# USDA-APHIS-WILDLIFE SERVICES
# ENVIRONMENTAL ASSESSMENT MONITORING - 2001
# WESTERN MONTANA PREDATOR DAMAGE MANAGEMENT

## INTRODUCTION

The US Department of Agriculture (USDA) - Animal and Plant Health Inspection Service (APHIS) - Wildlife Services (WS) completed a predator damage management Environmental Assessment (EA) for western Montana, and a Decision and Finding of No Significant Impact (FONSI) was signed May 12, 1997. The EA analyzed predator damage management to reduce predation on livestock, other wildlife species, property and to reduce the threat to public health and safety. The Decision/FONSI: 1) selected the Current Program Plus Additional Activities on Public Lands as Requested, and 2) articulated that WS will coordinate with the Montana Department of Fish, Wildlife and Parks (MFWP) to monitor WS take of predators to insure species viability.

A monitoring report has been completed each year since signing of the Decision/FONSI which concluded that a revision of the EA was not necessary and that the original Decision remained valid since the affected environment and impacts remained essentially unchanged from those analyzed in the EA. Copies of the EA, Decision/FONSI, and monitoring report are available from the Montana WS State Office, USDA, APHIS, P.O. Box 1938, Billings, Montana 59103.

The purpose of this report is to: 1) document the review of information that has become available since the EA was completed, 2) determine if the Decision/FONSI made in conjunction with this document is still appropriate, and 3) take appropriate action if the affected environment or impacts have significantly changed from the data analyzed in the EA by amending the 1997 EA or preparing a new EA, or Decision/FONSI with an amendment to the EA, depending on the magnitude of change. This review uses the most currently available information which in most cases is 2001 data.

## PROGRAM RESULTS ANALYSIS

### Scope of Livestock Losses

The Montana Agricultural Statistics Service (MASS 2002) reported that sheep and lamb losses to predators during calendar year 2001 in Montana totaled 19,900 and were valued at $1.1 million. All predator losses were 26%, up 6% from the previous year. Coyotes were again the major predator, taking 72% of total sheep and lambs killed by predators and 22% of all losses in the state. Eagles were reported to have killed 1,600 head and were the second most significant predators to livestock (MASS 2002). Losses due to predator represented 30% of all sheep and lambs lost. Table 1 presents the WS verified and reported coyote losses to sheep, lambs, cattle and calves (WS unpubl. data).

**Table 1. Total Verified and Reported Coyote Predation in western Montana**

| Verified | | | |
|---|---|---|---|
| **Sheep** | **Lambs** | **Cattle** | **Calves** |
| 56 head | 143 head | 0 head | 42 head |
| **Reported** | | | |
| **Sheep** | **Lambs** | **Cattle** | **Calves** |
| 234 head | 472 head | 1 head | 120 head |

### Cumulative Impacts to Wildlife Populations

A primary issue addressed in the western Montana EA was the impact of WS' predator removal on the viability of target and non-target wildlife populations. Coyote predation continues to be the most important predator problem in Montana, and more coyotes were removed than any other species (Table 2). The WS' take of predators in Fiscal Year (FY) 01 indicates that WS had a low cumulative impact on the health and viability of predator populations as analyzed in the EA (H. Youman, MFWP, pers. comm. 2002). Non-target animals comprised 0.43% of the total WS take in western Montana (Table 2 and Table 3).

**Method Selectivity, Effectiveness, and Non-Target Take**

Sheep and lamb losses in WS protection areas (i.e., areas under cooperative agreement with WS) have remained low or even decreased in areas with WS protection from those suffered during previous years. Thus, it is reasonable to assume that the methods used by WS and their application have been effective. The methods are also highly selective (Table 3).

No non-target animals were taken by aerial hunting, calling, shooting, denning or through the use of dogs. A total of 626 animals were taken by traps, snares and M-44s in western Montana during FY 01 (Table 3) (WS unpubl. data). Of the three methods that did result in non-target take, M-44s were the most selective, followed by traps and snares.

Montana sheep and lamb producers also reported using a number of non-lethal methods to protect their flocks from predator damage. The use and effectiveness of the methods, as used by the producers, varied and are presented in Table 4 (MASS 1998).

**WS Activities on Public Lands**

Wildlife damage management methods were used consistent with Bureau of Land Management (BLM) and National Forest System (Forest Service) land use plans when and where it was determined necessary by WS personnel to resolve or prevent problems. The BLM and Forest Service were aware of the areas worked before or immediately after placement of equipment on new allotments not addressed in the work plan (See Coordination with Federal and State Agencies on page 6). M-44s and gas cartridges were used according to the label and use-restrictions, and M-44s were removed during bird hunting season.

