil No. 92-C-0052A 1993) the court clearly states 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

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need for an ADC. The alternatives and option 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.

3.4.5 Management Techniques Not Considered for Use in the Integrated Wildlife Damage Management Strategy

Guarding Animals Other Than Livestock Guarding Dogs

Besides livestock guarding dogs, that are widely used to protect livestock from predators, several other species of animals have been proposed as livestock guardians. Burros, llamas and emus have been advocated for this purpose, but their efficacy and practicality have not been established (Green 1989). Research is continuing in this area, however, at this time ADC does not believe the use of guarding burros, llamas and emus can be recommended for general use. As research provides proven preventive methodologies, they will be incorporated into the list of recommended guarding animals.

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 currently unregistered as a pesticide by the EPA or ODA, and therefore cannot be used or recommended for this purpose.

3.5 MITIGATION AND STANDARD OPERATING PROCEDURES FOR WILDLIFE DAMAGE MANAGEMENT TECHNIQUES

3.5.1 Mitigation in Standard Operating Procedures (SOPs)

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 Oregon, uses many such mitigation measures and these are discussed in detail in Chapter 5 of the FEIS (USDA 1994). Some key mitigating measures incorporated into ADC's Standard Operating Procedures include:

- The ADC Decision Model which is designed to identify effective wildlife damage management strategies and their impacts.
- Traps and snares are not set within 30 feet of exposed carcasses to prevent the capture of scavenging birds. The exception to this is for the capture of cougar and black bear because the weight of these target animals allows trap tension adjustments to exclude the capture of smaller nontarget animals.
- Leghold trap underpan tension devices are used throughout the program to reduce capture of nontarget wildlife that weighs less than the target species.
- Nontarget animals captured in leghold traps or foot snares are released unless it is determined by the ADC Specialists that they will not survive.

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- Conspicuous, bilingual warning signs alerting people to the presence of traps, snares and M-44s are placed at major access points when they are set in the field.
- Reasonable and prudent alternatives are identified by the USFWS and implemented to avoid impacts to T&E species.
- EPA-approved label directions are followed for all pesticide use.
- DRC-1339 is not applied if nontarget species are present that could be attracted to the bait materials.
- All District ADC Specialists who use restricted chemicals and immobilization /euthanasia drugs are trained and certified by program personnel or others who are experts in the safe and effective use of these materials.
- The M-44 sodium cyanide devices are used following EPA label requirements (see FEIS Appendix Q for label and use restrictions).

Some additional mitigating measures specific to the District include:

- ADC Annual Work Plans and maps are developed which delineate the areas where wildlife damage management would occur and the methods that will be used for federal lands.
- Management actions would be directed toward localized populations or groups and/or individual offending animals, dependent on the species and magnitude of the problem.
- The use of traps and snares conform to current rules and regulations administered by [REDACTED].
- Decisions to relocate or kill problem bear and cougar are made by the [REDACTED] District Biologist. If the decision is to relocate and ADC is requested to assist, District ADC personnel relocate the animal into areas designated by [REDACTED].
- M-44s would not be used on federal lands without the approval of the [REDACTED] State Director and Forest Service Regional Forester.
- At least two days before the opening of the bird hunting season, all management equipment is removed from federal lands.
- No wildlife damage management would be conducted within public safety zones (one-quarter mile or appropriate buffer zone around any residence, community, state or federal highway, or developed recreation site), except to protect human health and safety.

3.5.2 Additional Mitigation specific to the issues

The following is a summary of additional mitigation that are specific to the issues found in Chapter 2 of this document.

3.5.2.1 Cumulative Effect of ADC Predator Take with Sport and other Forms of Take on Predator Populations

- District activities are directed to resolving problems by taking action against individual problem animals, or local populations or groups.

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- ADC kill is monitored by considering "Total Harvest" and estimated population numbers of key species. These data are used to assess cumulative affects so as to maintain the magnitude of harvest below the level that would impact the viability of a population (See Chapter 4).

3.5.2.2 Impact of Predator Populations on Prey Populations

- District activities are directed to resolving problems by taking action against individual problem animals, or local populations or groups.

3.5.2.3 Nontarget species

- ADC personnel are highly trained and experienced to select the most appropriate method for taking problem animals and excluding nontarget animals.
- Leghold trap underpan tension devices are used to reduce hazards to nontarget wildlife that weigh less than the target species.
- Nontarget animals captured in leghold traps or foot snares are released unless it is determined by the ADC Specialist that they will not survive.

3.5.2.4 Activities in Wilderness and Special Management Areas ([REDACTED] and National Forests)

- Wildlife damage management will be conducted only when and where a need exists.
- Vehicle access will be limited to existing roads.
- Wildlife damage management is conducted only with the concurrence of the land management agency.
- Wildlife damage management follows guidelines as specified and agreed upon in the ADC Annual Work Plan.
- Should any of [REDACTED] existing [REDACTED] be officially designated as Wilderness Areas in the future, wildlife damage management would be performed in accordance with [REDACTED].

3.5.2.5 Humaneness of methods used by ADC

- Research continues to improve the selectivity and humaneness of management devices.
- Underpan tension devices are in use which are designed to exclude nontarget animals.
- Breakaway snares are being developed and implemented into the program. Breakaway snares are snares designed to brake open and release with tension exerted by larger nontarget animals such as deer, antelope and livestock.
- Chemical immobilization/euthanasia procedures that do not cause pain are used.

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3.5.2.6 The public's concern for use of chemicals

- All pesticides are registered with the EPA
- EPA-approved label directions are followed by ADC employees.
- The ADC Decision Model is designed to identify effective wildlife damage management strategies and their impacts.
- ADC employees that use pesticides are trained to use each specific material and are certified for the use of pesticides under EPA and ODA approved programs.
- ADC employees who use pesticides participate in continuing education programs to keep abreast of developments and to maintain their certifications.

3.5.2.7 ADC's impact on Threatened and Endangered (T&E) Species and species of special concern to other federal and state agencies

- ADC consulted with the USFWS regarding the nationwide program and has implemented all reasonable and prudent alternatives to protect T&E species.
- ADC consulted with the USFWS on the impacts of the program in the District and adopted reasonable and prudent alternatives related to the Northern Bald Eagle in the District. The reasonable and prudent alternatives are;
 - ADC personnel will contact either the local ODFW office or the appropriate regional or field office of the USFWS to determine nest and roost locations for Northern Bald Eagles;
 - The appropriate USFWS office shall be notified within five days of the finding of any dead or injured bald eagle. Cause of death, injury, or illness, if known, would be provided to those offices;
 - Leghold traps (except those used to trap mountain lions) shall be placed a minimum of 30 feet from above ground bait sets;
 - When bald eagles are in the immediate vicinity of a proposed wildlife damage management program, ADC personnel will conduct daily checks for carcasses or trapped individuals (for the full context of the Biological Opinion see USDA (1994)).
- ADC has agreed to procedural conditions that will insure ongoing consideration of T&E species in relationship to program activities in the District.

3.5.2.8 Cultural Resources - American Indian Concerns

- ADC solicited input from American Indian tribes in the District concerning any potential impact on cultural resources.
- ADC has reviewed its activities in relationship to any archeological interests.
- This EA will be provided to the American Indian tribes in Draft form to determine if all cultural issues have been addressed.

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3.5.2.9 Consultation with other agencies

The ADC program in the District consults with the USFWS, federal land management agencies, and other appropriate agencies regarding program impacts. Frequent contact is made with the [REDACTED] and the Forest Service when ADC is conducting wildlife damage management on public lands administered by these agencies. The [REDACTED] and Forest Service are interested in the levels of livestock killed, injured and harassed by predators and the wildlife damage management methods used to stop or limit losses. The ADC program maintains close coordination with the [REDACTED] and [REDACTED] which have authority to manage wildlife species causing damage.

The ADC program in the District is conducted under Cooperative Agreements and MOUs with federal and state agencies. National MOUs with the [REDACTED] and Forest Service delineate expectations for wildlife damage management on public lands administered by these agencies. ADC Annual Work Plans are developed with [REDACTED] Districts and National Forests to detail the activity, target species, and mitigation measures to be implemented on allotments where wildlife damage management is needed.

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4.0 CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

Chapter 4 provides information needed for making informed decisions on the wildlife damage management objectives outlined in Chapter 1 and the issues and affected environment addressed in Chapter 2. The chapter consists of three main sections: 1) analyzes of how each alternative meets the objectives and assesses the consistency of alternatives with existing management plans, 2) analyzes of the environmental consequences of each alternative, and 3) the Economic Analysis of wildlife damage management in the District.

4.1 OBJECTIVE ANALYSIS AND CONSISTENCY DETERMINATION

4.1.1 Objective A-1 - Respond to 100% of the requests with the appropriate action.

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

The current District wildlife damage management program responds to requests for assistance on state, county, private, and █████ lands where there are signed *Cooperative Agreements, Agreements for Control* or Annual Work Plans. Wildlife damage management assistance is conducted to protect livestock, wildlife and human safety on these lands and lands that are adjacent to Forest Service lands in the District. ADC cannot, however, respond to requests for assistance on lands administered by the Forest Service.

It is therefore impossible for ADC to fully meet Objective A-1 since permittees on Forest Service lands and adjacent landowners cannot be provided operational wildlife damage management when it is needed.

4.1.1.2 Alternative 2. - Alternative 1 (Current Program) plus operational activities on Forest Service lands as requested (Proposed Action):

Alternative 2 is the current program plus the authorization to conduct operational wildlife damage management on Forest Service lands within the District in accordance with each Forest's LRMP and ADC Annual Work Plan. ADC would conduct operational wildlife damage management, when and where it is needed, on the **Winema, Fremont** and Siskiyou NFs.

Alternative 2 would allow ADC to fully meet Objective A-1 since permittee's on National Forests and producers adjacent to the forests would be provided operational wildlife damage management assistance when and where it is needed.

4.1.1.3 Alternative 3. - Technical Assistance.

Alternative 3 would limit ADC to providing technical assistance to livestock producers about 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 District. State agencies, individuals, livestock producers or other entities would be responsible for conducting all wildlife damage management.

Based on these restrictions, Alternative 3 would not allow ADC to respond with a full array of wildlife damage management strategies and methods and Objective A-1 could only partially be met.

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4.1.1.4 Alternative 4. - No Control.

Under Alternative 4 no operational or technical assistance would be provided by ADC in the District. State agencies, individuals and livestock producers or other entities would be responsible for conducting all wildlife damage management without support or advice from ADC.

Based on these restrictions, Alternative 4 will not allow ADC to meet Objective A-1.

4.1.1.5 Use of the Livestock Protection Collar (LPC) Option for Alternatives 1 and 2.

If authorized in Oregon and the District, the LPC would be added as a method for ADC to use to resolve wildlife depredation on sheep and lambs. The LPC would be a tool to help ADC to meet Objective A-1.

4.1.2 Objective A-2. - Hold lamb losses due to predation to less than 5%/year in areas with Cooperative Agreements. ¹

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

The District ADC program has been able to limit average annual lamb losses to below 5% of the total protected. The 1993 loss data (MIS 1993) showed that of the 66,633 lambs protected, 3,003 (4.5%) were reported killed by predators (Table 1). Losses to individual producers or average county losses do, at times, exceed the 5% but overall District levels are below the 5% criteria established in Objective A-2. Losses to lambs in some areas may vary for several reasons including: 1) terrain, weather, and vegetative cover that restricts access and limits the array of available methods, 2) too few ADC Specialists for the work load, 3) restrictions on, or effectiveness of methods on public lands, or 4) lack of ADC access to adjacent Forest Service lands.

**Table 1
1993 Reported Lamb Losses
Objective - 5%/year**

County	Number of lambs protected	Number lost to predation	% lost to predation
█	9,791	627	6.4%
█	15,705	912	5.8%
█	193	11	5.7%
█	5,465	178	3.3%
█	4,509	63	1.4%
█	30,970	1,212	3.9%
TOTAL	66,633	3,003	4.5%

¹ District personnel will use MIS reported losses, which involves annual standardized interviews with livestock owners and operators, to determine levels of predation. These losses will be calculated as a proportion of total inventory of livestock grazed by cooperators on the District. These objective levels were selected based on statewide loss proportions, as historical data do not exist for the District itself.

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We believe that Alternative 1 approaches the criteria for average District lamb losses of Objective A-2, however, the criterion could not be met on each producer's flocks or in each county in the District.

4.1.2.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 allows ADC to protect lambs on Forest Service lands and private lands adjacent to the National Forests. However, as a result of this analyses it was determined that other classes of livestock are the major reason for a need to conduct work on Forest Service lands since 85% of the lambs protected are in ██████████ Counties and are not adjacent to the Winema or Fremont NF.

Alternative 2 allows ADC to better meet the criterion for Objective A-2. Existing levels of predation on lambs would probably be reduced for permittees and producers on private lands adjacent to the National Forests in ██████████ and ██████████ Counties.

4.1.2.3 Alternative 3. - Technical Assistance.

Alternative 3, a technical assistance only program, would not allow ADC to meet the criterion for Objective A-2. In the absence of an effective wildlife damage management program, lamb losses could be three to six times higher than those currently being experienced (Gee 1977, O'Gara et al. 1993). Under Alternative 3, no *Agreements for Control* would be kept. These documents and their unique numbers are the mechanism for collecting and managing most information gathered by ADC, and without them no producer or District information could be maintained.

4.1.2.4 Alternative 4. - No Control.

The impacts would be the same as for Alternative 3.

4.1.2.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

If authorized in Oregon and the District, the LPC would be added as a method for ADC to use to resolve wildlife depredation on sheep and lambs. The LPC would be a tool to help ADC to meet Objective A-1.

Use of the LPC would help ADC meet the criteria of Objective A-2 and would help reduce the level of predation on lambs below that currently being experienced.

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4.1.3 Objective A-3. - Hold adult sheep losses due to predation to less than 3%/year in areas with cooperative agreements. ¹

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

The current District ADC program has held 1993 annual adult sheep predation losses to 2.9% of the total protected (Table 2). Losses to sheep in some counties may vary for several reasons including: 1) terrain, weather, and vegetative cover that restricts access and limits the array of available methods; 2) too few ADC personnel for the work load; 3) restrictions on methods and effectiveness on public lands; or 4) lack of ADC access adjacent Forest Service lands.

Alternative 1 meets the criterion for Objective A-3, however, the level of loss is not consistent between counties and the 3% goal is not being met for each producer's flock, in each county in the District.

**Table 2
1993 Reported Sheep Losses
Objective - 3%/year**

County	Number of sheep protected	Number lost to predation	% lost to predation
█	10,127	365	3.6%
█	15,557	396	2.5%
█	193	6	3.1%
█	4,211	30	0.7%
█	2,715	11	0.4%
█	8,226	388	4.7%
TOTAL	41,029	1,196	2.9%

4.1.3.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 allows ADC to protect sheep on Forest Service lands and private lands adjacent to the National Forests. However, as a result of this analyses it was determined that other classes of livestock are the major reason for a need to conduct work on Forest Service lands since 83% of the sheep protected are in █ and █ Counties and are not adjacent to the █ Winema or █ Fremont NF.

Alternative 2 allows ADC to better meet the criterion for Objective A-3. Existing levels of predation on sheep would probably be reduced for permittees and producers on private lands adjacent to the National Forests in █h and █ Counties.

4.1.3.3 Alternative 3. - Technical Assistance.

Under Alternative 3, a technical assistance only program, ADC would only be able to provide information and training to requesters. Implementation of wildlife damage management would be the responsibility of the requester. Alternative 3 would not allow ADC to meet the criterion for Objective A-3. Without an effective wildlife damage management program, existing predation losses to adult sheep could increase up to about three times above current predation losses (Gee 1977, O'Gara et al. 1983). Under Alternative 3, no *Agreements for Control* would be kept.

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These documents and their unique numbers are the mechanism for collecting and managing most information gathered by ADC, and without them no producer or District information could be maintained.

4.1.3.4 Alternative 4. - No Control.

The impacts would be the same as for Alternative 3.

4.1.3.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

A LPC configuration recently developed for use on adult sheep has been authorized by the EPA and would assist ADC in efficiently meeting the criterion of Objective A-3 if approved by ODA.

4.1.4 Objective A-4. - Hold calf loss due to predation to less than 1%/year in areas with Cooperative Agreements. ¹

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

Calf predation in the District in 1993 was 2.6% (Table 3). Ranchers in ██████ and ██████ Counties produced 90% of the calves protected in the District and experienced 95% of the loss. The ██████ and ██████ NFs are primarily located in ██████ and ██████ Counties; the forests have 86 cattle allotments and 40 cattle producers adjacent to them. As with lambs and sheep, the level of loss is not consistent among counties or on each producer's herd. The causes of variations in levels of predation are unknown but may be attributed to one or more of the following: 1) too few ADC personnel for the work load; 2) restrictions on methods on public lands; or 3) lack of ADC access to adjacent Forest Service lands.

Without access to the ██████ and ██████ NFs, we do not believe that the Alternative 1 can meet the criterion for Objective A-4.

4.1.4.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 improves ADC's ability to protect calves from predation by providing wildlife damage management on Forest Service lands in the District. The ability of ADC to meet the criterion for Objective A-4 would be improved since ADC would be authorized access to Forest Service lands when needs arise for wildlife damage management.

**Table 3
1993 Reported Calf Losses
Objective - 1%**

County	Number of calves protected	Number lost to predation	% lost to predation
█████	3,201	47	1.5%
█████	2,248	11	0.5%
█████	86	4	4.7%
█████	22,242	310	1.4%
█████	63,140	2,010	3.2%
█████	3,585	67	1.9%
TOTAL	94,502	2,449	2.6%

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4.1.4.3 Alternative 3. - Technical Assistance.

Under Alternative 3, ADC would only provide information, demonstrations, and training to requesters. Implementation of wildlife damage management would be the responsibility of the requester. Under Alternative 3, no *Agreements for Control* would be kept. These documents and their unique numbers are the mechanism for collecting and managing most information gathered by ADC, and without them no producer or District information could be maintained. Losses could be expected to rise, possibly to the 8% level reported by NASS (1992) as the average predation level on calves in Oregon.

4.1.4.4 Alternative 4. - No Control.

The impacts would be the same as for Alternative 3.

4.1.4.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The LPC is not designed or registered for use on calves.

4.1.5 Objective A-5. - Provide 100% of cooperators and cooperating federal, state and local agencies with information on nonlethal management techniques proven to be effective for reducing predation.

4.1.5.1 Alternative 1. - Continue the current District program: (No Action).

ADC is providing information on nonlethal management techniques to livestock producers and others. Currently, the program must modify the MIS to meet all the goals of Objective A-5. When all the components of the MIS are fully modified and operational, ADC will be able to determine who has been provided information on nonlethal and other producer implemented methods, and provide this information to those who have not received it.

Alternative 1 would allow ADC to meet the criterion of Objective A-5, after a modification period.

4.1.5.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

The analysis is the same as in Alternative 1. Alternative 2 would allow ADC to meet the criterion of Objective A-5.

4.1.5.3 Alternative 3. - Technical Assistance.

Under Alternative 3, technical assistance only, ADC would still provide information, demonstrations and training to livestock producers on lethal and nonlethal methods of resolving wildlife damage problems. However, under a technical assistance program tracking would be limited to information, number of demonstrations, number of training sessions, etc., provided within a county because of software design and staffing limitations.

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

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4.1.5.4 Alternative 4. - No Control.

Alternative 4, no ADC program, would not allow ADC to meet the criterion for Objective A-5.

4.1.5.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The use or non-use of this method would not affect ADC's ability to meet the criterion of Objective A-5.

4.1.6 Objective A-6. - Maintain the lethal take of nontarget animals by ADC personnel during damage management to less than 5% of the total animals taken.

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

The ADC program in the District captured 23 nontarget animals and killed 8 in 1992, representing 0.4% of the total animals killed in the District. ADC captured 25 nontarget animals and killed 9 in 1993, representing 0.4% of the total animals killed in the District.

Alternative 1, the current program, is currently meeting the criterion for Objective A-6.

4.1.6.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 would increase ADC activities in the District, allowing for wildlife damage management on Forest Service lands. The increased activities could increase the take of nontarget animals, however, we do not believe that the increase would be different from the current ratio of nontarget to target animals killed.

Alternative 2, would meet the criterion for Objective A-6.

4.1.6.3 Alternative 3. - Technical Assistance.

Under Alternative 3 there would be no operational ADC program and therefore no target or nontarget takes by ADC. Alternative 3 would allow ADC to meet the criterion for Objective A-6.

4.1.6.4 Alternative 4. - No Control.

Under Alternative 4 there would be no ADC program and therefore no target or nontarget animal kills by ADC. Alternative 4 would allow ADC to meet the criterion for Objective A-6.

4.1.6.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The LPC is a very selective and target animal specific method. Since only predators that attack lambs by biting them in the throat are exposed to the toxicant and killed, no nontarget animals would be taken. A risk assessment conducted by ADC in the FEIS concluded that there were no probable risks of primary or secondary toxicity to animals, or to aquatic systems associated with the use of the LPC (USDA 1994).

Use of the LPC would meet the criterion established for Objective A-6.

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4.1.7 Objective A-7. - Monitor the application of producer implemented (nonlethal) techniques.

4.1.7.1 Alternative 1. - Continue the current District program: (No Action).

The ADC program collects data on nonlethal and producer implemented methods recommended by ADC personnel, and those implemented or in use by producers. The ADC MIS can store the data needed for this objective, however, output report programming has not been completed. This is an ADC priority that will be met in the future.

Alternative 1 will allow ADC to meet the criterion for Objective A-7 in the near future.

4.1.7.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

The analysis for Alternative 2 is the same as Alternative 1. Alternative 2 will allow ADC to meet the criterion for Objective A-7 in the near future.

4.1.7.3 Alternative 3. - Technical Assistance only.

ADC would continue to provide information, demonstrations and training to livestock producers on lethal and nonlethal methods of resolving wildlife damage. However, under a Technical Assistance program monitoring would be limited to the information, number of demonstrations, number of training sessions, etc., provided within a county and not the methods implemented by producers.

Alternative 3 would only partially allow ADC to meet the criterion of Objective A-7.

4.1.7.4 Alternative 4. - No Control.

Alternative 4 would not allow ADC to meet the criterion for Objective A-7 since there would be no program or personnel to distribute information, or accumulate and evaluate data.

4.1.7.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The LPC is a lethal technique not a part of nonlethal monitoring. The use or non-use of this method would not affect ADC's ability to meet the criterion of Objective A-7.

4.1.8 Objective B-1. - Respond to 100% of [REDACTED] requests for wildlife damage management on selected deer and antelope management units.

4.1.8.1 Alternative 1. - Continue the current District program: (No Action).

The ADC program in the District responded to all requests from the [REDACTED] to protect deer and pronghorn antelope. To date, none of the [REDACTED] requests have required that ADC operate on Forest Service lands. Had that occurred, ADC would not have been able to respond to [REDACTED] request.

Therefore, Alternative 1 would only allow ADC to partially meet the criterion of Objective B-1.

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4.1.8.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 would allow for ADC activities on Forest Service lands within the District, including the ██████ requests to protect deer and pronghorn antelope.

Alternative 2 would allow ADC to fully meet the criterion for Objective B-1.