**Table 2. Cumulative Impact to Predators from the western Montana WS Program**

| Wildlife Species | Estimated Population | WS Take | Impact on Population |
|---|---|---|---|
| Coyote | MFWP* | 3319 | Low** |
| Red Fox | MFWP* | 125 | Low** |
| B. Bear | MFWP* | 12 | Low** |
| Mtn. Lion | MFWP* | 8 | Low** |
| Bobcat | MFWP* | 1 | Low** |
| Raccoon | MFWP* | 9 | Low** |
| Badger | MFWP* | 6 | Low** |
| Skunk | MFWP* | 14 | Low** |

* Harvest regulations proposed by the MFWP for fish, game and furbearer species are subject to public review and input before being adopted by the MFWP Commission. Harvest regulations are designed to provide public recreation opportunity and reduce conflicts between wildlife and other land uses, while ensuring perpetuation of healthy, viable wildlife populations.

** The MFWP monitors populations of wildlife and/or trends in numbers taken in Montana. WS take data is provided to the MFWP for population viability determinations. Youmans (2002 MFWP pers. comm.) indicated that the WS take reported above did not have an adverse affect on species population viability in western Montana in 2001.

**Risks Posed to the Public and Domestic Pets**

No conflicts with the public or domestic pets were reported during FY 01.

**Wildlife Services Impact on Threatened and Endangered (T&E) Species**

Gray Wolf

WS assisted the U.S. Fish & Wildlife Service (USFWS) in Montana by responding to 32 verified incidents of wolf damage totaling $16,019 in losses, and 47 reported wolf depredation incidents totaling $65,503 in losses during FY01 (MIS 2001). A total of 4 wolves were removed from the population, 4 captured and freed at the capture site, and 6 were captured and relocated to another site to resolve incidents of predation in the analysis area.

Black-footed Ferret

WS was available to assit the USFWS and MFWP for disease sampling or other activities in the western Montana EA analysis areas. This effort can have a positive affect on ferrets by monitoring diseases such as plague and distemper that could endanger the success of ferret reintroduction, and through reduction of the possibility of those coyotes killing ferrets.

Grizzly Bear

The grizzly bear in Montana is listed as a threatened species. Handling and control of grizzly bears is governed by the grizzly bear special rule (50 CFR 17.40) and guidance provided by the Interagency Grizzly Bear Guidelines (IGBC 1986). Damage management is designed to capture and remove the specific target bear(s). One grizzly bear was

captured by Montana WS in FY01; no grizzly bears were killed by Montana WS. The captured bear was provided to the MFWP as authorized by the USFWS. There were 16 incidents of verified grizzly bear predation totaling $6,073 in losses, and 21 additional incidents of reported predation totaling $27,284 in losses during FY01 (MIS 2001).

**Table 3. Selectivity of WS Methods**

| | Traps | Snare | M44 |
|---|---|---|---|
| Target | | | |
| Porcupine | 0 | 2 | 0 |
| Badger | 3 | 3 | 0 |
| Coyote | 74 | 117 | 288 |
| Red Fox | 18 | 20 | 50 |
| Skunk | 9 | 9 | 1 |
| Raccoon | 0 | 7 | 0 |
| Black Bear | 0 | 6 | 0 |
| Mountain Lion | 0 | 7 | 0 |
| Feral dog | 0 | 1 | 3 |
| Total | 104 | 165 | 342 |
| Non-target | | | |
| Skunk | 1 | 0 | 0 |
| Porcupine | 1 | 3 | 0 |
| Raccoon | 1 | 1 | 0 |
| Red Fox | 2 | 2 | 1 |
| Bobcat | 0 | 1 | 0 |
| Dog | 0 | 0 | 1 |
| White-tailed Deer | 0 | 1 | 0 |
| Total | 5 | 8 | 2 |
| % Selectivity | 95.4% | 95.3% | 99.4% |

Canadian Lynx

The lynx was officially listed as threatened under the Endangered Species Act since the EA was completed. The listing became effective April 24, 2000. Lynx range within the APHIS-WS Western Region includes two distinct regions: the Northern Rocky Mountains/Cascades and the Southern Rocky Mountains; Montana occurs within the Northern Rocky Mountain region (USDI 2000). In the Northern Rocky Mountain, most lynx occurrences are associated with Douglas fir and western spruce/fir forests within the Rocky Mountain Conifer Forest type (McKelvey et al. 1999). Lynx are associated with boreal forest habitat (Fitzgerald 1992) which are primarily on National Forest land in the State. A resident lynx population is distributed throughout its historic range in Montana, although there are insufficient data to determine a population trend or size. Harvest records, winter track surveys conducted since 1990/1991, and trapper logbooks led MFWP to conclude that the State's lynx population is distributed throughout what it determined to be *"predicted lynx habitat"* (P. Graham, MDFWP in litt 1998). The USFWS also concluded that a resident lynx population is distributed throughout its historic range in Montana (USDI 2000).