4.1.8.3 Alternative 3. - Technical Assistance.

Under Alternative 3 there would be no operational ADC program, therefore Alternative 3 would not allow ADC to meet the criterion for Objective B-1 since the ██████ primarily requests operational wildlife damage management for deer and pronghorn antelope protection.

4.1.8.4 Alternative 4. - No Control.

Under Alternative 4 there would be no ADC program, therefore Alternative 4 would not allow ADC to meet the criterion for Objective B-1.

4.1.8.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The LPC is not registered for protecting wildlife. The use or non-use of this method would not affect ADC ability to meet the criteria of Objective B-1.

4.1.9 Objective C-1. - Respond to 100% of ██████ black bear and cougar requests. (See Chapter 1 section 1.1.4 for the criteria used to handle problem black bear and cougar)

4.1.9.1 Alternative 1. - Continue the current District program: (No Action).

The ADC program in the District responded to 8 requests from the ██████ to capture black bear that threatened human safety in 1993. ADC has responded to 1 recent request to capture a cougar for human safety. Cougar populations are increasing (████████) and additional needs could arise. Because of the human safety element, ADC has responded to all the ██████ requests without regard to the land classification.

Alternative 1, the current ADC program has allowed ADC to meet the criterion for Objective C-1.

4.1.9.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 would allow for ADC activities on Forest Service lands within the District, including the ██████ requests to protect human safety. Alternative 2 would allow ADC to meet the criterion for Objective C-1.

4.1.9.3 Alternative 3. - Technical Assistance only.

Under Alternative 3 there would be no operational ADC program. Alternative 3 would not allow ADC to meet the criterion for Objective C-1.

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4.1.9.4 Alternative 4. - No Control.

Under Alternative 4 there would be no ADC program. Alternative 4 would not allow ADC to meet the criterion for Objective C-1.

4.1.9.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The use or non-use of this method would not affect ADC's ability to meet the criterion of Objective C-1.

4.1.10 Summary

Table 4 summarizes how each alternative would meet each objective; partially meets the objective; does not meet the objective; or has no affect on the objective.

**Table 4
Alternative/Objective Comparison**

Objectives	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Livestock Protection Collar *
A-1 (Requests)	Partially Meets	Meets	Partially Meets	Does Not Meet	Partially Meets
A-2 (Lambs)	Meets	Meets	Does Not Meet	Does Not Meet	Meets
A-3 (Sheep)	Meets	Meets	Does Not Meet	Does Not Meet	Meets
A-4 (Calves)	Does Not Meet	Partially Meets	Does Not Meet	Does Not Meet	No Effect
A-5 (Nonlethal)	Meets	Meets	Partially Meets	Does Not Meet	No Effect
A-6 (Nontarget)	Meets	Meets	Meets	Meets	Meets
A-7 (Monitor)	Meets	Meets	Partially Meets	Does Not Meet	No Effect
B-1 (Wildlife)	Partially Meets	Meets	Does Not Meet	Does Not Meet	No Effect
C-1 (Safety)	Meets	Meets	Does Not Meet	Does Not Meet	No Effect

* Column is correct only if the LPC is registered in Oregon and the District

4.1.11 Alternative Consistency with Forest Service Land and Resource Management Plans (LRMP) and [REDACTED]

Before an Alternative can be considered for implementation on Forest Service or [REDACTED] lands, it must be consistent with the land management and/or [REDACTED]. These are termed Land and Resource Management Plans (LRMP) or more commonly "Forest Plans" in the Forest Service. On [REDACTED] lands, the equivalent documents are called [REDACTED] or in some cases, older

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[REDACTED]. If the Alternative is consistent with the LRMP or [REDACTED], no additional action will be necessary by the Forest Service or [REDACTED] should that alternative be selected.

If an alternative that is inconsistent with the LRMP or [REDACTED] is selected in the decision process, the Forest or [REDACTED] District could amend the LRMP or [REDACTED] to be consistent with the EA. The decision would not be implemented on the Forest or [REDACTED] District until the inconsistency is resolved either through amendment of the LRMP or [REDACTED] or modification of the alternative (s).

The following is a review of the consistency of each Alternative with existing LRMPs and [REDACTED]:

4.1.11.1 Alternative 1. - Continue the current District program: (No Action).

Winema National Forest LRMP

The Winema NF has determined that Alternative 1 would not be consistent with the Forest Plan (LRMP) because of the potential need for wildlife damage management. The Forest Plan states objectives for deer and elk populations which may be achieved only through the use of wildlife damage management. The Forest Plan does not have objectives regarding the number of livestock that will be grazed, though an upper limit of livestock grazing is stated.

Fremont and Siskiyou National Forest LRMPs

The Fremont and Siskiyou NF LRMPs do not cover wildlife damage management. The fact that the LRMPs do not address wildlife damage management, does not necessarily indicate inconsistency. The Fremont and Siskiyou NF have been asked to make a consistency determination based on this EA and follow appropriate NEPA procedures in making amendments that may be needed.

[REDACTED]

The [REDACTED] District (comprising two resource areas [REDACTED]), has authorized wildlife damage management at the request of permittees or the [REDACTED], and has an ADC Annual Work Plan. The final [REDACTED] will contain a discussion of wildlife damage management that is consistent with this EA. The [REDACTED], formerly comprising the [REDACTED], does not have an existing [REDACTED], but is operating under older land use plans. The [REDACTED] and the [REDACTED] M District office. The [REDACTED] do not address wildlife damage management activities. Therefore, an activity-level EA was prepared specifically to address this activity ([REDACTED]).

4.1.11.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Winema National Forest LRMP

The Winema NF determined that Alternative 2 is consistent with the Forest Plan (LRMP).

Fremont and Siskiyou National Forest LRMPs

The same as Alternative 1.

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[REDACTED]

The same as Alternative 1.

4.1.11.3 Alternative 3. - Technical Assistance only.

Winema National Forest LRMP

The Winema NF has determined that Alternative 3 is consistent with the Forest Plan (LRMP). ADC can provide advice on technical matters and the Forest could, as with gophers and porcupines, conduct or contract wildlife damage management after developing NEPA documentation.

Fremont and Siskiyou National Forest LRMPs

The same as Alternative 1.

[REDACTED]

A Technical Assistance only ADC program would be inconsistent with the [REDACTED] Policy, but only to the extent that such technical assistance techniques adequately protect resources, human health and safety, or livestock. It is likely that on the [REDACTED] District management guidelines cannot be met without ADC conducting operational wildlife damage management.

4.1.11.4 Alternative 4. - No Control.

Winema National Forest LRMP

The Winema NF has determined that Alternative 4 is not consistent with the Forest Plan. Alternative 4 is essentially the same as Alternative 1.

Fremont and Siskiyou National Forest LRMPs

The same as Alternative 1.

[REDACTED]

A no control alternative would be inconsistent with [REDACTED] Policy since some guidelines cannot be met without an operational ADC program to conduct wildlife damage management.

4.1.11.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The use of the LPC is proposed for private lands and not on Forest Service or [REDACTED] lands. A determination of consistency is therefore unnecessary.

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 and the option, to determine if the real or potential impacts are greater, lesser or the same.

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The following resource values within the District are not expected to be significantly impacted by any of the alternatives analyzed: soils, geology, minerals, water quality/quantity, floodplains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, timber and range. These resources will not be analyzed further.

Social and Recreational Concerns: Discussed throughout the document as they relate to issues raised during public involvement and they are discussed in the FEIS (USDA 1994)

Cumulative and Unavoidable Impacts: Discussed in relationship to each of the key species analyzed in this chapter.

Irreversible and Irretrievable Commitments of Resources: Other than minor uses of fuels for motor vehicles and other materials, there are no irreversible or irretrievable commitments of resources.

Issues Analyzed in Detail

4.2.1 Potentials for ADC take of predators to cause declines in predator populations, when added to the sport harvest and other forms of take.

The species evaluated in this chapter were selected for analysis because they are taken by ADC in response to livestock and poultry predation, and human threat problems. The "Magnitude" analyses for this EA follow the process described in the ADC FEIS in Chapter 4 as outlined in Table 4-2 (USDA 1994). Magnitude is defined in the FEIS as ". . . a measure of the number of animals killed in relation to their abundance." Magnitude may be determined either quantitatively or qualitatively. Quantitative analysis is used wherever possible as it is more rigorous and is based on allowable harvest levels, population estimates and harvest data. Qualitative analysis is based on population trends and harvest data or trends and modeling. Allowable harvest levels were determined from research studies which are cited in the FEIS (USDA 1994, Table 4-2). "Other Harvest" includes the known fur harvest, sport harvest, and other information obtained from the [REDACTED]. "Total Harvest" is the sum of the ADC kill and the "Other Harvest."

Estimating wildlife densities is not precise and often dynamic, and professional judgement is required to account for unknowns and variables, such as the ability of habitat to support populations. Therefore, assessments are based on conservative population estimates rather than higher population estimates to better insure that no adverse wildlife population impacts occur.

ISSUE FOR EACH PREDATOR SPECIES: Would the ADC kill, when added to "Other Harvest", exceed the allowable harvest of the population, resulting in a population decline?

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

Coyotes are responsible for about 60% of the verified and 90% of the reported District-wide dollar losses. ADC County Summary Reports (MIS 1993) indicate that the coyote is reported to be the primary predator on sheep (54%), lambs (78%), goats (87%), kids (55%), cattle (83%), calves (97%), and poultry (40%). The total reported loss to coyotes in the District was valued at \$1,833,666 (MIS 1993).

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Coyote Population Information

To discuss the impacts of various environmental constraints and external factors on coyote populations and density, it is essential to understand the basic mechanisms that play a role in the coyotes' response to constraints and actions. The species unique resilience, its ability to adapt, and its perseverance under adverse conditions is commonly recognized among biologists and rangeland managers.

Determinations of absolute densities for coyote populations are frequently limited to educated guesses (Knowlton 1972). Coyotes are highly mobile animals with home ranges (territory) that vary by sex and age of the animal and season of the year (Pyrah 1984, Althoff 1978, Todd and Keith 1976). The literature on coyote spatial organization is confusing (Windberg and Knowlton 1988, Messier and Barrette 1982). Coyote population densities will vary depending on the time of year, food abundance, and habitat. Coyote densities have ranged from a low of 0.39/mi² during the time when populations are low (prewhelping) to a high of 3.55/mi² when populations are high (postwhelping) (Pyrah 1984, Knowlton 1972). Coyote home ranges may vary from 2.0 mi² to 21.3 mi² (Andelt and Gipson 1979, Gese et al. 1988²). Ozoga and Harger (1966), Edwards (1975), and Danner (1976) however, observed a wide overlap between coyote home range and did not consider coyotes territorial.

The presence of unusual food concentrations and nonbreeding helpers at the den can influence coyote densities, and complicate any effort to estimate abundance (Danner and Smith 1980). A positive relationship was established between coyotes densities in mid-late winter and the availability of dead livestock (Roy and Dorrance 1985).

Each occupied coyote territory may have several nonbreeding helpers at the den during whelping (Allen, et al. 1987, Bekoff and Wells 1982). Therefore, each defended coyote territory may have more than just a pair of coyotes. Messier and Barrette (1982) reported that during November through April, 35% of the coyotes were in groups of three to five animals and Gese et al. (1988) reported that coyote groups of 2, 3, 4, and 5 comprised 40%, 37%, 10% and 6% of the resident population, respectively.

Many authors have estimated coyote populations throughout the west and elsewhere (Pyrah 1984, Camenzind 1978, Knowlton 1972, Clark 1972, USDI 1979, ██████ 1980, ██████ ██████ pers. comm. 1994). The total coyote population in Oregon and in the District can be estimated by using scientific modeling. ██████ (1980) estimated the statewide coyote population at 147,000 and in 1993 at 160,000. These estimates are not precise enough for year to year comparisons, but do indicate that the coyote populations in Oregon are stable.

In 1980, ██████ estimated that there was 31,565 mi² of coyote habitat in the District, with an average density of 1.8 coyotes/mi² yielding an estimated population of about 57,000 coyotes. Recent work by Keister (1994) estimated coyote densities are about 1/mi² in the District, which would result in an estimated population of 31,565 coyotes.

² All literature citations reported in km² have been converted to mi² for reader convenience and to maintain consistency.

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Coyote Population Impact Analysis

Data on ADC coyote kill is available for 1993, however, comparative sport harvest and other take data in Oregon are not available for 1993. Therefore, 1992 data will be used to examine state and Districtwide potential impacts on coyote populations. The 1980 statewide coyote population estimate, made by ██████, and ██████ (1994) District estimate will be used as a baseline as they are lower than the 1992. It should also be noted that the level of "Other Take" reported to ██████ may be low because the reporting of coyotes killed is not required. Table 5 displays the known information about coyote abundance and harvest in 1992.

Connolly and Longhurst (1975) determined that, "If 75% of the coyotes are killed each year, the population would be exterminated in slightly over 50 years." The authors further say that their "Model suggests that coyotes through compensatory reproduction can withstand an annual control level of 70%. To further demonstrate the coyote's recruitment (reproduction and immigration) ability, if 75% control occurred for 20 years, coyote populations would regain

precontrol densities by the end of the fifth year after control was terminated. Furthermore, immigration, not considered in the Connolly/Longhurst model can result in rapid occupancy of vacant territories (Windberg and Knowlton 1988). While removing animals from small areas at the appropriate time can protect vulnerable livestock, immigration of coyotes from the surrounding area could quickly replace the animals removed (Stoddart, et al. 1984). Connolly (1978) noted, the coyote has survived and even thrived in spite of early century efforts to exterminate it. Based on this information, ADC's impact on the coyote population, even with possible "Other Harvest"

under reporting, will not affect the coyote population in Oregon or the District because the "Total Take" of coyotes in the District is about 10% (statewide is 8%). Evaluating the data using standards established in USDA (1994) to determine the magnitude to which total harvest impacts the species, less than 70% of the population of coyotes, results in a determination of "low magnitude." District ADC Specialists killed 1,096 problem coyotes in 1993 which is a lower take than 1992 and would not change the determination of "low magnitude."

Table 5
1992 Coyote Harvest Data
Allowable Harvest = 70%

	Roseburg	Oregon
Est. Population	31,565	147,000
ADC Kill	1,445	7,442
Other Take	1,606	4,380
Total Take	3,051	11,822
ADC Kill - % of Population	4.6%	5.1%
Other Take - % of Population	5.1%	3.0%
Total Take - % of Population	9.7%	8.0%

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Black Bear Population Information

Black bears occur throughout most of Oregon except in the southeastern portion of the state. Bears can present problems concerning livestock predation, property damage, and threats to human safety and nuisance situations in the District.

The 1993 reported black bear predation in the District included 336 sheep, 143 lambs, 4 goats, 2 cows and 15 calves valued at \$36,025; 1993 verified black bear predation was 49 sheep, 9 lambs and 1 calf valued at \$3,670 (MIS 1993).

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 over exploited, the older aged bears will not be present or will be in low proportions (██████ 1993a). Black bears can live up to 25 years (USDA 1994) and in Oregon, bears 20 years old or older are not uncommon in the sport harvest (██████ 1993a).

In Oregon, female black bears generally reach reproductive maturity at 3.5 years of age. Following a 7-8 month gestation period (about 220 days), they produce from one to 6 cubs, with 2 young per litter being most common. Juvenile black bear annual mortality ranges from 20% to 70%, with orphaned cubs having the highest mortality; mortality in adult black bears is 10% to 20%.

Black bear density varies between 0.3 and 3.4 bear/mi², depending on habitat. Densities range from 0.9 bears/mi² in western Oregon to 0.3 bears/mi² in the eastern portion of the state. Black bear densities of at least 1.0/mi² have been documented in the adjacent states of Washington, California and Idaho (██████ 1993a). The current Oregon statewide population is estimated to be 25,000 animals occupying about 40,000 mi² of habitat (██████ 1993a). Much of the District lays within the medium to high density black bear habitats of Oregon, with about half of the District in high density coastal area west of the Cascades. ██████ estimates that a minimum of 22,610 mi² of black bear habitat is found in the District, and in 1992 this habitat supported a population of 12,237 bear (██████████ pers. comm. 1994), or approximately 49% of the black bear population in Oregon (USDA 1994)

Black Bear Population Impact Analysis

Data on ADC black bear kill is available for 1993, however, comparative sport harvest and other take data in Oregon are not available for 1993. Therefore, 1992 data will be used to examine state and Districtwide potential impacts on black bear populations. Statewide, the estimated black bear population has remained at about the same level reported by USDA (1994).

The allowable harvest (kill) level for black bear described in USDA (1994, Table 4-2) is 20% of the population. ██████ (1993a) uses sex ratios and age structure to evaluate harvest impacts to black bear populations. For this analysis we will consider both approaches to analyze impacts.

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██████ (1993a) analyzed black bear sex ratios and age structures, concluding that the current harvest, whether by hunting, ██████ or ADC, or unknown, is not causing a decline in bear populations. The data indicate (Table 6) that, statewide, the total known kill is about 4.7% of the estimated population. This level is well below the parameters of "low magnitude" of impact established in the USDA (1994).

In 1992, the District "Total Harvest" was 688 bear or 5.6% of the estimated population. The ADC District kill was 0.8% of the estimated population. This level of harvest is well below the allowable harvest level of 20% (USDA 1994) and is judged

that this is a "low magnitude" of harvest. 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 considered quite important by ADC and ██████ in resolving black bear damage and protecting human safety and to meeting ██████ black bear damage goals. In 1993, District ADC Specialists killed 66 black bear and released another 13. Of the total killed 25 were taken to protect livestock, 8 were taken for human safety concerns and 33 were taken to protect timber resources (Note: timber resources are outside the scope of this EA; they are reported only to show total take). ADC killed 90 black bear statewide in 1993. One nontarget bear was captured and released. The total ADC kill decreased by 47 bear in 1993 over 1992, and the District ADC kill declined by 27 bear in 1993. The stable population trend appears unchanged and the 1993 ADC kill and "Other Take" would be a low magnitude of impact.

Cougar Population Information

In 1993, more than 90% of all cougar predation reported to and verified by ADC in the District was on livestock (sheep, cattle and horses). The total reported loss to cougars in the District was valued at \$51,120 (MIS 1993).

Cougars have an extensive distribution across North America including Oregon. It is the largest member of the cat family in Oregon, and is known by several names, including panther, puma, catamount, and most commonly, mountain lion (██████ 1993b). Cougars inhabit many habitat types from desert to alpine environments, indicating a wide range of

Table 6
1992 Black Bear Harvest Data
Allowable Harvest = 20%

	ADC FEIS 1987 (Oregon)	Roseburg 1992	Oregon 1992
Est. Population	20,000	12,237	25,000
ADC Kill	129	93	137
Other Take	954	595	1,043
Total Take	1,083	688	1,180
ADC % of Population	0.6%	0.8%	0.6%
Other % of Population	4.8%	4.9%	4.2%
Total % of Population	5.4%	5.6%	4.7%

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adaptability. They are very closely associated with deer and elk because of their dependence upon these species for food. Many biologists believe that the most productive cougar habitat in western Oregon is Douglas fir-trailing blackberry types because it supports abundant deer and elk for prey (████████ 1993b). Much of the District lies within the Douglas fir-trailing blackberry habitat and complaints of cougar predation on livestock has increased 580% between 1986 and 1991 (████████ 1993b).

Female cougars 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). Cougars 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, Seidernsticker 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; average litter sizes in Oregon are 2.6 kittens (████████ 1993b).

Cougar density primarily results from prey availability and the social tolerance for other cougars. Prey availability is directly related to prey habitat quality that directly influence's cougar nutritional health, and reproductive and mortality rates. Studies indicate that as available prey increases, so do cougar populations, and since cougars are territorial animals, the rate of population increase tends to decrease as cougar density increases. As cougar population density increases, mortality rates from intraspecific fighting and cannibalism also increase, and/or cougars disperse into unoccupied or less densely occupied habitat. The relationship of the cougar to its prey and to other cougars is why their densities do not reach levels observed in a number of other wildlife species (████████ 1993b).

Cougar densities in other states, based on a variety of population estimating techniques, range from a low of about 1/100mi² to a high of 24/100mi² (Johnson and Strickland 1992). An average density estimate for the western states were 7.5/100mi² (Johnson and Strickland 1992). ██████████ (1993b) modeled cougar populations in Oregon and based on that model and other information, estimated that cougar populations are increasing at 4-5% per year, with a current statewide population of 2,900 cougars (Keister 1994). However, since cougars are highly territorial, and chase or kill other cougar in their territory, populations tend to stabilize (████████ 1993b).

Cougar 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% removal)," cougar populations on their study area had the recruitment (reproduction and immigration) capability to rapidly replace annual losses.

Cougar Population Impact Analysis

The allowable annual harvest level for cougar, projected by the USDA (1994, Table 4-2) is 30% of the population, however, the Oregon cougar population model indicates that cougar populations will remain stable with human caused mortality of 13% (Keister 1994). Because it is more conservative and reflects Oregon studies, the 13% harvest level will be used for our analysis. Comparable data for Oregon are not yet available for 1993 or for years before 1992, therefore 1992 data will be used to determine potential state and Districtwide impacts

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on cougar populations. Table 7 displays the information about cougar numbers and harvest during 1992.

The [REDACTED] (1993b) used population age structure and sex ratio to evaluate impacts on cougar populations. Both approaches are used to examine potential impacts.

The available data indicate that the total harvest statewide for 1992 for Oregon was 236 animals, up about 40% from 1988, and 8.1% of the total estimated population. ADC killed 19 problem cougars statewide during 1992. No nontarget cougars were killed and no target cougars were captured and released. These figures are well within the parameters for a determination of "low magnitude" of impact (USDA 1994).

Table 7
1992 Cougar Harvest Data
Allowable Human Harvest = 13%

	Roseburg	Oregon
Est. Population	1,252	2,900
ADC Kill	5	19
Other Take	96	217
Total Take	101	236
ADC Kill - % of Population	0.4%	0.7%
Other Take - % of Population	7.7%	7.5%
Total Take - % of Population	8.1%	8.1%

In the nine county District area, [REDACTED] has estimated that about 1,252 cougars are found. In 1992, ADC killed five problem cougars in the District or 0.4% of the estimated population. The "Total Take" was 101 animals, or 8.1% of the total estimated population. This is within the parameters of "low magnitude" of impact. [REDACTED] (1993b) analyzed cougar age and sex ratios and concluded that the increasing proportion of males in the harvest, coupled with the age distribution of the harvest supported the population projections of their model and of an increasing cougar population. This impact analysis indicates that the wildlife damage management program conducted state and Districtwide is not having an adverse impact on cougar populations. Keister (1994) also concluded that at the current level of human caused mortality the cougar population in Oregon could continue to grow.

Bobcat Population Information

Bobcat predation on livestock in the District is primarily on lambs and poultry. In 1993, verified bobcat predation accounted for 8 lambs and 93 head of poultry valued at \$971.

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). Bobcat density ranges between 0.1 and 7/mi². They may live up to 14 years, but annual mortality is as high as 47% (Rolley 1985). In 1980, [REDACTED] estimated that there was 24,579 mi² of bobcat habitat in Oregon supporting a population of about 45,000 animals, an average

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density of about 1.8 bobcats/mi². The District has 15,391 mi² of habitat and a bobcat population of about 22,000; the average density for the District was about 1.4 bobcats/mi². [REDACTED] estimated the 1993 bobcat population in the District to be 28,500 animals which is an increase of about 28.6% above the 1980 estimate.

Bobcat Population Impact Analysis

Comparable data are not yet available for 1993, therefore, 1992 data will be used to determine potential state and Districtwide impacts on bobcat populations. The 1992 statewide "Total Take" of bobcats was 1,764 animals. The "Other Take" was 1,733 animals statewide and 724 in the District. The ADC harvest of bobcats was 31 animals statewide and 14 in the District.

The allowable harvest for bobcats in the USDA (1994) was established at 20% of the total population. The 1992 "Other Take" estimates were 3.9% and 3.3% of the estimated state and Districtwide populations, respectively (Table 8). The "Total Take" was also 3.9% and 3.3% of the estimated statewide and

District population. The information available for 1992 shows the ADC kill of problem bobcats to be less than 0.1% of the total estimated population, both state and Districtwide. As these are substantially less than 20% of the allowable harvest, this magnitude of impact is low. Neither the ADC kill nor "Other Take" is having a significant impact on bobcat populations state or Districtwide. In 1993, ADC Specialists captured 28 target bobcats of which 14 were released and 14 were killed. No nontarget bobcats were killed in the District during 1993 (MIS 1993) and the 1993 magnitude of impact is unchanged from 1992.

Red Fox Population Information

Red fox predation in the District is confined to poultry. Verified and reported damage amounted to about \$400 in 1993.

Red foxes are the most common and well-known species in the genus *Vulpes* and are the most widely distributed nonspecific predator 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, Richards 1974, 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

Table 8
1992 Bobcat Harvest Data
Allowable Harvest = 20%

	Roseburg	Oregon
Est. Population	22,155	44,744
ADC Kill	14	31
Other Take	724	1,733
Total Take	738	1,764
ADC Kill - % of Population	0.06%	0.07%
Other Take - % of Population	3.3%	3.9%
Total Take - % of Population	3.3%	3.9%

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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) 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 is capable of withstanding 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, and 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 suggest 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/mi². (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) says 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 states that habitat destruction that reduces prey numbers, water and cover will impact fox populations to a greater extent than a short-term overharvest.

In 1980, ██████ estimated that there was 10,716 mi² of red fox habitat statewide with a population of about 20,300 animals, and an average density of 1.9 red fox/mi² of habitat. The District was estimated to have 6,571 mi² of habitat and a population of about 7,600 animals; the average density for the District was 1.2 red fox/mi² of habitat. The red fox population estimated for the District was updated by ██████ in 1993 and is estimated to be about 6,100 animals. The 1980 estimates will be used to determine ADC's impact as there is comparable data for Oregon and the District, unlike the estimate conducted in 1993. However, ADC's removal of 15 problem red foxes does not change the impact on the red fox population if the 1993 estimates are used in the analysis.

Red Fox Population Impact Analysis

During 1993, 19 red fox were captured, 8 of which were killed and 11 released. One nontarget red fox was killed during 1993. Comparable data are not yet available for 1993, therefore, 1992 data will be used to determine potential state and Districtwide impacts on red fox populations. The "Total Take" of red fox in 1992 was 562 animals statewide and 182 in the District. The "Other Take" of red fox was 336 animals statewide and 167 in the District. The ADC kill of red fox was 226 animals statewide and 15 in the District.

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USDA (1994) determined the allowable harvest level for red fox to be 70% of the total population. The data for 1993 showed the ADC District kill to be less than 0.2% of the total estimated population.

"Total Take" was 2.8% and 2.4% of the estimated state and Districtwide population, respectively. "Other Take" was 1.7% and 2.2% of the estimated state and Districtwide population, respectively. The ADC kill was 1.1% and 0.2% of the estimated state and Districtwide populations. As these harvest levels are less than 70% of the allowable harvest, the magnitude of impact is determined to be low.

Gray Fox Population Information

Gray fox predation in the District is mainly to poultry. Verified and reported damage was about \$30 in 1993.

Gray fox inhabit brushy and wooded areas, and have omnivorous feeding habits, eating birds, rabbits, eggs, insects, carrion, fleshy fruits, and grains. Gray fox reach reproductive maturity at about 1 year of age and litters average four pups after a 2-month gestation period (Nowak and Paradiso, 1983). Their densities can range between 3.1 and 5.4/mi² (Trapp 1978). Gray foxes have been reported to live up to 15 years, but annual mortality may be as high as 60% (Seton 1929, Lord 1961).

In 1980, ██████ estimated 6,429 mi² of gray fox habitat in Oregon with a population of about 14,600 animals and an average density of 2.3 gray fox/mi² of habitat. The District accounted for about 4,236 mi² of habitat supporting a population of about 9,700 animals.

Gray Fox Population Impact Analysis

Comparable data are not yet available for 1993, therefore, 1992 data will be used to determine potential state and Districtwide impacts on gray fox populations. The 1992 "Total Take" of gray fox was 235 animals statewide and 222 in the District. The "Other Take" statewide was 229 animals and 218 in the District. The ADC kill was 6 gray foxes statewide and 4 in the District.

Table 9
1992 Red Fox Harvest Data
Allowable Harvest = 70%

	Roseburg	Oregon
Est. Population	7,605	20,275
ADC Kill	15	226
Other Take	167	336
Total Take	182	562
ADC Kill - % of Population	0.2%	1.1%
Other Take - % of Population	2.2%	1.7%
Total Take - % of Population	2.4%	2.8%

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The allowable harvest level for gray fox determined in the USDA (1994) was 25% of the total population. The 1992 data are "Other Take" was 2.7% and 2.8% of the estimated statewide and District populations, respectively (Table 10). The "Total Take" was 2.8% and 2.8% of the estimated statewide and District populations respectively. The statewide ADC kill was 0.07% of the estimated population and the District ADC kill was 0.05% of the estimated population. As "Total Take" both state and Districtwide is substantially less than 25% of the allowable harvest, the magnitude of impact is determined to be low.

Table 10
1992 Gray Fox Harvest Data
Allowable Harvest = 25%

	Roseburg	Oregon
Est. Population	7,900	8,500
ADC Kill	4	6
Other Take	218	229
Total Take	222	235
ADC as % of Population	0.05%	0.07%
Other as % of Population	2.8%	2.7%
Total as % of Population	2.8%	2.8%

Raccoon Population Information

Raccoons accounted for about 24% of the verified dollar losses in the District in 1993. Depredation was primarily to poultry and other fowl but some lamb predation was verified. Reported losses to raccoon in 1993 were valued at \$38,162. Thirty thousand dollars (\$30,000) of this loss was attributed to introduction of round worms (Ascarids) by raccoons into Emus that caused lethal parasitic infections (Rae 1993).

The raccoon is a member of the family *Procyonidae* that includes ringtails, and coatis in North America. Raccoons are one of the most omnivorous of animals, feeding on carrion, garbage, birds, mammals, insects, crayfish, mussels, other invertebrates, 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 a winter tree den area on 101 acres of a waterfowl refuge in Missouri during winter. Other studies have found raccoon densities that ranged from 9.3/mi² to 80/mi² (Yeager and Rennels 1943, Urban 1970, Sonenshine and Winslow 1972, Hoffman and Gottschang 1977, and Rivest and Bergeron 1981).

██████ believes that raccoon populations are cyclic in Oregon and numbers can change considerably from one year to the next due to factors such as distemper and other diseases.

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As a result, any population estimate would be for a given point in time and population levels could change rapidly if disease outbreak occurs. No statewide population estimate was made for raccoons in 1980 as was done for other furbearers. In 1993, █████ censused raccoon populations for the District, but not statewide, and estimated the population at 88,500 animals, a density of 51.9/mi².

The allowable harvest level for raccoons found in USDA (1994) was established at 49% of the total population. The information available for 1993 shows the ADC kill to be less than 0.1% of the 1993 estimated population in the District. The 1993 District estimate will be used for analysis since this is the only data available; no statewide quantitative analysis can be made as no population estimates exist.

Raccoon Population Impact Analysis

The 1992 data, the latest available that can be used for comparing ADC kill to "Other Take" (Table 11) show that the "Total Take" was 2.6% of the estimated District population, and "Other Take" was 2.4% of the estimated District population. The ADC kill was 0.2% of the estimated District population. As the "Total Take" is substantially less than 40% of the allowable harvest, the magnitude of impact is low. Though no statewide population estimate exists, it is clear from the available information that the "Total Take" is low compared to the estimated population.

Table 11
1992 Raccoon Harvest Data
Allowable Harvest = 40%

	Roseburg	Oregon
Est. Population (1993)	88,500	NONE
ADC Kill	130	287
Other Take	2,146	4,754
Total Take	2,276	5,041
ADC Kill - % of Population	0.2%	
Other Take - % of Population	2.4%	
Total Take - % of Population	2.6%	

Striped and Spotted Skunk Population Information

Skunks primarily cause odor problems around homes, transmit diseases such as rabies to humans and domestic animals, and prey on poultry. The problems caused by odor and disease are beyond the scope of this analysis, however, our reporting system does not allow the take from odor or disease problems to be separated from the take for poultry predation. Therefore, the ADC kill may appear higher than warranted by the level of predation on poultry. Verified poultry losses due to predation by striped and spotted skunks was 8 head of poultry valued at \$51 in 1993.

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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/mi² for striped skunks in rural areas (Houseknecht 1971, Storm 1972, Bjorge et al. 1981, Rosaette and Gunson 1984). The range of skunk densities reported in the literature was from 0.85 to 67/mi² (Jones 1939, Ferris and Andrews 1967, Verts 1967, Lynch 1972, Bjorge et al. 1981). Many factors may contribute to the widely differing population densities. Type of habitat, food availability, disease, season of the year, and geographic area are only but a few of the reasons (Storm and Tzilkowski 1982).

Spotted Skunk Population Information

The geographical range of the western spotted skunk extends from central Mexico through the western United States to British Columbia (Rosatte 1987). They prefer open lowlands but are equally at home in mountainous country and in a variety of habitats including farmyards, wastelands and chaparral (Orr 1943, Baker and Baker 1975). Few studies have been published on the home range, population density and mortality of spotted skunks. Crabb (1948), however, found that the western spotted skunk in Iowa occupied a home range of about 160 acres at densities of 5.7/mi². He also stated that spotted skunks are nomadic, traveling up to 3 mi/night, do not occupy a home range, and do not defend a territory.

Striped and Spotted Skunk Population Impact Analysis

There are no [REDACTED] population estimates for striped or spotted skunks, therefore, the lowest reported density estimates from the literature will be used to estimate skunk populations. Using this information, the estimated population in the District is about 45,000 striped and spotted skunks. During 1993, District personnel killed 75 skunks; this represents less than 0.2% of the population. It is recognized that "Other Take" of skunks occurs but no system exists for recording this information. It is believed by professional wildlife biologists that "Total Take," although unknown, is not impacting the population compared to the total population and the magnitude of impact is low.

Raven Population Impact Analysis

The common raven, common crow (*C brachyrhynchos*), and black billed magpie (*Pica pica*) are the most well know species in the family *Corvidae*. The common raven is widely distributed throughout the Holarctic Regions of the world including Europe, Asia, North America and extends well into Central America (Goodwin 1986). Ravens generally are a resident species but some wandering and local migration occurs with immature and non-breeding birds (Goodwin 1986). Immature birds, which have left their parents, form flocks with non-breeding adults; these flocks tend to roam and are loose-knit and straggling (Goodwin 1986). The raven is an omnivorous species known to feed on carrion, crops, eggs and birds, small mammals, amphibians, reptiles, fish, and insects (Nelson 1934). Larsen

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and Dietrich (1970) noted that it is generally acknowledged that ravens are responsible for lamb mortality on spring lambing ranges. Oregon ADC Annual Reports have verified raven predation on lambs, sheep and calves in 25 of the last 26 years. Livestock producers in the District reported 294 head of sheep and lambs killed by ravens during 1993, valued at \$15,905. During this same period ADC personnel verified 3 sheep and 1 lamb killed by ravens. No calves were reportedly killed by ravens in the District during 1993, though 15 head were verified killed in other areas of the State.

Between 1961 and 1989 (most recent years that data is available) Christmas Bird Counts (CBC) have been conducted by Audubon Society members and others. The University of Maine, Augusta, has maintained a CBC data base, and sightings of ravens were recorded (Jones Univ. Maine, pers. comm. 1994) A 29-year summary of this data for Oregon showed that the number of sightings of raven per census line increased from 5 to 39.6 (692.3%), and the number seen per hour increased from 0.15 to 0.66 (377.9%). Although this data does not provide densities it does show that the population trend for ravens is increasing. Data from the Breeding Bird Survey also showed an increasing population trend in breeding numbers between 1968 and 1991 (34.2%).

The number of ravens in Oregon and the District can only be estimated from other research and census studies. Stiehl (1978) reported raven nesting densities in the Harney Basin of Oregon at one pair/16.2 mi². Stiehl marked 266 ravens during this study and reported individuals as far away as 173 miles from the study area, indicating considerable mobility in the population. Stiehl also reported that raven numbers vary seasonally, peaking in the winter. Knight and Call (1981) summarized a number of studies on common raven territories and home ranges in the west. Nesting territories ranged in size from 3.62 mi² to 15.7 mi² in Wyoming and Oregon and home ranges varied from 2.53 mi² to 3 - 6 mi² in Utah and Oregon. Linz et al. (1990) found nest densities of one/1.7 mi² in their ██████████, California study. Raven home ranges overlap considerably and it is believed that a reasonable density estimate of breeding birds in the District is one raven/3 mi², resulting in a population estimate of 11,653 birds.

Raven Population Impact Analysis

During 1993, ADC personnel killed 49 ravens using DRC-1339. This represents less than 0.2% of the estimated population. Ravens are a protected species under the Migratory Bird Treaty Act and can only be taken by permit from the USFWS. ADC is not aware of any "Other Take" of ravens.

The data used for this analysis indicate that the ADC wildlife damage management program conducted in the District would not have an adverse impact on raven populations.

4.2.1.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 would authorize ADC wildlife damage management on National Forests. The actual area where ADC services would be requested is unknown and could vary from year to year, based on needs and levels of predation. However, the actual area that will be worked in any one year will be small, probably less than 2% to 3% of the **Fremont** and **Winema** NFs (see **Fremont** and **Winema** NF maps in Appendix G).

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ADC estimates that wildlife damage management conducted under this alternative could increase the kill of coyotes, black bear and cougar, but probably would not exceed 5% of the current program. A 5% increase, based on 1992 data, would mean the kill of an additional 72 coyotes, 5 black bear and no cougars. At the 5% increase kill level, the "Total Take" of coyotes in the District would be 5.4% of estimated population and remain below the 70% harvest level for a determination of "low magnitude" of harvest.

A 5% increase in black bear killed in the District would not increase the total District-wide harvest above the current level of 4.3%. The magnitude of impact would remain below the 20% level for a low magnitude of impact.

A 5% increase in cougar kill would not result in any additional animals being killed by ADC and therefore no change from the existing determination of low magnitude of impact.

Even if the ADC kill of coyotes, black bear and cougar increased 10% or 20%, the impact to their populations would remain at a low magnitude. The ADC kill of these species is small in comparison to the hunting and trapping take and therefore sizeable increases in the ADC kill would generally not result in meaningful increases in "Total Take" of the local or statewide populations. No additional take of the other predator species is expected since no poultry is raised on Forest Service lands.

Therefore, Alternative 2 will have a low magnitude of impact on targeted wildlife populations.

4.2.1.3 Alternative 3. - Technical Assistance and Alternative 4. - No Control.

Both Alternative 3 and 4 would result in no ADC operational programs and the potential effects will be similar, therefore, they will be analyzed together. Some type of wildlife damage management would most likely be conducted by livestock and poultry producers, by various state agencies, or combinations thereof. The impacts on wildlife populations may vary considerably from those described in Alternative 1, because of the potential for improper or inappropriate selection and use of control methods, emphasis on lethal methods, duplication of effort, and possible misuse of pesticides (McMullen, USFWS pers. comm. 1993).

A thorough review of the potential impacts of these alternatives can be found in the USDA (1994) as it relates to the No Action Alternative. The USDA (1994) summarized the biological impacts of the no ADC alternative as follows:

"Biological impacts that would be expected under the No Action Alternative (No ADC Program Alternative in this EA) include all impacts that occur under the Current Program Alternative (No Action Alternative in this EA) plus impacts that relate to the reasons listed previously. The level of taking of target species would be more variable (i.e., lower for some species in some areas and higher in other areas). However, the amount of taking of nontarget species probably would be higher and, for some small populations, could become biologically significant. This would be especially important if the species was threatened or endangered. Species diversity could be significantly affected. The indirect impacts on nontarget species affected through the food chain or by uncontrolled releases of toxicants into the environment

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also could increase. In some areas, many people could be using chemical methods. Misuse of chemicals could increase and thereby adversely impact certain wildlife populations and public health and safety."

How wildlife damage management would be handled in the absence of ADC can only be speculated, although several obvious effects can be identified. State agencies and private individuals would not be subject to the same restrictions placed on ADC such as the requirements of NEPA, and coordination and planning with [REDACTED] and Forest Service. We assume that a state agency such as [REDACTED] or [REDACTED] would administer a program, but there would be an interim period while funds were secured and an organization was established where livestock producers would have limited or no assistance and would have to conduct needed control by whatever means was available to them. It is also probable that any state assumption of wildlife damage management would dilute resources needed for other wildlife management and state functions.

Alternative 3 and 4 would likely have greater adverse impact on wildlife populations than the current program although professional wildlife biologists do not believe that the level of harvest for most predatory species would be above allowable harvest levels.

4.2.1.4 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

Use of the LPC would be expected to reduce the potential for taking nontarget species, if use of the LPC results in reduced reliance on traps and snares. The LPC is expected to have low risks to nontarget terrestrial and aquatic wildlife. A thorough review of the risk assessment for the LPC found in Appendix P of USDA (1994) which concluded:

"Primary Toxicity. No probable risk is expected from acute oral primary exposures to scavengers. Possible acute and chronic effects for the red fox if it ingests the entire contents of the collar, however, that is unlikely to occur. Potential effects are possible for chronic oral exposures to sensitive species, represented by the golden eagle, and listed species, including the bald eagle, ocelot, and jaguarundi. The likelihood of chronic exposure is very low, based on the remote possibility of repeated ingestion of the collar toxicant."

"Secondary Toxicity. No probable risk is expected, based on the low HQ (Hazard Quotient) values for the red fox."

"Aquatic. No probable risk is expected because of minimal off-site transport based on label directions."

In addition, the Risk Assessment compared findings from the USFWS and the EPA and concluded:

That use of the 1080 livestock protection collar could possibly result in the mortality of bald eagles (USFWS 1985). This conclusion is consistent with the risk assessment conclusion. The USFWS further concluded that use of the collar is not likely to jeopardize the existence of the bald eagle, based on the low risk, the number of bald eagles found throughout the United States, eagle feeding patterns, and the low number of coyote carcasses and/or dead collared livestock to which the eagles are exposed (USFWS 1985). The EPA concluded that the bald eagle would

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not be affected, because feeding habits reduce the possibilities of ingesting the toxicants and because the chances are remote that a listed species would contact a collard sheep or goat (EPA 1991).

Based on USDA (1994), USFWS (1985) and EPA (1991), if authorized for use in Oregon, the use of the LPC would have a low magnitude of impact on wildlife populations.

4.2.2 Potential for ADC's take of coyotes, black bears and cougars in addition to other forms of take to depress predator populations to the point those prey populations such as rabbits and mice (rodents) might increase and cause damage to agricultural products.

4.2.2.1 Alternative 1. - Continue the current District Program: (No Action).

The relationship between predators, and rodent and rabbit populations has been summarized in USDI (1979).

Rabbit and rodent populations normally fluctuate substantially in several-year cycles. Two hypotheses attempt to explain these cyclic fluctuations: 1) 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), 2) 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 low prey populations, and 3) since rabbit and rodent populations increase at a faster rate than predator populations, factors other than predation must initiate the decline populations.

Wagner and Stoddart (1972) and Clark (1972) independently studied the relationship between coyote populations and black-tailed jackrabbit (*Lepus californicus*) populations in northern Utah and southern Idaho. Both concluded that coyote populations seemed to respond to an abundance of jackrabbits. When a broad range of prey species is available, coyotes will generally feed on all species available; therefore coyote populations may not vary with changes in the availability of a single prey species (Knowlton 1964, Clark 1972).

The impact analysis on rodents and lagomorphs (rabbits and hares) showed that predators generally prolong the low points in rodent population cycles and spread the duration of the peaks. Predators generally do not "control" rodent populations (Keith 1974, Clark 1972, Wagner and Stoddart 1972). It is more likely that prey abundance controls predator populations.

Analyses were conducted to determine the potential impacts on the number of predators killed by ADC and other species in relationship to the estimated population. ADC kills 2.5% of the estimated coyote population in the District. ADC kills about 47% of the reported coyotes killed in the District.

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ADC kills 0.6% of the black bear population and 11.9% of the bears harvested, and 0.4% of the cougar population and 5% of the cougar harvested. These same trends are generally followed for the other key species analyzed.

The USDI (1979, p128) concluded that "ADC Program activities have no adverse impacts to populations of rodents and lagomorphs." The USDA (1994) did not specifically deal with this issue.

The ADC kill and the "Total Take" of predators are such, that prey populations would not increase in response to the harvest of predators.

4.2.2.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

ADC anticipates that the kill of coyotes, black bear and cougar could increase by 5% above the current level. This increase is not expected to affect predator/prey relationships differently than Alternative 1 because the wildlife damage management area has also increased by about 5%. The ratio remains relatively constant.

4.2.2.3 Alternative 3. - Technical Assistance and Alternative 4. - No Control.

Since Alternatives 3 and 4 would result in no ADC operational programs, the potential effects will be similar and will be analyzed together. Some types of wildlife damage management, however, would be continued by livestock and poultry producers, by various state agencies, or combinations thereof. The impacts on wildlife populations could vary considerably from those described in Alternative 1 because of the potential for improper or inappropriate selection and use of control methods, emphasis on lethal methods, duplication of effort, and possible misuse of pesticides.

A thorough review of the potential impacts of these alternatives can be found in USDA (1994) as it relates to the No Action Alternative. The FEIS summarized the biological impacts as follows:

"Biological impacts that would be expected under the No Action Alternative include all impacts that occur under the Current Program Alternative plus impacts that relate to the reasons listed previously. The level of taking of target species would be more variable (i.e., lower for some species in some areas and higher in other areas). However, the amount of taking of nontarget species probably would be higher, and for some small populations, could become biologically significant. This would be especially important if the species was threatened or endangered. Species diversity could be significantly affected. The indirect impacts on nontarget species affected through the food chain or by uncontrolled releases of toxicants into the environment also could increase. In some areas, many people could be using chemical methods. Misuse of chemicals could increase and thereby adversely impact certain wildlife populations and public health and safety."

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4.2.2.4 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

Use of the LPC is designed to kill only the individual predator responsible for predation on sheep and lambs. Its use could actually reduce the number of coyotes killed by ADC because it directly targets the offending individual.