The Montana WS program generally conducts predator damage management in relatively low, dry, areas; generally open grazing areas not preferred by lynx. Predator damage management does not typically occur in the moist Douglas fir and western spruce-fir forests favored by lynx. Although a limited amount of work is proposed in lynx range, it would be extremely rare to be conducted in occupied lynx habitat. Thus, the chance of incidental take by WS methods on lower elevation private lands is low. In addition, Montana WS maintains contact with the USFWS and MFWP to keep abreast of areas occupied by lynx to reduce any potential adverse effects to lynx should Montana WS be required to conduct predator damage management in lynx habitat. WS has initiated consultation with the USFWS at the regional level on potential impacts on the lynx. At present, WS believes its

**Table 4. Non-lethal Methods Used by Montana Sheep Producers - Use and Effectiveness of Non-Lethal Methods, 1997 (MASS 1998)**

| Non-Lethal Predator Control Measures | Percent of Responses Using and Not Using Practice | | Effectiveness Rating of those Reporting Use of Each Practice | | |
|---|---|---|---|---|---|
| | Practice Used | Practice Not Used | Very Effective | Somewhat Effective | Not Effective |
| | Percent | | Percent | | |
| One or More Practices Used | 61.9 | 38.1 | | | |
| Fencing* | 32.2 | 67.8 | 54.2 | 34.6 | 11.2 |
| Scaring Devices | 3.6 | 96.4 | 35.3 | 49.8 | 14.9 |
| Guard Animals | 70.8 | 29.2 | 82.6 | 14.9 | 2.5 |
| Husbandry Practices: | | | | | |
| Herding, Gathering | 27.0 | 73.0 | 88.5 | 11.2 | .3 |
| Night Penning | 47.4 | 52.6 | 89.0 | 9.9 | 1.1 |
| Shed Lambing | 50.3 | 49.7 | 83.8 | 15.0 | 1.2 |
| Move Livestock | 11.6 | 88.4 | 34.8 | 56.5 | 8.7 |

* The MASS believes there may have been some confusion with regard to answering the fencing questions.

activities are not likely to jeopardize the lynx because none have been captured or taken during at least the last 32 years. Further, the program has implemented interim guidance to further avoid the take of a lynx while Section 7 consultation is in progress. WS will abide by reasonable and prudent alternatives or measures that are established as a result of consultation with the USFWS to avoid significant adverse impacts on the species.

**Aerial Hunting Concerns**

During this past year, several environmental and/or animal protection organizations expressed concern to the BLM about the effects of WS' low level flights on non-target wildlife, public land and users, and the environment (i.e., fires and fuel spills).

Aerial hunting was an important method of predator damage management in western Montana in FY01. As described in the EA, WS conducted predator damage management only on areas under agreement. During FY01, aerial hunting flights were conducted on no more than 2.7% of the federal public lands in Montana and that aerial hunting time for the entire year on those lands averaged only 0.3 seconds per acre. Therefore, the potential for adverse impacts on wildlife and public land users continues to be low.

In addition, a number of studies have looked at responses of various wildlife species to aircraft overflights. USDI (1995) reviewed studies on the effects of aircraft overflights on wildlife. The report revealed that a number of studies have documented responses by certain wildlife species that suggest adverse impacts could occur. Few if any studies have proven that aircraft overflights cause significant adverse impacts on populations, although the report stated it is possible to draw the conclusion that impacts to wildlife populations are occurring. It appears that some species will frequently or at least occasionally show adverse responses to even minor overflight occurrences. In general, it appears that the more serious potential impacts occur when overflights are *chronic* (i.e., they occur daily or more often over long periods of time). Chronic exposure situations generally involve areas near commercial airports and military flight training facilities. WS aerial hunting operations occur in relatively remote rangeland areas where tree cover is at most scattered to allow for visibility of target animals from the air.