The LPC would have minimal affects on rodent and rabbit populations.

4.2.4 Potentials for incidental take of threatened or endangered (T&E) species, especially the Northern Bald Eagle

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

The Endangered Species Act (ESA) (Section 7) requires that federal agencies consult with the USFWS or the National Marine Fisheries Service as appropriate. This is to ensure that any action the agency authorizes, funds, or carries out are not likely to jeopardize the continued survival of federally listed species, or result in the adverse modification or destruction of its critical habitat. The ESA also requires, when a species proposed for listing could be jeopardized by proposed federal actions, that a consultation be held with the USFWS.

ADC has reviewed its activities nationwide and in the District and consulted with the USFWS as they relate to all listed T&E species under the provisions of ESA. The USFWS, in cooperation with ADC, has developed reasonable and prudent alternatives where a determination of jeopardy has been made (USDI 1994). Because of this review and consultation, ADC adopted the reasonable and prudent alternatives for the Northern Bald Eagle and agreed to other procedural conditions that will insure ongoing consideration of T&E species in relationship to program activities (see Appendix C). The reasonable and prudent alternatives for the Northern Bald Eagle are:

- 1) ADC personnel will contact either the local ODFW office or the appropriate regional or field office of the USFWS to determine nest and roost locations for Northern Bald Eagles.
- 2) The appropriate USFWS office shall be notified within five days of the finding of any dead or injured bald eagle. Cause of death, injury, or illness, if known, should be provided to those offices.
- 3) Leghold traps (except those used to trap mountain lions) shall be placed a minimum of 30 feet from above ground bait sets.

In addition, ADC will work with the Forest Service and [REDACTED] during the ADC Annual Work Planning process to address concerns or potential affects related to sensitive species lists. The National ADC "May Affect" determinations for federally listed T&E species, USFWS Biological Opinion can be found in Appendix F of USDA (1994) or is available for review at ADC's Portland State Office or at the Roseburg District Office.

After reviewing the methods used in the District in relationship to the T&E species, ADC determined that no species other than the Northern Bald Eagle would potentially be affected.

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With the inclusion of the reasonable and prudent measures and procedural changes found in the Biological Opinion and Section 7 consultation, it has been determined that ADC wildlife damage management will have no effect on Northern Bald Eagles. The species considered by the program can be found in Appendix C in correspondence received from USFWS in January 1994.

4.2.4.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 expands the program to include wildlife damage management on Forest Service lands within the District. Section 7 Consultation with the USFWS considered species that could be found within the District. Other than the Northern Bald Eagle, no additional species were found on Forest Service lands that could be affected by the ADC program. ADC will work with the Forest Service and [REDACTED] personnel during annual work planning to avoid T&E and "Sensitive" species.

It is judged that Alternative 2 would not affect T&E species in the District.

4.2.4.3 Alternative 3. - Technical Assistance and Alternative 4. - No Control.

Since Alternatives 3 and 4 results in no ADC operational programs, the potential effects will be similar and analyzed together. Some type of wildlife damage management would most likely be conducted by livestock and poultry producers, by various state agencies, or combinations thereof. The impacts on T&E species (i.e., Northern Bald Eagles, Northern Spotted Owl (*Strix occidentalis caurina*), California Wolverine (*Gulo gulo luteus*)) may vary considerably from that of those described in Alternative 1 because of the potential for improper or inappropriate selection and use of control methods, emphasis on lethal methods, duplication of effort, and possible misuse of pesticides.

The analysis covering Environmental Consequences in the USDA (1994) concluded that under the no program alternative there was a potential for cumulative adverse impacts on T&E species. It also concluded that T&E species populations could experience losses if inappropriate control measures and techniques are applied at the local level, and that losses could result in locally significant, cumulative impacts to T&E species. In the District there would be a potential impact on the Northern Bald Eagle and possibly other T&E or candidate species such as the California Wolverine.

It is judged that Alternative 3 and 4 could result in impacts on T&E species within the District.

4.2.4.4 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The LPC was specifically designed to protect sheep and goats from predators that attack the throat. The LPC would not affect any T&E species currently found in the District. If the Gray Wolf (*Canis lupus*) is reintroduced in the District or Oregon, or if wolves naturally reestablish populations, ADC will initiate a wolf consultation with the USFWS.

It is judged that use of the LPC under existing conditions will not affect T&E species in the District.

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4.2.5 Level of take of nontarget species incidental to ADC's Wildlife Damage Management

4.2.5.1 Alternative 1. - Continue the current District Program: (No Action).

Nontarget species are animals that are inadvertently captured, killed or injured during wildlife damage management. Some target species already discussed may also be taken as nontarget species in various situations. This inadvertent taking of nontarget species generally occurs because the animals are similar in size, inhabit the same area, or have similar behavior making them susceptible to the same capture methods, or nontarget species may be attracted to lures placed for other species. For example, red fox may be attracted to the lure placed for coyotes or other canids.

The take of nontarget animals (including captured/released and captured/killed) in the District was 25 animals in 1993 out of 2,165 target animals taken (1.2% of the total number of animals taken were nontarget animals). Of the 25 nontarget animals captured, 16 were released and 9 killed.

It is judged that Alternative 1 would have a low impact on nontarget species populations in the District.

4.2.5.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

Alternative 2 would allow for an expanded program on Forest Service lands. Expanded wildlife damage management could slightly increase the take, but probably not the proportion, of animals taken. The current ADC kill of nontarget species is well below the 5% level set as a District objective. The increase in nontarget take proportionate to increased target animal take would not be so large as to cause adverse impacts on nontarget species populations.

It is judged that Alternative 2 would have a low impact on nontarget species in the District.

4.2.5.3 Alternative 3. - Technical Assistance and Alternative 4. - No Control.

Since both Alternatives 3 and 4 would result in no ADC operational programs, the potential effects would be similar and will be analyzed together. Some type of wildlife damage management would most likely be conducted by livestock and poultry producers, by various state agencies, or combinations thereof. The impacts on wildlife populations may vary considerably from that of those described in Alternative 1 because of the potential for improper or inappropriate selection and use of control methods, emphasis on lethal methods, duplication of effort, and possible misuse of pesticides.

The levels of nontarget take under Alternative 3 and 4 is unknown but may exceed the 5% level because of lower skill levels, emphasis on lethal methods, improper use of equipment and the potential misuse of chemicals. It is judged that Alternative 3 and 4 would have greater impacts on nontarget species populations than the current program.

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4.2.5.4 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

The use of the LPC would be expected to reduce the potential for taking nontarget species because of its high selectivity for only individual predators responsible for attacking/killing sheep and lambs.

The LPC would not be available for use under Alternatives 3 and 4 since it will be a restricted use pesticide for use only by ADC personnel. The lack of availability of the LPC potentially could increase nontarget take.

4.2.7 Summary of ADC's Impacts

Table 12 below is a comparison of the alternatives and environmental consequences (impacts). The levels of impacts are based on the above analysis and are rated Low, Low/Moderate, Moderate, Moderate/High, and High.

**Table 11
Alternative/Issues/Impacts Comparison**

Issues/ADC Impacts	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Livestock Protection Collar
Coyotes	Low	Low	Low	Low	Low
Black Bear	Low	Low	Low/Moderate	Low/Moderate	Low
Cougar	Low	Low	Low/Moderate	Low/Moderate	Low
Bobcat	Low	Low	Low/Moderate	Low/Moderate	Low
Red Fox	Low	Low	Low	Low	Low
Gray Fox	Low	Low	Low/Moderate	Low/Moderate	Low
Raccoon	Low	Low	Low/Moderate	Low/Moderate	Low
Skunks	Low	Low	Low/Moderate	Low/Moderate	Low
Raven	Low	Low	Low/Moderate	Low/Moderate	Low
Pred./Prey Relationships	Low	Low	Low/Moderate	Low/Moderate	Low
Nontarget Species	Low	Low	Low/Moderate	Low/Moderate	Low
T&E Species	Low	Low	Moderate/High	Moderate/High	Low

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4.3 ECONOMIC ANALYSIS

4.3.1 Economic Impacts of wildlife damage management on Livestock and Poultry

The economic impacts of the alternatives are discussed in relation to resolving wildlife damage problems by the District ADC program. Economic impacts are monetary benefits or liabilities that the alternatives would have on livestock, poultry and wildlife losses, and on dangerous human encounters. As in the Objective and Environmental Consequences analysis, Economic Impacts of the Alternatives will be compared against Alternative 1. Costs and benefits associated with implementing IWDM will be considered but may be a secondary concern of overriding legal and environmental considerations. A complete review of the ADC Program's Economic Impact Assessment may be found in the USDA (1994, Chapter 4).

4.3.1.1 Alternative 1. - Continue the Current John Day ADC District Program: (No Action).

Costs of the current program in the District for 1993 include salary and benefits for field, supervisory and administrative staff, supplies, equipment, vehicles and transportation, aerial hunting, and all other related program expenditures. During 1993, about \$400,250 was expended for total District operations. Of this total, \$208,000 was for livestock and poultry protection, \$12,000 was expended for wildlife protection, and about \$4,000 for responding to requests for management of dangerous bears and cougars. The remaining \$176,000 expended on property protection, urban and crop related programs which will be analyzed in other NEPA documents.

Benefits to sheep and cattle producers from ADC can be measured by comparing the number of livestock protected, the number of livestock killed by predators, and livestock projected to have been saved, to the amount of funds expended for this protection (MIS 1994). The District protected 367,912 head livestock/poultry during 1993. During that same time, livestock and poultry producers reported that 16,220 head were killed by predators (44% of the total protected) valued at \$2,036,143 (see Chapter 1, Table 2). These losses occurred despite current wildlife damage management efforts.

Examples of benefits of the current program can be demonstrated by examining predation rates to lambs, sheep, and calves. Tables 1, 2, and 3 of this Chapter show reported predator losses for lambs, sheep and calves. Reported lamb, sheep, and calf losses from predators in the District in 1993 averaged 4.6%, 2.9%, and 2.6%, respectively. The predation rates for lambs and sheep coincide with the predation rates of between 4% and 8% for lambs and 1% and 2.5% for adult sheep as reported in the literature (USDI, 1978). However, Table 3 shows that the reported predation losses of calves are well below the Oregon level of 8.2% as determined by NASS (1992).

No data exist for the District that demonstrate the level of predation to livestock or wildlife without wildlife damage management. However, hypothetical losses to sheep and lambs can be estimated by comparing the current predation rates from studies of sheep without predator control from other areas. Table 13 summarize sheep loss studies in areas without wildlife damage management.

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Table 13
SUMMARY OF FIELD STUDIES OF SHEEP LOSSES WITHOUT COYOTE CONTROL
Annual Losses (%)

Source	Location	Year	Sheep	Lambs
Henne (1977)	Montana	1974	7.5%	28.8%
Munoz (1977)	Montana	1975	8.1%	24.2%
McAdoo and Klebenow (1978)	California	1976	1.4%	6.2%
Delorenzo and Howard (1976)	New Mexico	1974	Were 0% lost or not reported	12.1%
Delorenzo and Howard (1976)	New Mexico	1975	Were 0% lost or not reported	12.1%

Using the average rate of loss to predators from these studies, a hypothetical loss with no wildlife damage management can be estimated when applied to the total number of sheep and lambs protected. These estimates serve as a basis for determining benefits from the current program.

Because no published data exist to show predator losses to calves in areas without wildlife damage management, it is impossible to estimate the number of calves that would be lost to predation. The NASS (1992) survey reported average Oregon calf loss levels of 8.2%; that will be use as a possible calf loss rate for the District.

Table 14 summarizes lamb, sheep and calf predation with and without control. The difference between the predation rate with wildlife damage management and the predation rate without wildlife damage management results in projected livestock saved by the District ADC program. The resultant hypothetical livestock saved amounts to 273 sheep, 8,001 lambs and 5,300 calves. When comparing the value of losses without wildlife damage management to that reported for areas with wildlife damage management, the annual savings could be \$17,606 for sheep, \$500,107 for lambs, and \$2,666,080 for calves totaling \$3,183,793.

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**Table 14
Livestock Hypothetically Saved Annually
By The ADC Program
In The District**

County	Lambs (No.)	Sheep (No.)	Calves (No.)	Lambs (\$)	Sheep (\$)	Calves (\$)
█	1,006	-2	215	\$55,695	-\$133	\$111,312
█	1,708	161	173	\$90,847	\$9,358	\$61,455
█	27	1	3	\$1,123	\$71	\$610
█	734	121	1,514	\$44,677	\$8,775	\$808,808
█	689	86	3,167	\$31,633	\$5,877	\$1,613,771
█	3,838	-94	227	\$276,132	-\$6,342	\$70,124
TOTAL	8,002	273	5,299	\$500,107	\$17,606	\$2,666,080

Using current program cost data and the hypothetical prevented loss estimate of \$3,183,793, a cost:benefit ratio of 1:15.3 is obtained. It is judged that the District program provides benefits to the livestock producers by protecting livestock.

4.3.1.2 Alternative 2. - Current Program (Alternative 1) plus similar operational activities on Forest Service lands as requested: (Proposed Action).

This alternative is the current program, as described in Alternative 1, and authorization to conduct wildlife damage management on specific areas of Forest Service lands. Program expenditures would increase to protect livestock on, and adjacent to Forest Service lands. Responding to requests for assistance from permittees would require additional labor and other resources during the months when livestock are grazed on Forest Service allotments and may be more vulnerable to predation.

Predation would decrease on Forest Service lands and adjacent private lands in the District with the implementation of Alternative 2. Howard and Shaw (1978) found that ranchers who had at least one boundary fence that faced land not used for livestock production reported a significantly higher rate of predation than did ranchers surrounded by other producers implementing wildlife damage management.

The amounts of program costs increase and economic benefits to livestock producers, and those costs and benefits associated with the "wildlife experience" are undetermined. However, the literature supports a conclusion that a favorable cost:benefit could be expected.

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4.3.1.3 Alternative 3. - Technical Assistance.

Program costs to implement this alternative would be considerably less than alternatives 1 and 2. Technical Assistance activities would reduce costs associated with personnel and IWDM. ADC Specialists positions in the District would be decreased to only those needed to provide technical assistance and make recommendations to landowners or permittees wishing to conduct their own control programs. Livestock producers would absorb the cost of hiring private control agents or doing the work themselves. No ADC assistance would be provided to ██████ for the protection of mule deer and pronghorn antelope, or human safety. The ██████ would have to contract control activities to private individuals or conduct control activities itself. It is believed that livestock and poultry predation could, at a minimum, double or increase to levels found in the studies where no control was conducted unless a non-federal wildlife damage management program was initiated. We project that program costs would decrease by two-thirds.

4.3.1.4 Alternative 4. - No Control.

Based on the above discussion, monies spent to maintain the current program would be saved, but direct and indirect costs to the producer would increase. Compared to current program economic benefits, the No Control alternative offers requesters the least amount of protection. Impacts to ██████ would be the same as described in the Technical Assistance alternative. It is believed that livestock and poultry losses would, at a minimum, double or increase to maximum levels found in the studies where no control was conducted unless a non-federal wildlife damage management program was initiated.

4.3.1.5 Use of the Livestock Protection Collar (LPC), Option for Alternatives 1 and 2.

Initial costs associated with the implementation of LPC's are expected to be higher for producers and ADC than for traditional methods. However, once LPC's are included in the IWDM process, costs are expected to equal those of the other labor-intensive methods. The proposal for ADC to use the LPC would require each participating livestock producer to pay for each collar punctured and to provide the necessary labor and other resources to successfully use LPC's. Several cases have been documented where LPCs were successful when other conventional methods failed to resolve predation problems (Texas ADC 1992).

4.3.2 Economic Impacts of Wildlife Damage Management on Hunting and Wildlife Related Recreation

Neff et al. (1985) and Smith et al. (1986) conducted a cost:benefit analysis and concluded, that the favorable benefit:cost ratios at the end of the 10-year control cycle appears to reflect the fact that as the pronghorn antelope population increases, because of coyote control, the total number of antelope fawns produced increases and we get an increasing payoff for the fixed annual cost of the control operation. In conclusion, they said that coyote population control is a practical and economically sound management tool for certain wildlife management objectives.

A hypothetical cost:benefit analysis by Beasom (1974b) showed that coyote predation management would be economically feasible to bolster deer populations if the animals were harvested by hunters. He further said that each year that management occurs, cost would decline as equipment expenses would be spread out over a number of years and personnel would become more experienced with

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the area. His analysis was based on the additional recruitment (reproduction and immigration) of deer with an estimated value of \$150/male deer and \$50/female deer. Costs to hunters during his study were actually 100% more than what was calculated for his analysis.

Guthery and Beasom's (1977) data suggest that increased herd size because of wildlife damage management results in little or no adverse impact on range forage. They cautioned however, that the increased productivity and populations of deer should be managed accordingly to avoid the overuse of range forage. Neff et al. (1985) state that the decrease in coyote population on [REDACTED] did not exhibit an increase in the rodent or rabbit population.

Based on the above research of coyote predation on deer and antelope, it seems feasible to provide economic benefit to rural locales by managing coyote predation to increase wildlife populations to huntable levels (Smith et al. 1986). By increasing the populations of wildlife, more opportunities exist for recreationalists that want a "wildlife experience." This increased level of recreational activity could generate additional sources of income to rural economies. Recreationalists purchase food, fuels, lodging, and other items and services in pursuit of their diversions.

In the long term, predator management would not impact coyote populations because of recruitment (immigration) from adjacent areas and increased survival of coyote pups (Windberg and Knowlton 1988, Stoddart 1984). If objectives for fawn:doe ratios are to be maintained, research indicates that monitoring and periodic wildlife damage management may be needed to achieve objectives. Alternatives 1 and 2 would generate a favorable cost:benefits. Alternatives 3 and 4 could promote unfavorable cost:benefits because ADC would not be available to provide operational support to [REDACTED].

**Table 15
Economic Impacts
Cost:Benefit Comparison**

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Livestock Protection Collar
Livestock and Poultry	Favorable	Favorable	Favorable	Favorable	Favorable
Wildlife	Favorable	Favorable	Unfavorable	Unfavorable	No Effect

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APPENDIX A
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APPENDIX A
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APPENDIX B
METHODS USED
BY
ANIMAL DAMAGE CONTROL

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APPENDIX B

METHODS USED OR PLANNED FOR USE BY THE ROSEBURG, OREGON ADC DISTRICT

METHODS THAT MAY BE RECOMMENDED BY ADC AND APPLIED BY LIVESTOCK PRODUCERS

Cultural methods include a variety of practices that can be implemented by livestock producers to reduce resource exposure to wildlife damage and economic loss. Use of these practices is appropriate when the potential for damage can be reduced when producer investments in labor, management, or infra structure are consistent with land management and production goals. ADC recommends changes in cultural practices when a change appears to represent a practical means of minimizing or preventing future losses.

Animal Husbandry

Animal husbandry involves modifications in the level of care and attention given to livestock, (i.e. shed lambing, night penning), and the introduction of livestock custodians (e.g., herders, livestock guarding dogs) to protect livestock.

The frequency of care or attention given to livestock may range widely. Generally, as the frequency and intensity of livestock handling increases, so does the degree of protection. In operations where livestock are left relatively unattended for extended periods, the risk of predation is greater. The risk or magnitude of predation can generally be reduced when livestock owners gather and pen livestock nightly. Additionally, the risk of predation is usually greater with immature livestock and diminishes as age and size increase. Holding pregnant females in pens or sheds offers greater protection at birth, and holding newborn livestock in pens for the first two weeks may reduce vulnerability, especially from avian predators but at times, too, only delays predation.

The use of herders and livestock guarding dogs has provided protection to grazing sheep. The presence of herders accompanying sheep generally helps to deter predators, however, while herders have proven successful, some operations have not shown such promising results. Often the use of other management measures is required to provide an acceptable level of livestock protection.

Use of Livestock Guarding Animals

The use of livestock guarding dogs to protect livestock can be traced back many centuries to Europe and Asia, but little was recorded about how the dogs were actually used. Only recently have researchers begun to find the answers to important questions about the function of livestock guarding dogs.

Livestock guarding dogs generally stay with sheep without harming them while aggressively repelling predators. The dog chooses to remain with sheep because it has been reared from puppyhood with them. Its protective behaviors are largely instinctive; relatively little training is required other than timely correction of undesirable behaviors (e.g. chewing on ears, overplayfulness, excessive wandering). The guarding dog, unlike a herding dog, becomes a full-time member of the flock.

It is important to understand the distinction between herding dogs and guarding dogs. Herding dogs (border collies, Australian shepherds, and others) move sheep from one area to another. Herding dogs work according to signals (verbal and hand) from a handler, and they are generally not left alone with sheep. Guarding dogs usually do not herd sheep, are discouraged from biting, chasing, and barking at sheep, and act independently.

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The behavior displayed by a mature guarding dog is the result of heredity (genetic factors) and how the dog was raised. Some dog breeds are selected for their responsiveness to humans, but the guarding dog breeds have been historically selected for their ability to act independently in their guarding role. A common trait of guarding dog breeds is a predisposition for independent behavior. This trait makes them difficult to train to verbal commands. Some training as a pup and familiarization with the handler can help eliminate problems with a mature dog.

The young guarding dog will respond in various ways to novel stimuli, and certain responses may be problematic. Some guarding dogs may chase wildlife (rabbits, deer, elk, antelope). This behavior should be discouraged if the chasing continues beyond a short distance. Harassing big game is illegal in most states, and this behavior removes the dog from the sheep it is supposed to protect.

Electronic Guard

A portable unit that houses a powerful strobe light and siren, known as the "Electronic Guard," was developed by the Denver Wildlife Research Center. Strobe lights, in combination with sirens, have been used with some success to avert coyote predation on sheep. The Electronic Guard should be placed on high areas and hung from a tree or post, near where predation has occurred. When possible, the guard should be placed in the center of the bedground with other guards around the edge. The number of guards needed to protect sheep will depend on the size, terrain, and vegetation in or around the pasture. The guard can easily be transported from one location to another, and should be moved frequently to provide a novel stimulus to the offending predators. The device activates automatically at nightfall and is programmed to discharge periodically throughout the night. The technique is most successful when used at "bedding grounds," where sheep are gathered to sleep for the night. The Electronic Guard is available through ADC's Pocatello Supply Depot.

METHODS APPLIED BY ADC

M-44 cyanide capsule

Sodium cyanide is used in the M-44, a spring-activated ejector device which was developed specifically to kill livestock depredating coyotes. The M-44 device consists of a capsule holder which is wrapped with fur, cloth, or wool; a spring-powered ejector mechanism; a capsule containing approximately 0.9 grams of powdered sodium cyanide (plus inert ingredients); and a 5 to 7 inch hollow stake. To set an M-44, a good location is found, the hollow stake is driven into the ground, the spring ejector unit is cocked and fastened into the stake by a slip ring, and the capsule holder containing the cyanide capsule is screwed onto the ejector unit. A lure is applied to the capsule holder. A warning sign is placed within 25 feet of to warn of the device's presence.

An animal lured to the device and, will attempt to pick up the lure in its mouth. When the M-44 is pulled upward, the device is triggered and the spring-activated plunger propels sodium cyanide into the mouth of the animal.