Some examples of species or species groups that have been studied with regard to this issue and WS' determination of potential impacts from aerial hunting overflights are as follows:

- Colonial Waterbirds. Kushlan (1979) reported that low level (390 feet followed by a second flight at 200 feet) overflights of 2-3 minutes in duration by a fixed-wing airplane and a helicopter produced no "drastic" disturbance of tree-nesting colonial waterbirds, and, in 90% of the observations, the individual birds either showed no reaction or merely looked up. WS aircraft are unlikely to be flown over such species in Montana because aerial hunting occurs in upland areas, primarily away from any riparian areas. Even if an overflight of a nesting colony occurred, it is apparent that little or no disturbance would result.

- Greater Snow Geese. Belanger and Bedard (1989, 1990) observed responses of greater snow geese (*Chen caerulescens atlantica*) to man-induced disturbance on a sanctuary area and estimated the energetic cost of such disturbance. They observed that disturbance rates exceeding two per hour reduced goose use of the sanctuary by 50% the following day. They also observed that about 40% of the disturbances caused interruptions in feeding that would require an estimated 32% increase in nighttime feeding to compensate for the energy lost. They concluded that overflights of sanctuary areas should be strictly regulated to avoid adverse impacts. WS aerial hunting flights rarely, if ever, occur over wetland areas and in no way would involve chronic or repeated flights over such areas. Thus, disturbance of migrating snow geese or any other waterfowl should be minimal to nonexistent.

- Mule Deer. Krausman et al. (1986) reported that only three of 70 observed responses of mule deer to small fixed-wing aircraft overflights at 150 to 500 feet above ground resulted in the deer changing habitats. The authors believed that the deer may have been accustomed to overflights because the study area was near an interstate highway which was followed frequently by aircraft. Mule deer are frequently seen from WS aircraft and are sometimes temporarily disturbed as evidenced by their running and avoidance behavior. However, it is apparent that adverse effects from this type of disturbance are minimal. WS aerial hunting personnel frequently observe deer and antelope standing apparently undisturbed beneath or just off to one side of

aircraft. In areas exposed to periodic low-level aircraft activity, animals seem to acclimate to aircraft to the point that disturbance is unapparent (L. Vetterman, Regional Aircraft Manager, WS, pers. comm. 1996). To the extent that localized coyote removal reduces predation on deer and antelope fawns and other wildlife species, benefits to such species could outweigh potential adverse impacts.

- Mountain Sheep. Krausman and Hervert (1983) reported that, of 32 observations of the response of mountain sheep (*Ovis canadensis*) to low-level flights by small fixed-wing aircraft, 60% resulted in no disturbance, 81% in no or "slight" disturbance, and 19% in "great" disturbance. The authors concluded that flights less than 150 feet above ground can cause mountain sheep to leave an area. WS does not conduct aerial hunting in typical higher elevation mountain sheep habitat. If wild sheep are observed, the pilot avoids pursuit or harassment.

- Bison. Fancy (1982) reported that only two of 59 bison (*Bison bison*) groups showed any visible reaction to small fixed-wing aircraft flying at 200 - 500 feet above ground. The study indicated bison are relatively tolerant of aircraft overflights. Thus, in the rare event that wild bison are encountered by WS aircraft, impacts from disturbance should be minimal.

- Raptors. Andersen et al. (1989) conducted low-level helicopter overflights directly at 35 red-tailed hawk (*Buteo jamaicensis*) nests and concluded their observations supported the hypothesis that red-tailed hawks habituate to low level flights during the nesting period. Their results also showed similar nesting success between hawks subjected to such overflights and those that were not. White and Thurow (1985) did not evaluate the effects of aircraft overflights, but showed that ferruginous hawks (*Buteo regalis*) are sensitive to certain types of ground-based human disturbance to the point that reproductive success may be adversely affected. However, military jets that flew low over the study area during training exercises did not appear to bother the hawks, and neither were they alarmed when the researchers flew within 100 feet in a small fixed-wing aircraft (White and Thurow 1985). White and Sherrod (1973) suggested that disturbance of raptors by aerial surveys with helicopters may be less than that caused by approaching nests on foot. Ellis (1981) reported that five species of hawks, two falcons, and golden eagles were "incredibly tolerant" of overflights by military fighter jets, and observed that, although birds frequently exhibited alarm, negative responses were brief and never limiting to productivity. These studies indicate that overflights by WS aircraft should have no significant adverse impacts on nesting raptor populations.

Two other issues that were raised by the environmental and/or animal protection organizations were the concerns for aircraft accidents by WS' aerial hunting operations to cause catastrophic ground fires and pollution as a result of spilled fuel and oil.