M-44s are highly selective for canids because:

- The lures are selected for their attractiveness to canids.
- ADC Specialists are highly selective in their choice of placement locations, targeting areas frequented by canids.
- The M-44 device releases the toxicant into the mouth only when pulled upward, and will deliver lethal amounts only if the animal's mouth is positioned directly on or over the device at the moment of ejection.

FINAL

Sodium cyanide is a fast-acting toxicant which, upon contact with moisture, hydrolyzes into hydrocyanic gas and sodium hydroxide. Cyanide released into the air quickly dissipates. Cyanide which is inhaled into the lungs, kills the animal quickly, leaving no residue harmful to other animals that might scavenge the carcass.

Livestock Protection Collar (LPC)

The LPC, if approved for use by the ODA, will be authorized only for use by ADC Specialists; LPCs will not be available for rancher use. In each ADC District, a Supervisory Wildlife Biologist will control and monitor all LPC use according to the ODA approved program.

The LPC was invented in the early 1970's and patented by the U.S. Government in 1974. Data provided by the Denver Wildlife Research Center (DWRC) and others led to EPA registration in 1985. The collar consists of two rubber reservoirs, each of which contains 15 milliliters of a 1-percent (w/v) solution of sodium fluoroacetate (Compound 1080). The LPC has Velcro straps for attachment around the neck of with the reservoirs on the throat just behind the jaw of a lamb or kid goat. Two size collars are available to accommodate various size livestock.

Coyotes typically attack sheep and goats by biting them on the throat and crushing the larynx, causing suffocation. Coyotes that attack collared sheep generally puncture the collar (in 75% or more of attacks) with their teeth and receive a lethal, oral dose of toxicant.

Use of the LPC involves the establishment of a "target flock" of 50 to 100 animals, of which 20 to 30 are lambs or kid goats with collars. These animals are placed in a high risk pasture where recent coyote attacks have occurred. Other (uncollared) livestock on the ranch are moved to a safe area or are penned until a coyote attacks a collared animal and punctures the collar, and predation stops.

The greatest advantage of the LPC is its selectivity. Only the coyotes causing damage are killed. Disadvantages of the collar include the death of some collared livestock, time and cost of certification required to use collars, potential hazards associated with the toxicant under field conditions, expenses of collaring and checking target lambs and kid goats, mandatory record keeping, and management efforts needed to protect livestock other than the target flock.

Numerous restrictions apply to the use of LPCs and are specified in the EPA-approved LPC technical bulletin, which legally is part of the label. Some important restrictions are:

- LPCs can be used only in fenced pastures up to 2,560 acres, or up to 10,000 acres in special circumstances.
- Collars cannot be used in unfenced, open range, or any other pasture where the applicator cannot monitor them properly.
- Bilingual (English/Spanish) warning signs must be posted.
- Damaged, punctured, or leaking collars must be disposed of by deep burial or as otherwise directed in state regulations.
- Collars must be stored under lock and key when not in use.
- No more than 20 collars can be used in any 100-acre (or smaller) pasture, and no more than 50 collars can be used in any pasture that is 100 to 640 acres.

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- No contaminated animal may be used for food or feed.

The following conclusions have been taken from the studies conducted on the LPC:

- Environmental hazards resulting from the use of Compound 1080 in the LPC are minimal because of the small quantities used and the strict use restrictions.
- Compound 1080 is highly toxic to warm-blooded animals (including man) when taken internally or via dust inhalation.
- Primary and secondary hazards to nontarget scavengers such as magpies, skunks, and golden eagles, as well as primary hazards to dogs feeding on carcasses of coyotes poisoned from punctured LPCs, were found to be low or unlikely. However, experience with LPCs in Texas has shown that bobcats may sometimes be killed if they attack collared lambs and kid goats in the throat area. As a result APHIS has applied for a label modification to list the bobcat as a target species.
- In the event of an accidental spill, the soil concentration of Compound 1080 will diminish by water dilution, leaching, and bacterial degradation. Compound 1080 absorbed by plants is metabolized and no phytotoxicity is attributed to the compound. Compound 1080 is not volatile and does not appear to be released into air from water or soil.

Because of high administrative, labor, and materials costs and because intensive management of livestock is required, the LPC is generally regarded as a supplemental control method rather than a replacement for other damage management methods (e.g., trapping/snaring, aerial hunting, calling and shooting, denning, fencing, and guard dogs). The technique has proven effective in situations where other approaches to damage management have failed.

From an efficacy standpoint, use of the LPC is best justified in areas with a high frequency of predation (at least one attack per week) and where other control measures have failed or are not practical. Use of the LPC is not recommended where coyotes attacks are infrequent.

Leghold Traps

Leghold traps are used to capture animals such as coyotes, bobcats, fox, mink, beaver, raccoon, skunk, muskrat, nutria, and cougar. These traps are the most versatile and widely used tool available to ADC for capturing many species. Traps are effectively used in both terrestrial and shallow aquatic environments.

Traps placed in the travel lanes of the target animal, using location rather than attractants, are known as "blind sets." More frequently, traps are placed as "baited" or "scented" sets. These trap sets use an attractant consisting of the animal's preferred food or some other lure such as fetid meat, urine, or musk to attract the animal into the trap.

In some situations, a carcass or large piece of meat (i.e., a draw station) may be used to attract target animals to an area where traps are set. In this approach, single or multiple trap sets are placed at least 30 feet from the draw station. ADC program policy prohibits placement of traps or snares within 30 feet of a draw station to prevent the capture of nontarget scavenging birds. There are only two exceptions to this policy. One is when setting leghold traps to capture cougars returning to a kill. In these cases the weight of the target animal allows pan tension adjustments which preclude the taking of small non-target animals. The second exception is when leghold traps are set next to carcasses used to capture raptors under permit with the FWS.

FINAL

Two primary advantages of the leghold trap are that they can be set under a wide variety of conditions, and that pan tension devices can be used to prevent smaller animals from springing the trap, thus allowing a degree of selectivity not available with many other methods. Effective trap placement by trained personnel greatly contributes to the leghold trap's selectivity. Another advantage of leghold traps is that the live-capture of animals permits release if warranted.

Disadvantages of using leghold traps include the difficulty of keeping them in operation during rain, snow, or freezing weather. In addition, they lack selectivity where nontarget species are of similar size to target species and are abundant. The selectivity of leghold traps is an important issue and has been shown to be a function of how they are used. The type of set and attractant used significantly influences both capture efficiency and the risk of catching nontarget animals.

The use of leghold traps in the ADC program is costly due to the amount of manpower and time involved; however, the technique is indispensable in selectively resolving many animal damage situations.

Snares

Snares, made of cable, are among the oldest existing wildlife damage management tools. Snares can be used to catch most species but are most frequently used by ADC to capture coyotes, cougar, bear and beaver. They offer the advantage of being much lighter than leghold traps and are not as affected by inclement weather.

Snares are used wherever a target animal moves through a restricted lane of travel (i.e., "crawls" under fences, trails through vegetation, den entrances, etc.). When an animal moves forward into the snare loop, the noose tightens and the animal is held.

Snares can be set as either lethal or live-capture devices. Snares set to capture 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. Snares are particularly useful for the live-capture of beaver as they are easily caught around the body. Careful attention to details in placement of snares and the use of slide stops can also allow for the live-capture of neck-snared animals.

The foot or leg snare is a nonlethal device activated when an animal places its foot on the trigger of a snare throwing arm. When tripped, the spring-operated throwing arm tightens the snare around the leg and holds the animal. Foot snares are used effectively to capture grizzly bear, black bear, and cougar.

The catch pole snare is used to capture or handle problem animals. Catch poles are primarily used to remove live animals from traps without injury to the animal or danger to the ADC Specialist.

Ground Hunting

Shooting is selective for the target species but is relatively expensive due to the staff hours required. Shooting is, nevertheless, an essential wildlife damage management method. Removal of one or two problem animals can quickly stop extensive damage. Predator calling is an integral part of ground hunting. Trap-wise coyotes, while difficult to trap, are often vulnerable to calling. Shooting can be selective for offending individuals and has the advantage that it can be applied in specific damage situations.

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Aerial Hunting

Shooting from aircraft is a commonly used coyote damage management method. Aerial hunting is species-selective and can be used for an immediate remedy where livestock losses are severe, if weather, terrain, and cover conditions are favorable. Aerial hunting can be effective in removing offending coyotes that have become "trap-wise" and/or are not susceptible to calling and shooting. Local depredation problems can often be quickly resolved by the use of aerial hunting.

Fixed-wing aircraft are useful over flat and gently rolling terrain. Helicopters have greater utility and are safer over brushy ground, timbered areas, or broken land where animals are more difficult to spot. In broken timber or deciduous ground cover, aerial hunting is more effective in winter when snow cover improves visibility or in early spring before leaves emerge. Aircraft are also used in searching for coyote dens. This method may also be used to reduce local coyote populations in lambing and calving areas with a history of coyote predation. Aerial hunting is also used to improve survival of deer and antelope by reducing local coyote populations.

Good visibility is required for effective and safe aerial hunting operations; relatively clear and stable weather conditions are necessary. Summer conditions may limit effective 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 most effective when ground support crews direct aircraft to the general location of animals which have been located by eliciting coyote howls using sirens, calls, or recorded coyote howls.

ADC aircraft guidelines have been developed to assure that aerial hunting programs are conducted in a safe and environmentally sound manner, and in accordance with federal and state laws. Pilots and aircraft must be certified under established ADC program procedures. Only properly trained and certified ADC employees are authorized as aerial hunting crew members.

Cage traps

Cage traps are frequently used to capture skunks, raccoons, cougars, and black bears. Cage traps can also be used to capture coyote pups, fox, and dogs. Cage traps capture the animal by mechanical closure of the entry way via the animals actuation of a triggering device. Cage traps commonly used or recommended by ADC to capture skunks and raccoons are drop-door wire box traps. Cage traps used to capture black bear and cougar are large drop-door culvert type traps. A specially designed cougar live trap, that consists of conventional heavy-duty metal gate panels fitted with a spring loaded door is now in use. Live traps are generally baited with food items as attractants.

The use of cage traps allows the release of captured nontarget animals or target animals that are to be relocated. Cage traps are frequently recommended to private individuals for capturing skunks and raccoons or used operationally by ADC personnel in situations where other methods may not be as safe or effective. These devices pose minimal risk to the humans, pets or nontarget animals, and are easily monitored and maintained.

Denning

Denning is the practice of seeking out the dens of depredating coyotes or red fox and eliminating the young, adults, or both to stop ongoing predation or prevent further depredations on livestock. The usefulness of denning as a damage management method is proven, however since locating dens is difficult and time consuming, and den usage is restricted to about 2 to 3 months of the year, its use is limited to specific, appropriate situations that must be determined by a specialist.

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Coyote and red fox depredations on livestock often increase in the spring and early summer due to the increased food requirements of rearing and feeding. Removal of pups will often stop depredations even when the adults are not taken. When the adults are taken and the den site is known, the pups are killed to prevent their starvation. The pups are euthanized in the den with a registered fumigant. Denning is highly selective for the target species responsible for damage. Den hunting for adult coyotes and fox is often combined with other activities (i.e., aerial hunting, calling and shooting, etc.).

Den fumigants, also called gas cartridges, are fumigants, or gases, used to manage wildlife. They are highly effective but are expensive and labor intensive to use. In the ADC program, fumigants are only used in predator dens. The ADC program manufactures and uses den cartridges specifically formulated for this purpose. These cartridges are hand placed in the active den, and the entrance is tightly sealed with soil. The burning cartridge causes death from a combination of oxygen depletion and carbon monoxide poisoning.

DRC-1339

DRC-1339 is used in hard-boiled eggs to manage raven damage for the protection of livestock and certain endangered species. It is also registered for application on various materials, such as grain, meat baits, sandwich bread, and cull french fries to control pigeons, gulls, crows, blackbirds, and starlings. DRC-1339 is only available for use under ADC program supervision.

APPENDIX C

THREATENED AND ENDANGERED SPECIES

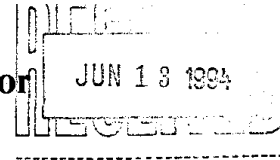
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

**Portland Field Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 Fax: (503)-231-6195**



In Reply Refer To:
1-7-94-I-296

June 7, 1994

Thomas R. Hoffman, State Director
Animal and Plant Health Inspection Service
Animal Damage Control
2600 SE 98th Avenue Suite 110
Portland, OR 97266

Dear Mr. Hoffman:

This responds to your May 13, 1994, letter requesting informal consultation on the animal damage control activities on the Roseburg Animal Damage Control (ADC) District. Pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act), Federal agencies are required to consult with the Fish and Wildlife Service for their actions which may affect species listed pursuant to section 4 of the Act. Animal and Plant Health Inspection Service (APHIS) reviewed the proposed actions for impacts to listed species and requested consultation based on its determination that the proposed actions may affect the bald eagle (*Haliaeetus leucocephalus*).

APHIS determined that the use of steel leg-hold traps may affect bald eagles if individuals are inadvertently trapped. APHIS will prevent the incidental take of bald eagles by incorporating the following measures:

1. ADC personnel shall contact either the local State fish and game agency or the appropriate regional or field office of the Service to determine nest and roost locations.
2. Leghold traps (except those used to trap mountain lions) shall be placed a minimum of 30 feet from above ground bait sets.
3. Trap tension adjustments shall be set which will preclude the taking of lighter scavenging birds.
4. The Service's Ecological Service's Portland Field Office shall be notified within 5 days of the finding of any dead or injured bald eagle. Cause of death, injury, or illness, if known, should be provided to those offices.

APHIS determined that use of steel leg-hold traps would not likely adversely affect bald eagles because the baits would not be located near the trap site or when the bait will be within close proximity of a trap site, the trap tension adjustment will preclude the taking of bald eagles.

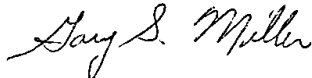
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The Service concurs with APHIS's determination that the proposed action is "not likely to adversely affect" listed species due to incorporation of measures to prevent incidental take. This letter of concurrence acknowledges that APHIS has met their responsibility to consult under section 7 of the Act. Please contact Joseph Burns or Patricia Worthing (503) 231-6179 regarding any questions which may arise regarding this consultation.

Sincerely,



for Russell D. Peterson
Field Supervisor

JAB:\fed\94i296bo.adc

FINAL



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Animal Damage
Control

2600 SE 98th, Suite 110
Portland, OR 97266
Telephone: (503) 231-6184
FAX: (503) 231-2291

May 13, 1994

Mr. Russell D. Peterson
Field Supervisor
USDI, Fish and Wildlife Service
Portland Field Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266

FILE COPY

Dear Russ:

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 the Roseburg ADC District. I have reviewed these listings and analyzed the potential impact that our program might have on each specie. The Service's July 28, 1992 Biological Opinion (BO) (attachment A) reviewed and analyzed ADC programmatic activities. Those findings are pertinent to this review.

Our proposed action is to protect livestock and wildlife resources in the Roseburg, Oregon ADC District. The ADC program in the District will incorporate several control methods and techniques simultaneously or sequentially. This approach, commonly referred to as Integrated Wildlife Damage Management (IWDM), includes the use of a combination of chemical and non-chemical methods. A detailed list and description of each control method can be found on pp. 2-7 of the Biological Opinion.

After review and analysis, I have determined that the Northern Bald Eagle (*Haliaeetus leucocephalus*) is the only listed specie that may be affected. Specifically, I have analyzed each method and determined that the steel leg-hold trap is the only method that may negatively impact the Bald Eagle.

Leghold Traps

Leghold traps are frequently used to capture animals such as coyotes, bobcats, fox, mink, beaver, raccoon, skunk, muskrat, nutria, and mountain lion. These traps are the most versatile and widely used tool available to ADC for capturing many species. Traps are effectively used in both terrestrial and shallow aquatic environments.

Traps placed in the travel lanes of the target animal, using location rather than attractants, are known as "blind sets." More frequently, traps are placed as "baited" or "scented" sets. These trap sets use an attractant consisting of the animal's preferred food or some other lure such as fetid meat, urine, or musk to attract the animal into the trap.

In some situations a carcass or large piece of meat (i.e., a draw station) is used to attract target animals into an area where traps are set. In this approach, single or multiple trap sets are placed in the vicinity of the draw station. ADC program policy prohibits placement of traps or snares within 30 feet of a draw station to prevent the capture of nontarget scavenging birds. There are only two exceptions to this policy. One is when setting leghold traps or snares to capture bears or mountain lion returning to a kill. In these cases the weight of the target animals allows trap tension adjustments which precludes the taking of the lighter scavenging birds. The second exception is when leghold traps set next to carcasses are used to take raptors under FWS permits.



APHIS—Protecting American Agriculture

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Russell D. Peterson

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Two primary advantages of the leghold trap are that it can be set under a wide variety of conditions, and that underpan tension devices can be used to prevent animals of smaller size than the target animal from springing the trap, thus allowing a degree of selectivity not available with many other methods. Effective trap placement greatly contributes to trap selectivity. Another advantage to use of the leghold trap is that it is a livetraps, which generally permits the release of nontarget animals.

Disadvantages of using leghold traps include the difficulty of keeping them in operation during rain, snow, or freezing weather. In addition, they lack selectivity where nontarget species of similar size to target species are abundant. The selectivity of leghold traps is an important issue and has been shown to be a function of how they are used. The type of set and attractant used significantly influences both capture efficiency and the risk of catching nontarget animals.

The use of leghold traps in the ADC program is costly due to the amount of manpower and time involved. The leghold trap, however, is indispensable in resolving many animal damage situations.

ADC will implement the reasonable and prudent measures contained in the July 28, 1992 Biological Opinion. The review and analysis of the Roseburg ADC District program to protect livestock and wildlife shows that none of the chemicals (Strychnine) are used to protect livestock or wildlife, so this reasonable and prudent measure does not apply to the scope of this review. ADC will conduct daily checks for carcasses or trapped individuals when bald eagles are in the immediate vicinity of a proposed control program.

Terms and Conditions of the BO that apply to non-chemical methods:

In order to be exempt from the prohibitions of section 9 of the Act, ADC will comply with the following terms and conditions which implement the reasonable and prudent measures described above.

1. ADC personnel shall contact either the local State fish and game agency or the appropriate regional or field office of the Service to determine nest and roost locations.
3. The appropriate U.S. Fish and Wildlife Service office shall be notified within 5 days of the finding of any dead or injured bald eagle. Cause of death, injury, or illness, if known, should be provided to those offices.
4. Leghold traps (except those used to trap mountain lions) shall be placed a minimum of 30 feet from above ground bait sets.

Condition 2 of the BO dealt solely with southwestern U.S. populations of bald eagles and would not apply to the Roseburg, Oregon area.

With implementation of the reasonable and prudent alternatives and current ADC policy, it is unlikely that the proposed action will result in an incidental take of bald eagles in the Roseburg ADC District.

I have made a no effect determination on the Gray Wolf (*Canus lupus*) and the Pacific Fisher (*Martes pennanti pacifica*). In the case of the Gray Wolf, none are known to currently exist in Oregon. If the Service re-introduces wolves in Oregon, wolves naturally reestablish populations, or if ADC takes a wolf we will re-initiate consultation with the Service. ADC does not generally

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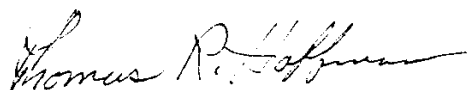
Russell D. Peterson

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conduct control activities in Fisher habitat and none have been taken by the program. The Fisher's arboreal nature precludes most possible impacts from ADC wildlife damage management activities.

If the ADC program is modified so as to possibly affect listed or proposed species or critical habitat, the ADC program will re-initiate consultation.

Sincerely,

A handwritten signature in cursive script that reads "Thomas R. Hoffman".

Thomas R. Hoffman
State Director

cc: Larry Thomas, Staff Officer, Endangered Species, Hyattsville, MD

FINAL



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Portland Field Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 Fax: (503)-231-6195

January 19, 1994

In Reply Refer To: 1-7-94-SP-120

Thomas R. Hoffman, State Director
Animal and Plant Health Inspection Service
Animal Damage Control
2600 SE 98th Avenue Suite 110
Portland, Oregon 97266

Dear Mr. Hoffman:

Pursuant to your conversation with Joseph Burns on January 6, 1993, the U.S. Fish and Wildlife Service (Service) is providing input for the National Environmental Policy Act (NEPA) analysis on wildlife damage management activities to protect livestock and wildlife resources in your southwestern Oregon district. This letter transmits information on listed and proposed endangered and threatened and candidate species that may be present within the area of [REDACTED] and [REDACTED] counties.

We have attached a list (Attachment A) of threatened and endangered species that may occur within the aforementioned counties. The list fulfills the requirement of the Service under Section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 USC 1531 et seq.). APHIS/ADC's requirements under the Act are outlined in Attachment B.

Pursuant to 50 CFR 402 et seq., APHIS/ADC is required to determine whether projects may affect threatened and endangered species, and/or critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) which are major Federal actions significantly affecting the quality of the human environment as defined in NEPA (42 U.S.C. 4332 (2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to the Biological Assessment be undertaken to determine whether they may affect listed and proposed species. Recommended contents of a Biological Assessment are described in Attachment B, as well as 50 CFR 401.12.

If APHIS/ADC determines, based on the Biological Assessment or evaluation, that threatened and endangered species and/or critical habitat may be affected by the project, APHIS/ADC is required to consult with the Service following the requirements of 50 CFR 402 which implement the Act.

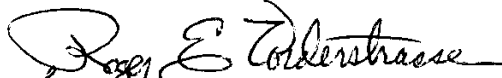
Attachment A includes a list of candidate species under review for listing. These candidate species have no protection under the Act but are included for consideration as it is possible candidates could be listed prior to project completion. Thus, if a proposed project may affect candidate species, APHIS/ADC is not required to perform a Biological Assessment or evaluation or consult with the Service. However, the Service recommends addressing potential impacts to candidate species to prevent future conflicts. Therefore, if early evaluation of the project indicates that it is likely to adversely impact a candidate species, APHIS/ADC may wish to request technical assistance from this office.

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Your interest in endangered species is appreciated. If you have questions regarding your responsibilities under the Act, please contact Joseph Burns at (503) 231-6179. All correspondence should include the above referenced case number.

Sincerely,


Russell D. Peterson
Field Supervisor

Enclosures

cc: PFO-ES
BFO-SE
ODFW (Nongame)
ONHP

ONHP/JB/NP/SP120

FINAL

Attachment-A

● COUNTY

Scientific Name/Common Name/USFWS Status/Last observed

Animals

PLETHODON ELONGATUS	DEL NORTE SALAMANDER	C2	1975-04-20
RANA PRETIOSA	SPOTTED FROG	C2	1939
BRACHYRAMPHUS MARMORATUS	MARbled MURRELET	LT	1989
BRANTA CANADENSIS LEUCOPAREIA	ALEUTIAN CANADA GOOSE	LT	1992-04-12
CHARADRIUS ALEXANDRINUS	SNOWY PLOVER	LTC2	1987-
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1990-11-00
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
PELECANUS OCCIDENTALIS	BROWN PELICAN	LE	1985-
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991-
ARBORIMUS (=PHENACOMYS)	WHITE-FOOTED VOLE	C2	1972-06-07
ALBIPES			
EUMETOPIAS JUBATUS	NORTHERN SEA LION	LT	1983-10
CLEMMYS MARMORATA MARMORATA	NORTHWESTERN POND TURTLE	C2	1992-07-28
ACNEUS BURNELLI	BURNELL'S FALSE WATER PENNY	C2	1960-07-11
	BEETLE		
ALGAMORDA NEWCOMBIANA	NEWCOMB'S LITTORINE SNAIL	C2	

Plants

ABRONIA UMBELLATA SSP.	PINK SANDVERBENA	C2	1947-07-13
BREVIFLORA			
BENSONIELLA OREGONA	BENSONIA	C2	1991-06-12
DYLANTHUS MARITIMUS SSP	SALT-MARSH BIRD'S-BEAK	C2	1992-08-05
PALUSTRIS			
PHACELIA ARGENTEA	SILVERY PHACELIA	C2	1984-05-01
LILIUM OCCIDENTALE	WESTERN LILY	PE	1992-06-16

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Animals

PLETHODON ELONGATUS	DEL NORTE SALAMANDER	C2	1990-06-06
RANA AURORA AURORA	NORTHERN RED-LEGGED FROG	C2	1990-08-17
BRACHYRAMPHUS MARMORATUS	MARbled MURRELET	LT	1989
BRANTA CANADENSIS LEUCOPAREIA	ALEUTIAN CANADA GOOSE	LT	1992-04-12
CHARADRIUS ALEXANDRINUS	SNOWY PLOVER	LTC2	1989
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1991-
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
PELECANUS OCCIDENTALIS	BROWN PELICAN	LE	1991-08
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991
ARBORIMUS (=PHENACOMYS)	WHITE-FOOTED VOLE	C2	1969-03-16
ALBIPES			
EUMETOPIAS JUBATUS	NORTHERN SEA LION	LT	1978-06
MARTES PENNANTI PACIFICA	PACIFIC FISHER	C2	1984-07-04
PLECOTUS TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2	1990-08
TOWNSENDII			
THOMOMYS MAZAMA HELLERI+	GOLD BEACH POCKET GOPHER	C2	1970-PRE
THOMOMYS UMRINUS (=BOTTAE)	PISTOL RIVER POCKET GOPHER	C2	1970-PRE
DETUMIDUS+			
CLEMMYS MARMORATA MARMORATA	NORTHWESTERN POND TURTLE	C2	1992-07-25

Plants

ONIA UMBELLATA SSP	PINK SANDVERBENA	C2	1990-09-05
BREVIFLORA			
ARABIS SP ('MACDONALDIANA')	RED MT. ROCKCRESS	C2	1983-05
BENSONIELLA OREGONA	BENSONIA	C2	1991-09-25
CARDAMINE GEMMATA	PURPLE TOOTHWORT	C2	
FRASERA UMPQUAENSIS	UMPQUA SWERTIA	C2	1987-08-08
GENTIANA SETIGERA	ELEGANT GENTIAN	C2	1990-08-30
LASTHENIA MACRANTHA SSP	LARGE-FLOWERED GOLDFIELDS	C2	1984-07-29
PRISCA			
LEWISIA COTYLEDON VAR PURDYI	PURDY'S LEWISIA	C2	1975-
MICROSERIS HOWELLII	HOWELL'S MICROSERIS	C2	1992
OENOTHERA WOLFII	WOLF'S EVENING-PRIMROSE	C1	1992-06-16
PHACELIA ARGENTEA	SILVERY PHACELIA	C2	1992-06-25
CALOCHORTUS HOWELLII	HOWELL'S MARIPOSA LILY	C2	1990-08-20
CYPRIPEDIUM FASCICULATUM	CLUSTERED LADY'S-SLIPPER	C2	
LILIUM OCCIDENTALE	WESTERN LILY	PE	1991-07-18

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RANA PRETIOSA	SPOTTED FROG	C2	
ACCIPITER GENTILIS	NORTHERN GOSHAWK	C2	1986-06-09
CENTROCERCUS UROPHASIANUS	WESTERN SAGE GROUSE	C2	1992-04
PHAIOS			
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1986-03-30
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991-07-29
SALVELINUS CONFLUENTUS	BULL TROUT	C2	
BRACHYLAGUS IDAHOENSIS	PYGMY RABBIT	C2	19---
CANIS LUPUS	GRAY WOLF	LELT	
FELIS LYNX CANADENSIS	NORTH AMERICAN LYNX	C2	
GULO GULO LUTEUS	CALIFORNIA WOLVERINE	C2	1980-07-20
MARTES PENNANTI PACIFICA	PACIFIC FISHER	C2	1982-06
PLECOTUS TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2	1990-11-27
TOWNSENDII			
OCHROTRICHIA ALSEA	ALSEA OCHROTRICHIAN MICRO CADDISFLY	3C	1961-07
OCHROTRICHIA PHENOSA	DESCHUTES OCHROTRICHIAN MICRO CADDISFLY	C2	1939-07-28

Plants

EMISIA LUDOVICIANA SSP ESTESII	ESTES' ARTEMISIA	C2	1991-07-05
ASTRAGALUS PECKII	PECK'S MILK-VETCH	C2	1992-09-13
CASTILLEJA CHLOROTICA	GREEN-TINGED PAINTBRUSH	C2	1990-07-20
PENSTEMON PECKII	PECK'S PENSTEMON	C2	1990-09-12
BOTRYCHIUM PUMICOLA	PUMICE GRAPE-FERN	C2	1987-09-20

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Animals

RANA AURORA AURORA	NORTHERN RED-LEGGED FROG	C2	1991-09-18
RANA CASCADAЕ	CASCADE FROG	C2	1992-05-13
ACCIPITER GENTILIS	NORTHERN GOSHAWK	C2	1992-07-13
BRACHYRAMPHUS MARMORATUS	MARBLEД MURRELET	LT	1991
CHARADRIUS ALEXANDRINUS	SNOWY PLOVER	LTC2	1988-
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1991-
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
HISTRIONICUS HISTRIONICUS	HARLEQUIN DUCK	C2	1985-05-28
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991-06-18
ARBORIMUS (=PHENACOMYS)	WHITE-FOOTED VOLE	C2	1972-03-30
ALBIPES			
CANIS LUPUS	GRAY WOLF	LELT	1930-08-20
GULO GULO LUTEUS	CALIFORNIA WOLVERINE	C2	1979-12-26
MARTES PENNANTI PACIFICA	PACIFIC FISHER	C2	1980-02
ODOCOILEUS VIRGINIANUS	COLUMBIAN WHITE-TAILED DEER	LE	1982-
LEUCURUS			
PLECOTUS TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2	1990-08
TOWNSENDII			
CLEMMYS MARMORATA MARMORATA	NORTHWESTERN POND TURTLE	C2	1992-07-26
APATANIA (=RADEMA) TAVALA	CASCADES APATANIAN CADDISFLY	C2	1990-11-01
CERACLEA (=ATHRIPSODES)	VERTREES'S CERACLEAN	C2	1982-06-10
VERTREESI	CADDISFLY		
RACHYCENTRUS GELIDAE	MT HOOD PRIMITIVE	C2	1900-06-14
	BRACHYCENTRID CADDISFLY		
FARULA REAPIRI	TOMBSTONE PRAIRIE FARULAN	C2	1990-06-14
	CADDISFLY		
OCHROTRICHIA ALSEA	ALSEA OCHROTRICHIAN MICRO	3C	1980-07
	CADDISFLY		
OCHROTRICHIA VERTREESI	VERTREES'S OCHROTRICHIAN	C2	1966-06-31
	MICRO CADDISFLY		

Plants

ABRONIA UMBELLATA SSP	PINK SANDVERBENA	C2	1978
BREVIFLORA			
ARABIS KOEHLERI VAR KOEHLERI	KOEHLER'S ROCKCRESS	C2	1992-03-03
ASTER VIALIS	WAYSIDE ASTER	C2	1992-07-09
BENSONIELLA OREGONA	BENSONIA	C2	1992-06-02
COLLOMIA MAZAMA	MT. MAZAMA COLLOMIA	C2	1992-06-30
EPILOBIUM OREGANUM	OREGON WILLOW-HERB	C2	1916-
FRASERA UMPQUAENSIS	UMPQUA SWERTIA	C2	1991-08-04
LIMNANTHES GRACILIS VAR	SLENDER MEADOW-FOAM	C2	1989-04-24
GRACILIS			
LUPINUS SULPHUREUS VAR	KINCAID'S LUPINE	C2	1992-06-30
KINCAIDII			
PERIDERIDIA ERYTHRORHIZA	RED-ROOT YAMPAH	C2	1989-08-24
PLAGIOBOTHRYС HIRTUS	ROUGH POPCORN FLOWER	C1	1990-06
CALOCHORTUS COXII	COX'S MARIPOSA LILY	C2	1992-06-15
CHORTUS UMPQUAENSIS	UMPQUA MARIPOSA-LILY	C1	1992-07-02
TRIPEDIUM FASCICULATUM	CLUSTERED LADY'S-SLIPPER	C2	1992-07-08

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Animals

PLETHODON ELONGATUS	DEL NORTE SALAMANDER	C2	1963-05
PLETHODON STORMI	SISKIYOU MOUNTAINS SALAMANDER	C2	1990-10-31
RANA AURORA AURORA	NORTHERN RED-LEGGED FROG	C2	1971-05-10
RANA CASCADEAE	CASCADE FROG	C2	1990-08-03
RANA PRETIOSA	SPOTTED FROG	C2	198 -
ACCIPITER GENTILIS	NORTHERN GOSHAWK	C2	1990-06-26
AGELAIUS TRICOLOR	TRICOLORED BLACKBIRD	C2	1983
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1991-07-05
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
IXOBRYCHUS EXILIS HESPERIS	WESTERN LEAST BITTERN	C2	1961-07-29
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991
CATOSTOMUS RIMICULUS SSP 1+	JENNY CREEK SUCKER	C2	1981
CANIS LUPUS	GRAY WOLF	LELT	
GULO GULO LUTEUS	CALIFORNIA WOLVERINE	C2	1970-08
MARTES PENNANTI PACIFICA	PACIFIC FISHER	C2	1990-06-05
PLECOTUS TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2	1991-05-05
TOWNSENDII			
CLEMMYS MARMORATA MARMORATA	NORTHWESTERN POND TURTLE	C2	1992-05-25
AGAPETUS DENNINGI	DENNING'S AGAPETUS CADDISFLY	C2	
CHLOEALTI ASPASMA	SISKIYOU CHLOEALTI	C2	1973
	CADDISFLY		
FARULA DAVISI	GREEN SPRINGS MOUNTAIN	C2*	1950-
	FARULAN CADDISFLY		
ACOPHILA FENDERI	FENDER'S RHYACOPHILAN	3C	1985-08-03
	CADDISFLY		
TINODES SISKIYOU	SISKIYOU CADDISFLY	C2	1950-09-10

Plants

CARDAMINE GEMMATA	PURPLE TOOTHWORT	C2	
COLLOMIA MAZAMA	MT. MAZAMA COLLOMIA	C2	1991-07-25
FRASERA UMPQUAENSIS	UMPQUA SWERTIA	C2	1989-07-09
HORKELIA HENDERSONII	HENDERSON'S HORKELIA	C2	1987-07-06
LIMNANTHES FLOCCOSA SSP	BELLINGER'S MEADOW-FOAM	C2	1988-04-
BELLINGERIANA			
LIMNANTHES FLOCCOSA SSP	BIG-FLOWERED WOOLY MEADOWFOAM	C2	1991-05-30
GRANDIFLORA			
LIMNANTHES FLOCCOSA SSP	DWARF WOOLY MEADOW-FOAM	C1	1984-05
PUMILA			
LIMNANTHES GRACILIS VAR	SLENDER MEADOW-FOAM	C2	1927-04-20
GRACILIS			
LOMATIUM COOKII	AGATE DESERT LOMATIUM	C1	1992-04-07
LUPINUS ARIDUS SSP	MT. ASHLAND LUPINE	C1	1987-07-03
ASHLANDENSIS			
MICROSERIS LACINIATA SSP	DETLING'S MICROSERIS	C2	1982-07-09
DETLINGII			
MIMULUS PYGMAEUS	PYGMY MONKEYFLOWER	C2	1987-05
OENOTHERA WOLFII	WOLF'S EVENING-PRIMROSE	C1	1949-
LAGIOBOTHRYUS FIGURATUS	CORAL SEEDED ALLOCARYA	C2*	1991-06-20
VAR CORALLICAPUS			

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ANUNCULUS AUSTRORREGANUS	SOUTHERN OREGON BUTTERCUP	C2	1992-04-06
TRIPPA COLUMBIAE	COLUMBIA CRESS	C2	1916-08-25
DUM OBLANCEOLATUM	APLEGATE STONECROP	C2	1992-02-24
TAUSCHIA HOWELLII	HOWELL'S TAUSCHIA	C2	1990-07-24
AGROSTIS MICROPHYLLA	HENDERSON'S BENTGRASS	C2	1930-05-04
VAR HENDERSONII			
CALOCHORTUS GREENEI	GREENE'S MARIPOSA LILY	C2	1990-06-10
CALOCHORTUS UMPQUAENSIS	UMPQUA MARIPOSA-LILY	C2	1990-06-20
CAMASSIA HOWELLII	HOWELL CAMASSIA	C2	1990-06-25
CYPRIPEDIUM FASCICULATUM	CLUSTERED LADY'S-SLIPPER	C2	1991-10-02
FRITILLARIA GENTNERI	GENTNER'S FRITILLARIA	C1	1988-07-25

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Animals

PLETHODON ELONGATUS	DEL NORTE SALAMANDER	C2	1992-05-01
PLETHODON STORMI	SISKIYOU MOUNTAINS SALAMANDER	C2	1974-
RANA AURORA AURORA	NORTHERN RED-LEGGED FROG	C2	1973-04-21
ACCIPITER GENTILIS	NORTHERN GOSHAWK	C2	1975-06
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1991-07-20
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991
CANIS LUPUS	GRAY WOLF	LELT	1924-07-22
GULO GULO LUTEUS	CALIFORNIA WOLVERINE	C2	1985-10-11
PLECOTUS TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2	1992-01-14
TOWNSENDII			
CLEMMYS MARMORATA MARMORATA	NORTHWESTERN POND TURTLE	C2	1992-04-30
HOMOPLECTRA SCHUHI	SCHUH'S HOMOPLECTRAN	C2	1968-07
	CADDISFLY		
RHYACOPHILA COLONUS	O'BRIEN RHYACOPHILAN	C2	1965-06
	CADDISFLY		

Plants

BENSONIELLA OREGONA	BENSONIA	C2	1991-09-11
CARDAMINE GEMMATA	PURPLE TOOTHWORT	C2	1992-06-07
LOBIUM OREGANUM	OREGON WILLOW-HERB	C2	1990-08-30
SERA UMPQUAENSIS	UMPQUA SWERTIA	C2	1988-05-25
GENTIANA SETIGERA	ELEGANT GENTIAN	C2	1990-09-12
LEWISIA COTYLEDON VAR PURDYI	PURDY'S LEWISIA	C2	1990-05-21
LIMNANTHES GRACILIS VAR	SLENDER MEADOW-FOAM	C2	1992-05-23
GRACILIS			
LOMATIUM COOKII	AGATE DESERT LOMATIUM	C1	1988-05-18
MICROSERIS HOWELLII	HOWELL'S MICROSERIS	C2	1991-07
PERIDERIDIA ERYTHORRHIZA	RED-ROOT YAMPAH	C2	1984-08-17
PLAGIOBOTHRYIS FIGURATUS	CORAL SEEDED ALLOCARYA	C2	1921-06-02
VAR CORALLICARPUS			
SEDUM MORANII	ROGUE RIVER STONECROP	C2	1991-07-04
SENECIO HESPERIUS	WESTERN SENECIO	C2	1992-06-07
SOPHORA LEACHIANA	WESTERN NECKLACE	C2	1991-06-26
CALOCHORTUS HOWELLII	HOWELL'S MARIPOSA LILY	C2	1990-08-20
CALOCHORTUS INDECORUS	SEXTON MT. MARIPOSA-LILY	C2*	1948-05-20
CALOCHORTUS UMPQUAENSIS	UMPQUA MARIPOSA-LILY	C2	1992-06-30
CAMASSIA HOWELLII	HOWELL CAMASSIA	C2	1992-05-21
CYPRIPEDIUM FASCICULATUM	CLUSTERED LADY'S-SLIPPER	C2	1992-05-25
FRITILLARIA GENTNERI	GENTNER'S FRITILLARIA	C2	1982-05-10
HASTINGSIA BRACTEOSA	LARGE-FLOWERED RUSH-LILY	C1	1989-05-31

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Animals

RANA CASCADEAE	CASCADE FROG	C2	1990-07-21
RANA PRETIOSA	SPOTTED FROG	C2	1990-06-30
ACCIPITER GENTILIS	NORTHERN GOSHAWK	C2	1988-07-31
AGELAIUS TRICOLOR	TRICOLORED BLACKBIRD	C2	1986-04-16
CENTROCERCUS UROPHASIANUS	WESTERN SAGE GROUSE	C2	1976-08
PHAIOS			
CHARADRIUS ALEXANDRINUS	SNOWY PLOVER	LTC2	1982-06-24
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1991-06-18
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
HISTRIONICUS HISTRIONICUS	HARLEQUIN DUCK	C2	1979-05
IXOBRYCHUS EXILIS HESPERIS	WESTERN LEAST BITTERN	C2	1983-05-24
NUMENIUS AMERICANUS	LONG-BILLED CURLEW	3C	1978-08
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991-08-13
TYMPANUCHUS PHASIANELLUS	COLUMBIAN SHARP-TAILED GROUSE	C2	1892
COLUMBIANUS			
CATOSTOMUS RIMICULUS SSP 1+	JENNY CREEK SUCKER	C2	1981
CHASMISTES BREVIROSTRIS	SHORTNOSE SUCKER	LE	1985-06-10
DELTISTES LUXATUS	LOST RIVER SUCKER	LE	1986-05
ONCORHYNCHUS MYKISS GIBBSI	INLAND REDBAND TROUT	C2	1979-07-06
SALVELINUS CONFLUENTUS	BULL TROUT	C2	1985
BRACHYLAGUS IDAHOENSIS	PYGMY RABBIT	C2	1972-
CANIS LUPUS	GRAY WOLF	LELT	1930
FELIS LYNX CANADENSIS	NORTH AMERICAN LYNX	C2	19---
URSUS GULO LUTEUS	CALIFORNIA WOLVERINE	C2	1992-04-14
ARTES PENNANTI PACIFICA	PACIFIC FISHER	C2	1981-01
CLEMMYS MARMORATA	NORTHWESTERN POND TURTLE	C2	1987-06-29
APATANIA (=RADEMA) TAVALA	CASCADES APATANIAN CADDISFLY	C2	1990-09-14
HOMOPLECTRA SCHUHI	SCHUH'S HOMOPLECTRAN	C2	1963-05
	CADDISFLY		
PISIDIUM ULTRAMONTANUM	OREGON PEARLY MUSSEL	C2	1959-10-05

Plants

ARABIS SUFFRUTESCENS VAR HORIZONTALIS	CRATER LAKE ROCKCRESS	C2	1989-07-25
ASTRAGALUS APPLIGATEI	APPLIGATE'S MILK-VETCH	LT	1993-
ASTRAGALUS PECKII	PECK'S MILK-VETCH	C2	1992-08-11
COLLOMIA MAZAMA	MT. MAZAMA COLLOMIA	C2	1990-07-26
LIMNANTHES FLOCCOSA SSP BELLINGERIA	BELLINGER'S MEADOW-FOAM	C2	1990-07-02
MIMULUS PYGMAEUS	PYGMY MONKEYFLOWER	C2	1990-05-29
PENSTEMON GLAUCINUS	BLUE-LEAVED PENSTEMON	C2	1992-08-04
PERIDERIDIA ERYTHORHIZA	RED-ROOT YAMPAH	C2	1989-07
RORIPPA COLUMBIAE	COLUMBIA CRESS	C2	1983-08-11
CALOCHORTUS GREENEI	GREENE'S MARIPOSA LILY	C2	1978
CALOCHORTUS LONGEBARBATUS VAR LONGEBARBATUS	LONG-BEARDED MARIPOSA-LILY	C2	1992-07-10
BOTRYCHIUM PUMICOLA	PUMICE GRAPE-FERN	C2	1992-08-18

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	<u>Plants</u>		
	ACCIPITER GENTILIS	NORTHERN GOSHAWK	C2 1977-05
	CENTROCERCUS UROPHASIANUS	WESTERN SAGE GROUSE	C2 1983-03
	PHAIOS		
	CHARADRIUS ALEXANDRINUS	SNOWY PLOVER	C1C2 1988-07
	FALCO PEREGRINUS	PEREGRINE FALCON	LE 1984-07
	HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT 1992-03-27
	NUMENIUS AMERICANUS	LONG-BILLED CURLEW	3C 1990-05-24
	PLEGADIS CHIHI	WHITE-FACED IBIS	C2 1990-06-17
	STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT 1991
	TYMPANUCHUS PHASIANELLUS	COLUMBIAN SHARP-TAILED GROUSE	C2 1940-07-09
	COLUMBIANUS		
	CATOSTOMUS MICROPS+	MODOC SUCKER	LE 1930
	CATOSTOMUS OCCIDENTALIS	GOOSE LAKE SUCKER	C2 1979-08-04
	LACUSANSERINUS		
	CATOSTOMUS WARNERENSIS	WARNER SUCKER	LT 1990-07
	GILA BICOLOR EURYSOMA	SHELDON TUI CHUB	C2 1979-08-23
	GILA BICOLOR OREGONENSIS	OREGON LAKES TUI CHUB	C2 1977-07-12
	GILA BICOLOR SSP 1	HUTTON SPRING TUI CHUB	LT 1983-08
	GILA BICOLOR SSP 13	SUMMER BASIN TUI CHUB	C1 1986-10-08
	GILA BICOLOR SSP 2	CATLOW TUI CHUB	C2 1955-06-30
	ONCORHYNCHUS MYKISS GIBBSI	INLAND REDBAND TROUT	C2 1979-08-23
	ONCORHYNCHUS MYKISS SSP 1	GOOSE LAKE REDBAND TROUT	C2 1976-10-18
	ONCORHYNCHUS MYKISS SSP 3	FOSKETT SPRING SPECKLED DACE	LT 1982-08
	OSMYCHTHYS OSCULUS SSP 3		
	VELINUS CONFLUENTUS	BULL TROUT	C2 1979-08-22
	TRACHYLAGUS IDAHOENSIS	PYGMY RABBIT	C2 1983
	CANIS LUPUS	GRAY WOLF	LELT 1927-06-27
	GULO GULO LUTEUS	CALIFORNIA WOLVERINE	C2 1979-
	PLECOTUS TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2 1985-
	TOWNSENDII		
	HYDROPSYCHE ABELLA	ABELLAN HYDROPSYCHE CADDISFLY	C2 1968-08-01
	PISIDIUM ULTRAMONTANUM	OREGON PEARLY MUSSEL	C2 1926
	<u>Plants</u>		
	CASTILLEJA CHLOROTICA	GREEN-TINGED PAINTBRUSH	C2 1989-08-09
	ERIOGONUM CROSBYAE	CROSBY'S BUCKWHEAT	C2 1984-07-19
	ERIOGONUM PROCIDUUM	PROSTRATE BUCKWHEAT	C2 1991-06-28
	GRATIOLA HETEROSEPALA	BOGGS LAKE HEDGE-HYSSOP	3C 1989-06-28
	IVESIA RHYPARA VAR RHYPARA	GRIMY IVESIA	C2 1988-07-06
	IVESIA RHYPARA VAR SHELLYI	SHELLY'S IVESIA	C2 1987-08-24
	PENSTEMON GLAUCINUS	BLUE-LEAVED PENSTEMON	C2 1989-08-09
	RORIPPA COLUMBIAE	COLUMBIA CRESS	C2 1989-07-18
	PLEUROPOGON OREGONUS	OREGON SEMAPHORE GRASS	C1 1986-06-26
	BOTRYCHIUM PUMICOLA	PUMICE GRAPE-FERN	C2 1990-06-21