The following information was obtained from Mr. Norm Wiemeyer, Chief, Denver Field Office of the National Transportation Safety Board (NTSB) (the agency that investigates aviation accidents):

- Major Ground or Forest Fires: Mr. Wiemeyer stated he had no recollection of any major fires caused by government aircraft since he has been in his position beginning in 1987.

- Fuel Spills and Environmental Hazard from Aviation Accidents: The NTSB stated that aviation fuel is extremely volatile and will evaporate within a few hours or less to the point that even its odor cannot be detected (N. Wiemeyer, NTSB 2000 pers. comm). Jet A fuel also does not pose a large environmental problem if spilled. This is because Jet A is a straight chained hydrocarbon with little benzene present and microbes would quickly break-down any spill by aerobic action (J. Kuhn, Montana Department of Environmental Quality 2001 pers. comm.). The quantities involved in WS' aircraft accidents are small (35 gallon maximum in a Supercub and 84 gallons maximum in helicopters). In some cases, not all of the fuel would be spilled. Thus, there should be little environmental hazard from unignited fuel spills.

- Oil and Other Fluid Spills: For privately owned aircraft, the aircraft owner or his/her insurance company is responsible for cleanup of spilled oils and other fluids if required by the owner or manager of the property on which the accident occurred. In the case of BLM, Forest Service, and National Park Service lands, the land managing agency generally requires soil to be decontaminated or removed and properly disposed. With the

size of aircraft used by WS, the quantities of oil (i.e., 6-8 quarts maximum for reciprocating (piston) engines and 3-5 quarts for turbine engines) capable of being spilled in any accident are small and insignificant with respect to the potential for environmental damage. Aircraft used by WS are single engine models, so the greatest potential amount of oil that could be spilled in one accident would be about 8 quarts.

- Petroleum products biodegrade through volatilization and bacterial action, particularly when exposed to oxygen (EPA 2000). Thus, small quantity oil spills on surface soils can be expected to biodegrade readily. Even in subsurface contamination situations involving underground storage facilities which would generally be expected to involve larger quantities than would ever be involved in a small aircraft accident, EPA guidelines provide for "natural attenuation" or volatilization and biodegradation in some situations to mitigate environmental hazards (EPA 2000). Thus, even where oil spills in small aircraft accidents are not cleaned up, the oil does not persist in the environment or persists in such small quantities that there is no problem. Also, WS' accidents generally would occur in remote areas away from human habitation and drinking water supplies. Thus, the risk to drinking water appears to be exceedingly low or nonexistent.

Polling of WS' State Directors in WS' Western Region affirms that no major ground fires have resulted from WS' aviation accidents. Also, the Montana WS program has not experienced any aircraft accidents. For these reasons, the risk of ground fires or fuel/oil pollution from aviation accidents is considered low. In addition, based on the history and experience of the program in aircraft accidents, it appears the risk of significant environmental damage from such accidents is exceedingly low.

**Coordination with Federal and State Agencies**

• As directed in the EA, work plan meetings were held with the Butte BLM District (Mar 2002) and Lewistown BLM District (Feb. 2002). Changes to the draft plans agreed to in the meetings was incorporated into a final plan.

• Work plan meetings were held with the Gallatin National Forest (Mar 2002), Lewis and Clark National Forest (Mar 2002), the Beaverhead National Forest (Mar 2002), and Helena National Forest (Mar 2002) where final work plans were developed.

**Decision and Rationale, and Finding of No Significant Impact**

Based on a review of information available since the completion of the 1997 EA, there continues to be no indications that WS predator damage management is having adverse impacts on wildlife populations or the quality of the human environment. The Decision made in conjunction with the 1997 EA has also been reviewed and determined that the current analysis is still appropriate. In addition, analysis conducted for this report and Decision/FONSI validate that no significant impacts to the quality of the human environment have occurred from the proposed action. Therefore, the analyses in the EA remains valid and a new EA is not warranted.

I have carefully reviewed the EA and Monitoring Reports and believe that the issues identified in the EA and results of the Monitoring Reports are best addressed by continuing Alternative 2 (Current Program Plus Additional Activities on Public Lands as Requested - Proposed Alternative). Alternative 2 provided the best effectiveness and selectivity of methods and did not adversely impact the low level of risk to the public, pets, and T&E species. WS will continue to use the currently authorized predator damage management methods in compliance with applicable mitigation measures in western Montana where WS has been requested to provide assistance since the completion of the *Predator Damage Management in Western Montana* EA.

For additional information or questions regarding this FONSI, please contact the Montana Wildlife Services State Office, P.O. Box 1938, Billings, MT 59103, telephone (406) 657-6464.

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6-20-02
Date

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