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Animals

RANA AURORA AURORA	NORTHERN RED-LEGGED FROG	C2	1991-06-06
RANA PRETIOSA	SPOTTED FROG	C2	1983-08-22
BRACHYRAMPHUS MARMORATUS	MARbled MURRELET	LT	1991-08-14
CHARADRIUS ALEXANDRINUS	SNOWY PLOVER	C1C2	1988-
FALCO PEREGRINUS	PEREGRINE FALCON	LE	1991-07-08
HALIAEETUS LEUCOCEPHALUS	BALD EAGLE	LT	1992-
HISTRIONICUS HISTRIONICUS	HARLEQUIN DUCK	C2	1992-08-20
PELECANUS OCCIDENTALIS	BROWN PELICAN	LE	1972-
STRIX OCCIDENTALIS CAURINA	SPOTTED OWL	LT	1991-07-23
ARBORIMUS (=PHENACOMYS) ALBIPES	WHITE-FOOTED VOLE	C2	1973-04-10
CANIS LUPUS	GRAY WOLF	LELT	1931-01-01
EUMETOPIAS JUBATUS	NORTHERN SEA LION	LT	197--
GULO GULO LUTEUS	CALIFORNIA WOLVERINE	C2	1990-07-17
MARTES PENNANTI PACIFICA	PACIFIC FISHER	C2	1985-12
ODOCOILEUS VIRGINIANUS LEUCURUS	COLUMBIAN WHITE-TAILED DEER	LE	
PLECOTUS TOWNSENDII TOWNSENDII	PACIFIC WESTERN BIG-EARED BAT	C2	1989-11-09
CLEMMYS MARMORATA MAMORATA	NORTHWESTERN POND TURTLE	C2	1990-09-30
FARULA REAPIRI	TOMBSTONE PRAIRIE FARULAN CADDISFLY	C2	
MARICIA ICARIOIDES FENDERI	FENDER'S BLUE BUTTERFLY	C2	1992-05-15
NEPHILUS ATERCUS	FORT DICK LIMNENPHILUS CADDISFLY	C2	1969-07
OLIGOPHLEBODES MOSTBENTO	TOMBSTONE PRAIRIE OLIGOPHLEBODES CADDISFLY	C2	1982-06
RHYACOPHILA FENDERI	FENDER'S RHYACOPHILAN CADDISFLY	3C	1978-08-29
RHYACOPHILA UNIPUNCTATA	ONE-SPOT RHYACOPHILAN CADDISFLY	C2	1965-06
SPEYERIA ZERENE HIPPOLYTA	OREGON SILVERSPOT BUTTERFLY	LT	1986-09

Plants

ABRONIA UMBELLATA SSP BREVIFLORA	PINK SANDVERBENA	C2	1978
ASTER CURTUS	WHITE-TOPPED ASTER	C2	1992-09-01
ASTER VIALIS	WAYSIDE ASTER	C2	1992-08-20
ERIGERON DECUMBENS SSP DECUMBENS	WILLAMETTE VALLEY DAISY	C1	1992-06-03
FRASERA UMPQUAENSIS	UMPQUA SWERTIA	C2	1991-10-28
LATHYRUS HOLOCHLORUS+	THIN-LEAVED PEAVINE	3C	1985-05-06
LOMATIUM BRADSHAWII	BRADSHAW'S LOMATIUM	LE	1992-04-27
LUPINUS SULPHUREUS VAR KINCAIDII	KINCAID'S LUPINE	C2	1991-06-04
MONTIA HOWELLII	HOWELL'S MONTIA	C2	1991-04-30

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Species are arranged in the following order: vertebrate, invertebrate, non-molluscan, plant. For the animals they are in the following order: amphibian, bird, fish, mammal, and reptile. For plants, they are in the following order: dicot, monocot, pteridophytes.

+ = These species are not currently being computer tracked although they were once.

(E) - Endangered (T) - Threatened (CH) - Critical Habitat
(S) - Suspected (D) - Documented

- (C1)- Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.
- (C2)- Category 2: Taxa for which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking.
- (3A)- Category 3A: Taxa for which the Service has persuasive evidence of extinction.
- (3B)- Category 3B: Names that on the basis of current taxonomic understanding do not represent taxa meeting the Act's definition of "species."
- (3C)- Category 3C: Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

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ATTACHMENT B

FEDERAL AGENCIES RESPONSIBILITIES UNDER SECTIONS 7(a) and (c) OF THE ENDANGERED SPECIES ACT

SECTION 7(a) - Consultation/Conference

Requires: 1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;

2) Consultation with FWS when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of Critical Habitat. The process is initiated by the Federal agency after they have determined if their action may affect (adversely or beneficially) a listed species; and

3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed Critical Habitat.

SECTION 7(c) - Biological Assessment for Major Construction Projects ^{1/}

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify any proposed and/or listed species which are/is likely to be affected by a construction project. The process is initiated by a Federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, the accuracy of the species list should be informally verified with our Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an on-site inspection of the area to be affected by the proposal which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or for potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within FWS, National Marine Fisheries Service, State conservation departments, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. The BA should conclude whether or not a listed or proposed species will be affected. Upon completion, the report should be forwarded to our Portland Office.

^{1/}A construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332.(2)c). On projects other than construction, it is suggested that a biological evaluation similar to the biological assessment be undertaken to conserve species influenced by the Endangered Species Act.

APPENDIX D

SCOPING

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ISSUES FROM SCOPING LETTER

- I. Wildlife:
 1. Predator/Prey Relationships (Chap. 2-22)
 2. Impact of Non-Target Species (Chap. 1-18)
 3. T & E Species and Sensitive (Chap. 2 - Working on this section now)
 4. Increasing predator populations are resulting in more predation (Chap. 1 & Chap.2)
 5. What is the short-term, cumulative, and indirect impacts on wildlife populations (Chap 2.)
 6. Better Population information on target and non-target species and monitoring impact (Opinion - ODFW has good population assessments - Chap 2)

- II. ADC Methods:
 1. Aerial are we using Steel Shot (Need to address in Chap. 3)
 2. Current program has no harmful effects (Chap. 2)
 3. A wide range of control methods should be available (Chap. 3)
 4. ADC uses outdated techniques (Chap. 3)
 5. Analyze each method (lethal/non-lethal) for effectiveness and cost benefit (Chap. 3 add data as needed)
 6. No denning on Public Land (Chap. 3)
 7. LPC should be used and paid for by the Producer (Chap.3)
 8. Impacts of M-44's (reference other documents) (Chap. 3)

- III Control Strategies:
 1. Preventive control for (livestock and wildlife) (Chap. 3)
 2. Priority to Non-lethal and no Preventive (Chap. 3 expand)
 3. Are ranchers using Husbandry (Note discuss with non-lethal - Chap. 3)
 4. Costs to kill coyote is compensation a better alternative (insurance, etc.) (Chap. 3 - See SDEIS)
 5. Non-Lethal (opposed to program direction for Non-Lethal) (Chap. 3 see IPM)
 6. Relocation of bear and cougar creates problems (Chap 3. - ODFW policy - beef up as needed)
 7. Is Non-Lethal control effective? (Chap. 3 IPM expand as needed)
 8. Is Lethal Control Effective and Economical (Chap. 3 IPM expand as needed)
 9. Is Lethal Control necessary (Chap. 3 IPM expand as need)
 10. Opposed to Lethal Control except for Human Health and T&E Species (WE NEED TO DEAL WITH ISSUE OF OPPOSITION TO LETHAL CONTROL - ESSENTIAL TO IPM)
 11. Control for Human Safety only and only when all non-lethal control is exhausted (Chap. 3 IPM)

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12. Objectives should show a clear criteria for moving from: Non-lethal to Lethal; Corrective to Preventative (Chap. 3 discuss need for preventive control - IPM)
 13. Clear criteria for Lethal control (Chap. 3 IPM)
 14. Is Sport Hunting a more viable means for controlling conflicts and damage caused by bear and cougar (Chap. ? ██████████ and ADC are doing this)
- IV. Animal Welfare/Animal Rights:
1. Methods outlined are indiscriminate and inhumane (Need to deal with this issue)
- V. Public Lands:
1. There is greater wildlife damage on private property adjoining federal lands (██████/FS) (Chap. 1)
 2. Concern of ADC activities in high human use areas (Chap. 3 - expand to show consideration in AWP's and mitigation)
 3. No ADC on Public Land (Authority - Appendix A, MOUs, etc. No Control Alternative)
 4. No ADC during bird and big game season (add to mitigation)
 5. No denning on Public Land (Chap. 3)
 6. Control should cease when livestock leave allotment (Public Land) (Chap. 3 current program - see discussion of preventive control)
 7. Permittee's should do their own control (Authority, No Control Alternative)
- VI. Economics:
1. Cost benefit of program (Chap. 1-5 - add Connolly data)
 2. Is Lethal Control Economical (See Discussions in Chap. 3)
 3. ADC should not be at taxpayer expense (Chap. 1 & Appendix A Authority, No Control Alternative)
- VII. Monitoring:
1. How are we going to monitor the program to determine if objectives are met (Add monitoring plan under the Objectives)
 2. Impact on Aesthetics and Recreation (viewing) (Chap. 2)
- VIII. Authority:
1. ADC does not have authority to manage Wildlife Damage Management (Chap. 1 and Appendix A)
- IX. Scope of the EA:
1. Does the EA address Site Specific Issues (See Decision Model to be added)

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Suggested HSUS Alternative

ISSUES OUTSIDE OF THE SCOPE

1. Are we genetically changing coyotes (Outside Scope)
2. Wildlife Populations should not be manipulated for hunters and recreation (Outside Scope)
3. All toxicants should be banned (Outside Scope)
4. Threshold of Loss (Outside Scope) See SDEIS
5. There are not enough ADC people in the field to cover the area (Outside Scope)
6. The objectives are not reasonable (Opinion - Outside Scope)
7. Public Land Management (Grazing, Timber, AMP's out-of-date, (Outside Scope)
8. Nuisance Species should be fee based (Outside Scope - see pers. comm OGC)
9. Livestock losses are a cost of doing business (Outside Scope)

SEE ISSUE NOTES ON EACH RESPONSE

APPENDIX E
ACRONYMS
&
GLOSSARY

FINAL

APPENDIX E

ACRONYMS AND GLOSSARY

ACRONYMS

ACEC	Area of Critical Environmental Concern
ADC	Animal Damage Control
APHIS	Animal and Plant Health Inspection Service
AWP	Annual Work Plan
BLM	Bureau of Land Management
CBC	Christmas Bird Counts
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DWRC	Denver Wildlife Research Center
EA	Environmental Analysis
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement on the national ADC program
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
IPM	Integrated Pest Management
IRC	Internal Revenue Code
IWDM	Integrated Wildlife Damage Management
LPC	Livestock Protection Collar
LRMP	Land and Resource Management Plans
MIS	Management Information System
MOU	Memorandum of Understanding
NASS	National Agricultural Statistical Service
NEPA	National Environmental Policy Act
NF	National Forest (s)
NPS	National Park Service
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ROD	Record Of Decision
RMP	Resource Management Plan
T&E	Threatened and Endangered Species
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USDI	U.S. Department of Interior
WSA	Wilderness Study Area

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TERMS

Abundance: The number of individuals in a population of a species in a given unit of area

Annual Work Plan: A management plan developed jointly by the [REDACTED], USFS, ADC, [REDACTED], and [REDACTED] specifying when, where, how, and under what constraints wildlife damage management would be conducted during the next 12 months. The plan would include a map showing planned control, restricted control, no control, and special protection areas.

Allotment: A specific area of public lands within which grazing by one or more livestock operators is authorized.

Animal Behavior Modification: The use of scare tactics/devices to deter or repel animals that cause loss or damage to resources or property. It includes the use of electronic distress sounds, propane exploders, pyrotechnics, lights, scarecrows.

Animal/Livestock Husbandry: The use of livestock management practices, such as shed lambing, night penning, or employing herders and guarding dogs, to reduce mortality from weather, predation or other causes.

Animal Rights: A philosophical and political position that animals have inherent rights comparable to those of humans.

Animal Welfare: Concern for the well-being of individual animals, unrelated to the perceived rights of the animal or the ecological dynamics of the species.

Behavior Modification: see "Animal Behavior Modification"

Candidate Species: Any species being considered by the Secretary of the Interior for listing as an endangered or threatened species but is undergoing a status review or is proposed for listing.

Canid: A coyote, dog, fox, wolf or other member of the dog (Canidae) family.

Carnivore: A species that lives primarily meat (member of the Order Carnivora).

Carrying Capacity: The number of animals a given unit of habitat can support.

Compensation: Monetary reimbursement for loss of agricultural resources.

Confirmed Losses: Wildlife-caused losses or damages verified by APHIS-ADC. These figures usually represent only a fraction of the total losses.

Corrective Damage Management: Management actions applied when damage is occurring or after it has occurred.

Denning/Den Hunting: The process of locating burrows where predators (primarily coyotes) have their young and then euthanising the pups. The adult predators may also be euthanised.

Depredating Species: An animal species causing damage to or loss of crops, livestock, other agricultural resources, or wildlife.

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Depredation: The act of killing, damaging or consuming animals, crops or other agricultural resources.

Direct Control: Administration or supervision of wildlife damage management by ADC, often involving direct capture or intervention with depredating animals.

Diversity: The distribution and abundance of living organisms.

Draw Station: A livestock carcass, bone pile, or scented control area for the purpose of attracting target species, particularly coyotes.

Endangered Species: Federal designation for any species which is in danger of extinction throughout all or a significant portion of its range.

Environment: The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.

Environmental Assessment (EA): An analysis of the impact of a planned action to the environment to determine the significance of that action and whether an EIS is needed.

Environmental Impact Statement (EIS): A document prepared by a federal agency to analyze the anticipated environmental effects of a planned action or development, compiled with formal examination of options and risks.

Eradication: Elimination of specific wildlife pests from designated areas.

Forage: Food for animals, especially when taken by browsing or grazing.

Furbearer: An administrative or legal grouping of mammal species that are harvested for their fur.

Habitat: An environment that provides the requirements (i.e., food, water, and shelter) essential to development and sustained existence of a species.

Habitat Modification/Management: Protection, destruction or modification of a habitat to maintain, increase or decrease its ability to produce, support, or attract designated wildlife species.

Harvest Data: An estimation of the number of animals removed from a population.

Harvest Rate/Level: For any given wildlife species, the harvest or harvest level represents a ceiling population established by wildlife management specialists to regulate the harvest of a species. This value represents a proportion of the population that can be taken without adversely impacting the long-term maintenance of the population.

Humaneness: The perception of compassion, sympathy, or consideration for animals from the view point of humans.

Integrated Pest Management (IPM): The procedure of integrating and applying practical management methods, to keep pest species from reaching damaging levels while minimizing potentially harmful effects of pest management measures on humans, non-target species, and the environment, incorporating assessment methods to guide management decisions.

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Integrated Wildlife Damage Management: (See Integrated Pest Management) The IPM approach modified to the objective of managing damage rather than pest animal populations

Lethal Management Methods/Techniques: Wildlife damage management methods that result in the death of animals (e.g., M-44s, aerial shooting, calling and ground shooting, and denning).

Local Population: The population within an immediate specified geographical area causing damage to human health and safety, to other wildlife, or to forest, range, and agricultural resources.

Long-Term: An action, trend, or impact that affects the potential of a species to maintain its population through reproduction or immigration over an extended period of time.

Magnitude: Criteria used in this EA to evaluate the significance of impacts on species abundance. Magnitude refers to the number of animals removed in relation to their abundance.

Non-Lethal Control Methods/Techniques: Wildlife damage management methods or techniques that do not result in the death of target animals (e.g., live traps, repellents, fences, etc.).

Non-Target Species/Animal: An animal or local population that is inadvertently captured, killed, or injured during wildlife damage management. The same species may be either a target or non-target animal, depending on the control situation.

Offending Animal: The individual animal or animals within a specified area causing damage to human health and safety, to other wildlife, or to forest, range and agricultural resources.

Omnivore/Omnivorous: An animals that eats both animal and plant matter; a generalist, opportunistic feeder that eats whatever is available.

Open Range: Unfenced grazing lands.

Pesticide: A chemical substance used to control pest animals.

Pesticide Use Proposal (PUP): A procedure whereby, a petition is submitted to government agency(ies), and must be approved by the agency(ies), before a pesticide, in a specific formulation and purpose can be used.

Population: A group of organisms of the same species that occupies a particular area.

Predacide: A toxicant used to control or manage predators or damage caused by predators.

Predator: An animal that kills and consumes another animal.

Preventive Damage Management: Management applied before damage begins.

Prey: An animal that is killed and consumed by a predator.

Public Land: Land that is owned and controlled by a government agency (i.e., federal, state, regional, county or other municipal jurisdiction).

Pyrotechnics: Fireworks or projectiles used to frighten wildlife.

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Range Allotment: An area, usually on public land, allocated for the use of a prescribed number of grazing animals under a management plan.

Range Condition: The relative status of rangeland in terms of available forage.

Range Lambing: Lambs born on the open-range or pasture situation.

Rangeland: Land on which the natural plant cover is made up primarily of native grasses, forbs, or shrubs valuable for forage.

Raptors: Carnivorous bird species (e.g., owls, hawks, falcons) that prey on other birds, amphibians, reptiles, and mammals.

Registered Chemical: A chemical that has been approved by the appropriate governmental agency(ies), such as the EPA or ODA, for use in a specific formulation and for a specified purpose.

Repellent: A substance with taste, odor or tactile properties that discourages specific animals or species from using a food or place.

Requestor: An individual or agency(ies) that requests wildlife damage management assistance from ADC.

Sensitive Species: Those species designated, usually in cooperation with the State agency responsible for managing the species, as sensitive. They are those species that are: 1) under status review by the FWS/NMFS; or 2) whose numbers are declining so rapidly that Federal listing may become necessary; or 3) with typically small and widely dispersed populations; or 4) those inhabiting ecological refuge or other specialized or unique habitats. Sensitive species are managed under the same criteria as threatened and endangered species pending formal listing as a T&E species or until it is delisted.

Shed Lambing: Housing ewes and newborn lambs in pens or sheds to provide food, shelter, and medical care during and immediately after birth.

Short-Term: An action, trend, or impact that does not last long enough to affect the reproductive or survival capabilities of a species.

Significant Impact: An impact that will cause important positive or negative consequences to man and his environment.

Take: The capture or killing of an animal.

Target Species/Animal/Population: An animal or population at which wildlife damage management is directed to alleviate damage to agriculture and non-agriculture resources. The same species may be either a target or non-target, depending on the situation.

Technical Assistance: Advice, recommendations, information, demonstrations, and materials provided for others to use in managing wildlife damage problems.

Threatened Species: Federal designation for any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

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Total Harvest: The total number of individuals intentionally taken by humans from a population. Harvest does not include natural or accidental mortality.

Toxicant: A poison or poisonous substance.

Unconfirmed Losses: Losses or damage reported by resource owners or managers, but not verified by ADC.

Wilderness Study Area (WSA): Undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, and managed to preserve its natural conditions.

Wildlife: Any wild mammal, bird, reptile amphibian.

Wildlife Damage Management: Actions directed towards resolving livestock predation and human safety threats in a coordinated, managed program.

Work Plan: see "ADC Annual Work Plan"

APPENDIX F

LAWS

ROLES & RELATIONSHIPS

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APPENDIX F

ROLES AND RELATIONSHIPS OF FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES

ROLES OF STATE AGENCIES

[REDACTED]

The [REDACTED] is responsible for the management of all protected and classified resident wildlife species in Oregon (ORS 496.012, .124). Specifically, [REDACTED] ORS 496.012 mandates the [REDACTED] to "manage all wildlife in the State of Oregon at optimum levels . . . and regulate wildlife populations in a manner that is compatible with the primary uses of the lands and waters of the state..."

[REDACTED]
Note: [REDACTED] statutes do not include coyote
[REDACTED]

The [REDACTED] also recognizes that certain wildlife species can cause damage to property. [REDACTED] is responsible for managing predatory animals protected or classified under Oregon wildlife laws, such as the black bear and cougar. ORS 498.012 allows any Oregon landowner or legal occupant to take any wildlife that is damaging property or livestock. They must first obtain a permit from [REDACTED] if taking that animal would violate an Oregon wildlife law. Predators (coyotes) under [REDACTED] jurisdiction (ORS 610.105) can be taken anytime.

The [REDACTED] is authorized by ORS 496.146 to "enter into contracts with any person or government agency for the development of wildlife research, and management programs and projects, and may perform such acts as may be necessary for the establishment and implementation of cooperative wildlife management programs with agencies of the Federal Government." ORS 610.020 requires [REDACTED] to cooperate with the United States Department of Agriculture and the [REDACTED] for the purpose of controlling predatory animals and to expend funds as part of this cooperative effort.

The [REDACTED] and ADC are currently operating under a Memorandum of Understanding (MOU) dated October 23, 1987 which provides the framework and additional authority for [REDACTED] and ADC to enter into cooperative agreements for the purpose of fulfilling their wildlife management objectives. The [REDACTED] has requested wildlife damage management assistance from ADC and has established cooperative relationships with ADC to conduct wildlife damage management programs. ADC has agreed to assist [REDACTED] in meeting their management objectives through these cooperative agreements. These agreements authorize ADC to act as an official agent of the [REDACTED] for the purpose of conducting wildlife damage management involving resident wildlife species.

[REDACTED]

The [REDACTED] is responsible for administering those laws pertaining to the destruction, eradication and control of predatory animals that are not protected or classified by Oregon wildlife laws such as coyotes, rabbits, and rodents (ORS 610.005 and .002). The [REDACTED] may also control bobcat and red fox, after consultation with [REDACTED], if [REDACTED] determines it necessary to protect domestic mammals or birds (ORS 610.003).

ORS 610.010, 610.015, 610.020, 610.025, 610.030, and 610.032 authorize the [REDACTED] to enter into cooperative agreements with the United States Department of Agriculture and various county courts and boards of county

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commissioners for the purpose of managing wildlife damage. [REDACTED] may also employ hunters and expert trappers for controlling and eradicating coyotes and other harmful predatory animals (ORS 610.035).

ADC has entered into an MOU with the [REDACTED] to assist in the management control of those predatory animals as defined by ORS 610. ADC presently cooperates with [REDACTED], [REDACTED], 24 county governments and other local municipalities to alleviate wildlife damage problems. In the Roseburg ADC District, cooperative relationships have been established with six counties in the District ([REDACTED] Counties). A work plan has been developed with [REDACTED] and [REDACTED] which outlines each agency's role in conducting and administering the program.

ROLES OF OTHER FEDERAL AGENCIES

Memoranda of Understanding between APHIS (ADC) and the [REDACTED] (dated 8/87) and the Forest Service (dated 6/93) outline the cooperative approach to wildlife damage management to be implemented on federal lands and acknowledges that each agency agrees they have "mutual responsibility" for limiting damage caused by wildlife. These MOU's provide that wildlife damage management:

- Is important and may involve wildlife control to achieve respective agency management plan objectives for wildlife, livestock, and environmental protection,
- Activities must be in compliance with National Environmental Policy Act of 1970 (NEPA), (ADC is responsible for NEPA compliance on National Forest System Lands and [REDACTED] is currently responsible on lands they manage),
- Activities must be consistent with other multiple use values, and
- Multiple use values must be considered along with economic losses to livestock, wildlife, or other federal resources.

Traditionally, ADC activities have been implemented on National Forest System lands and lands under the jurisdiction of the [REDACTED] on the basis of ADC Annual Work Plans. These annual work plans are usually developed cooperatively at an annual meeting attended by representatives of the appropriate agencies. Occasionally, they are developed unilaterally by USFS District Rangers or [REDACTED] District Managers as requests for wildlife damage management are forwarded to ADC.

These annual work plans outline wildlife damage control work needed on each National Forest or [REDACTED] District based on reported and/or confirmed (documented) losses during the previous year.

U.S. Forest Service (USFS)

Forest Service policy on wildlife damage management is described in Forest Service Manual (FSM) Chapter 2650 updated most recently in June 1991. USFS policy authorizes wildlife damage management when wildlife:

- Threaten public health or safety;

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- Cause or threaten to cause damage to threatened or endangered animals or plants, other wildlife, livestock, other forest resources, or public and private property.

Management is to be carried out in accordance with methods recommended by ADC and the appropriate state agencies.

FSM 2650.3 provides further direction that:

- The principals of integrated pest management (using a full range of methods as appropriate to the specific circumstances) are emphasized;
- Only properly registered pesticides are used and then only by certified pesticide applicators;
- Wildlife damage management programs ensure full compliance with all laws and implementing regulations, such as NEPA and the Endangered Species Act of 1973 (as amended);
- The social, aesthetic, economic and other values of wildlife are considered in developing any control programs for implementation on the National Forests.

[REDACTED]
[REDACTED] policy on wildlife damage management is described in [REDACTED], revised 1988. This policy authorizes wildlife damage management on public lands when a documented damage problem or danger to public health exists.

[REDACTED] policy also:

- Allow complaints and requests for management services by ranchers and other private individuals using [REDACTED] lands to be submitted directly to ADC where approved ADC Annual Work Plans exist in a [REDACTED] district.
- Requires the affected parties or individuals to submit a request for service and a loss statement prior to the ADC Annual Work Plan meeting in order for their request for preventive or planned wildlife damage management to be considered. Individual requests must be submitted.
- Allows ADC to evaluate loss data submitted by affected individuals for emergency wildlife damage management and determine whether emergency control measures are warranted. If immediate action is warranted and the control area does not involve established safety zones, the ADC may conduct necessary management operations using permitted methods and notify the [REDACTED] when possible.

ADC currently operates under an existing EA and ADC Annual Work Plan on the [REDACTED] District, which authorizes wildlife damage management for the protection of livestock and wildlife resources.

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ROLES OF AMERICAN INDIAN TRIBAL GOVERNMENTS

ADC coordinates specific projects and programs with Tribal Governments in the District when ADC activities may be of interest or concern to the Tribes. ADC may enter into Cooperative Agreements with these tribes to protect property or natural resources.

ROLE OF PRIVATE INDIVIDUALS

ADC presently has 547 Cooperative Agreements with private individuals and associations in the District, covering about 2.5 million acres, to provide wildlife damage control services for the protection of livestock. These agreements provide specific details for each request, and identifies the target species, methods to be used, and other stipulations requested by the land owner or manager, and agreed to by the ADC Specialist.

These agreements provide the authority for ADC to conduct direct control activities when requested on a specific parcel of land. No agreements are necessary when ADC provides technical assistance to private landowners in the District.

APPLICABLE LAWS AND REGULATIONS

In addition to NEPA and the USFS and [REDACTED] policies and regulations, several federal and state laws regulate ADC wildlife damage management activities either directly or through cooperating agencies. ADC complies with the following laws, and consults and cooperates with agencies as appropriate.

Endangered Species Act (ESA)

It is federal policy, under the ESA, that all federal agencies shall seek to conserve endangered and threatened species and shall use their authorities in furtherance of the purposes of the ESA (Sec.2(c)).

Under Section 7, the federal agency must conduct a Biological Assessment to identify effects to any threatened or endangered species likely to be affected by a proposed action, and present the results of the Biological Assessment to the USFWS for its opinion and assistance.

The purpose of a Section 7 consultation with the USFWS is to use the expertise of the USFWS to help ensure that "any action authorized, funded or carried out by such an agency . . . is not likely to jeopardize the continued existence of any endangered or threatened species...Each agency shall use the best scientific and commercial data available" (Sec.7(a)(2)).

USFWS and ADC completed a formal consultation (USDI 1992) on the Animal Damage Control program for the FEIS on the ADC program, as required by Section 7 of the ESA. The biological opinion provided incidental take levels for certain threatened and endangered species, and reasonable and prudent measures to minimize or eliminate adverse impacts on listed species (see USDA 1994, Appendix F).

ADC has reviewed its activities in the District as they relate to all listed threatened and endangered species under the provisions of the Endangered Species Act (ESA) and consulted with USFWS concerning the wildlife

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damage management program covered by this EA. The results of this review and the consultation are covered in Chapter 4 and Appendix C.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act provides the USFWS regulatory authority to protect all species of birds, except European starling (*Sturnis vulgaris*), house sparrow (*Passer domesticus*) and feral pigeons (*Columba livia*) that migrate outside the United States. The law prohibits any "take" of individuals of protected species, except as permitted by the USFWS. The USFWS issue permits for managing damage caused by specific migratory bird species on a case by case basis.

Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act encourages federal agencies to conserve and promote conservation of nongame fish and wildlife, and their habitats to the maximum extent possible within each agency's statutory responsibilities.

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; primary enforcement responsibilities are delegated to states with programs approved by the EPA. The ODA is the responsible state agency that implements, monitors, and enforces FIFRA in Oregon.

All pesticides used in the United States must be registered by the EPA that assesses the nontarget and other environmental risks associated with the chemicals. The EPA determinations are based on stringent research data supplied by registration applicants. States may further restrict pesticide use. All chemical methods integrated into the ADC program in the District are registered with and regulated by the EPA and the ODA. ADC uses registered pesticides in compliance with labeling procedures and requirements; certain registered pesticides may only be applied by certified pesticide applicators.

As amended, the Fish & Wildlife Act of 1956 (16 U.S.C. 742j-1; 70 Stat. 1119 (Airborne Hunting)

Airborne hunting is prohibited anyone, while in an aircraft, from shooting or attempting to shoot for the purpose of capturing or killing any bird, fish, or other animal, or to harass any bird, fish, or other animal, or to knowingly participate in using an aircraft for any of the above purposes. The Act does not apply to persons employed by, authorized or operating under a license or permit of any state or the United States, to administer or protect or aid in the protection of land, water, wildlife, livestock, domesticated animals, human life, or crops. The ADC program conducts wildlife damage management pursuant to this section of the Fish & Wildlife Act.

Further, the ODA acts as the state authority under the provisions of the Act to issue permits for airborne hunting in Oregon (OAR 603-10-100). ODA also is authorized to carry out all other provisions of the Act under OAR 603-10-105.

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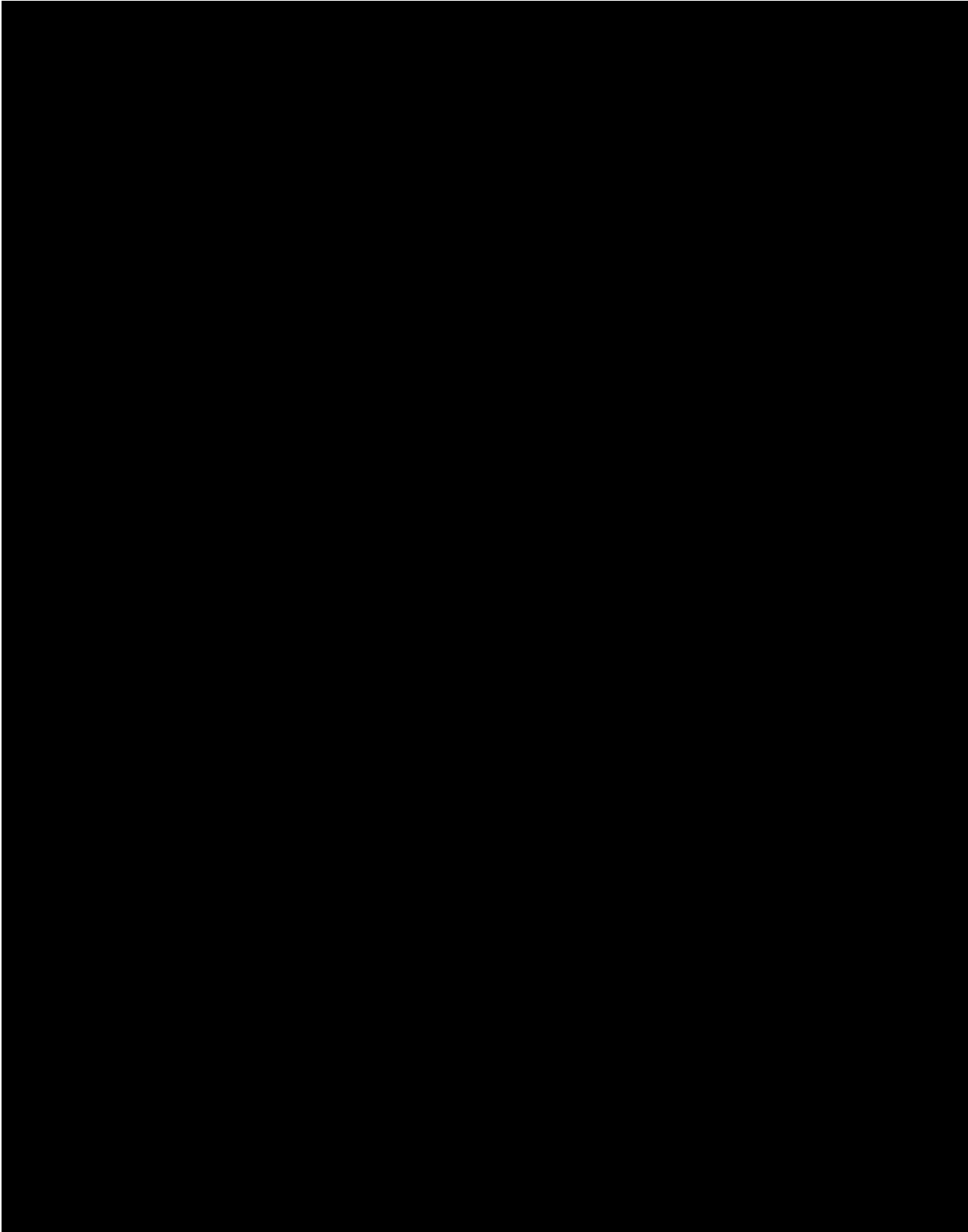
Other Acts

In addition, the ADC program in the District complies with the Animal Welfare Act, Bald Eagle Protection Act, Clean Air Act, Clean Water Act, and the Safe Drinking Water Act (USDA 1994).

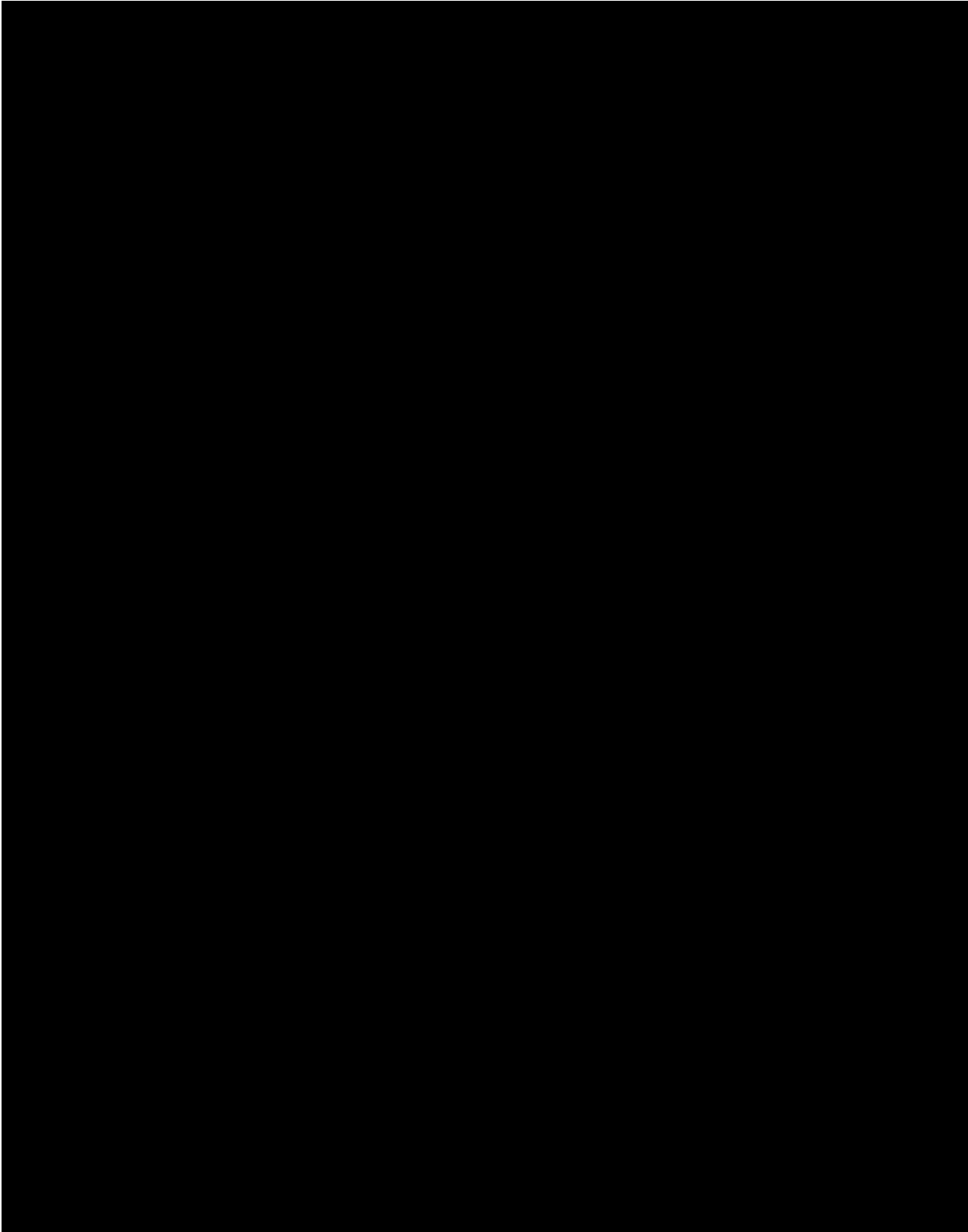
APPENDIX G

MAPS

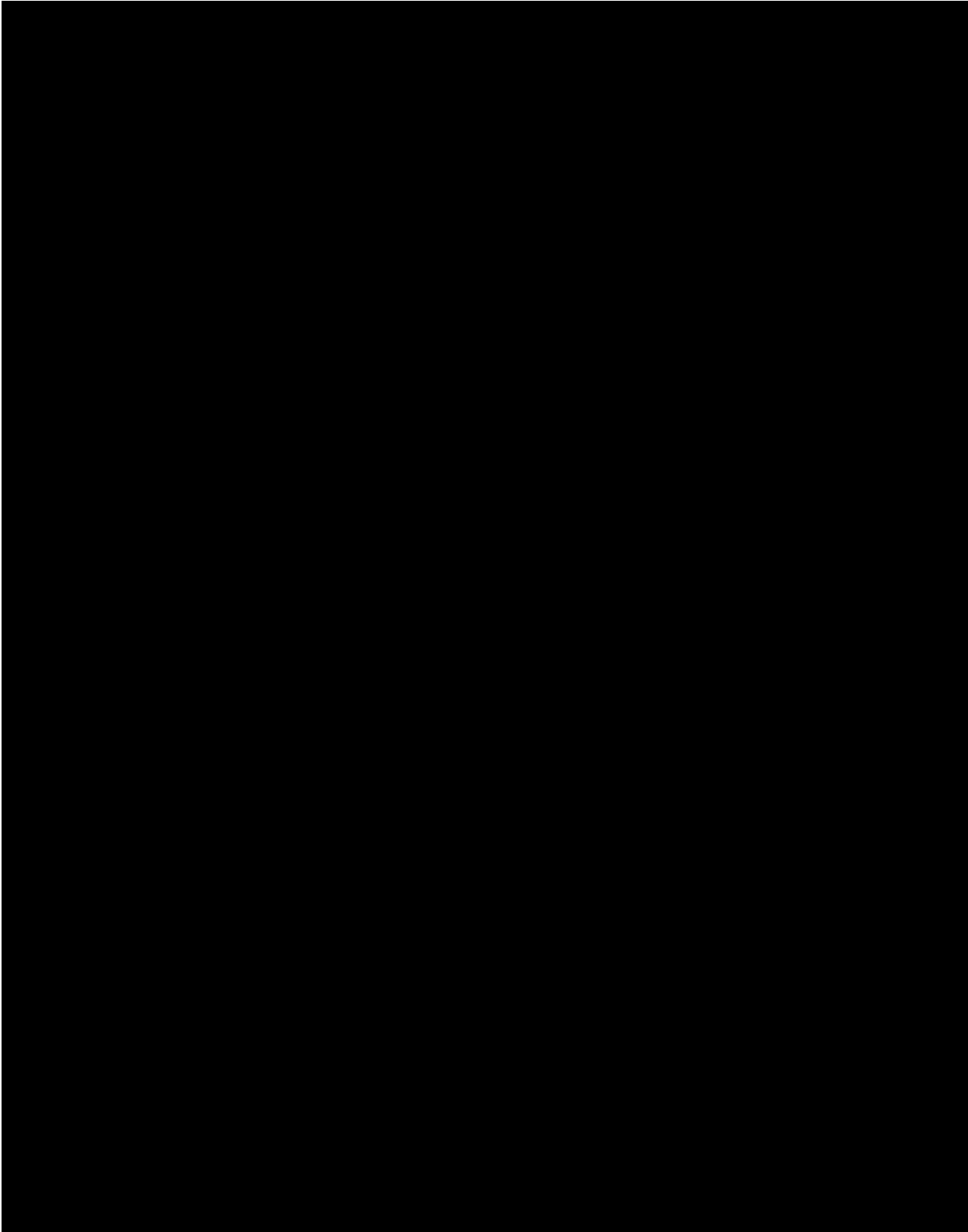
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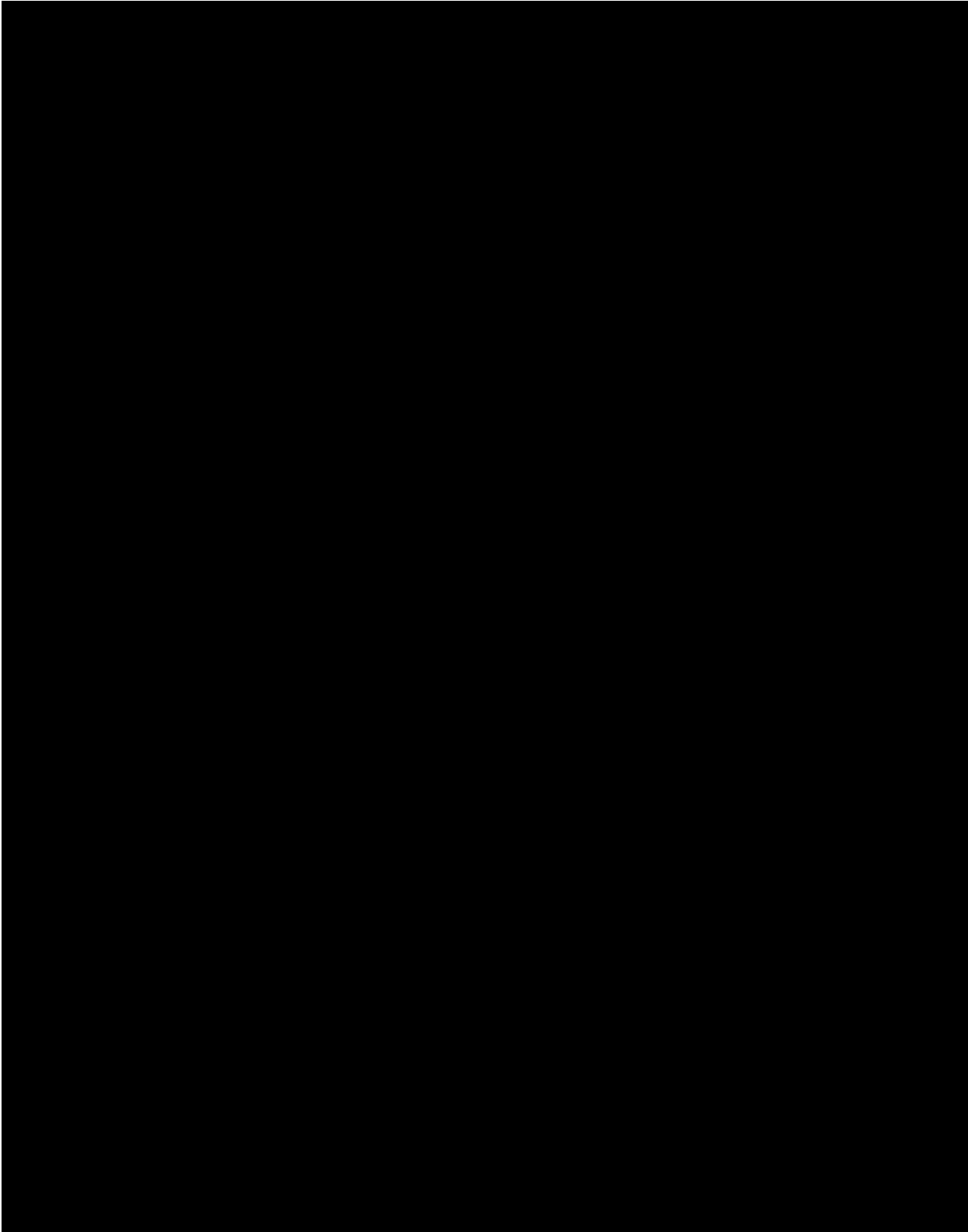
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