USDA

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Marketing and Regulatory Programs

Animal and Plant Health Inspection Service

Wildlife Services

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5-YEAR ENVIRONMENTAL MONITORING REVIEW for RODENT DAMAGE MANAGEMENT in IDAHO

July 29, 2008

Introduction and Summary

In 2003, the Idaho Wildlife Services (WS) program completed an Environmental Assessment (EA) (USDA 2003) which addressed the need to conduct Rodent Damage Management (RDM) and the potential impacts of various alternatives for responding to rodent damage in Idaho. The analysis area encompasses the entire State of Idaho, including all land types (*i.e.* private, state, federal etc.).

The EA identified 5 Alternatives which were analyzed in detail. Alternative 1, the Proposed Action "Continue the Current Idaho WS Rodent Damage Management Program" was selected as the Preferred Alternative and a Finding of No Significant Impact (FONSI) was issued and a Decision signed April 28, 2004.

Monitoring reports for Federal Fiscal Years (FYs) 2003 (USDA 2004), 2004 (USDA 2005), 2005 (USDA 2006a), 2006 (USDA 2006b) and 2007 (USDA 2008) were prepared to review program activities and to determine if the EA was consistent with applicable environmental regulations. Based on those reviews, there continues to be no indications that WS' RDM activities are having a significant impact, individually or cumulatively, on the quality of the human environment in the EA analysis area.

Copies of the 2003 RDM EA, FONSI, Decision and monitoring reports are available from the Idaho WS State Office, USDA, APHIS, Wildlife Services, 9134 W. Blackeagle Drive, Boise, ID 83709-1572.

Background

The WS program responds to a variety of requests for assistance from individuals, organizations and agencies experiencing damage and other wildlife-related problems. WS is the Federal program authorized by Congress and directed by law to reduce damage caused by wildlife (Act of March 2, 1931, as amended [46 Stat. 1468; 7 U.S.C. 426-426c], and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, as amended [Public Law 100-202, Stat. 1329-1331]). Wildlife damage management is the alleviation of damage or other problems caused by or related to the presence of wildlife, and is recognized as an integral part of wildlife management (The Wildlife Society 1992).

Purpose of this Review

The purpose of this 5-year review is to: 1) review the results of WS' RDM activities conducted in Idaho during FY 2003 to 2007 and evaluate the accuracy of the EA analysis, 2) review standard operating procedures designed to minimize or avoid potential adverse environmental effects (Appendix A), and 3) provide an opportunity for public review.

Rodent Damage

Rodent damage reported to WS during FY 2003 to 2007 totaled nearly $1.3 million (Table 1). These reported losses likely represent only a portion of the total actual losses, and serve more as an indicator of the types of damage rather than an indicator of the total magnitude of damage. The majority of reported damage was to "Property" with estimated damages assessed at $1.15 million, while damage to "Agriculture" ranked second highest with estimated losses at $136,975. RDM resource loss data collected shows that yellow-bellied marmots accounted for 79.9% ($1.037 million) of the total reported losses, followed by beavers with 6% ($80,276) and ground squirrels at 4.5% ($59,100) of the reported losses (MIS 2003, 2004, 2005, 2006, 2007).

Table 1. Rodent damage reported to WS from FY 2003 to 2007 (MIS 2003, 2004, 2005, 2006, 2007).

Resource Type Damaged[1]	Major Rodent Species[2]	Estimated Damages
Agriculture Seedlings/Standing Commercial Trees, Pasture, Hayfields, Wheat Grains, Stacked Hay, Sugar Beets, Apple/Peach/Pear Fruits, Green Beans, Truck Gardens, Grasses/Sods, Potatoes and Livestock Feed	Voles, Yellow-bellied Marmots, Beavers, Ground Squirrels, Bushy-tailed Woodrats, Pocket Gophers, Jackrabbits, Cottontail Rabbits, Fox Squirrels, Porcupines and Feral Rabbits	$136,975
Human Health and Safety Potential Disease Transmission and Burrowing Activity on or Near Airstrips	Pocket Gophers, Ground Squirrels, Fox Squirrels, Yellow-bellied Marmots and Norway Rats	$1,800[3]
Natural Resources Forestry and Wildlife	Beavers and Yellow-bellied Marmots	$5,000
Property Electric Utilities, Irrigation Ditches/Dikes, Dams and Impoundments, Residential and Non-residential Buildings, General Property, Trees and Shrubs, Golf Courses/Recreational Areas, Vegetable/Fruit/Nut Gardens, Turf and Flowers, Road/Bridges, Land Vehicles, Landscaping, Non-human Food Items and Equipment/Machinery	Yellow-bellied Marmots, Beavers, Ground Squirrels, Fox Squirrels, Pocket Gophers, Cottontail Rabbits, Voles, Muskrats, Desert Cottontail Rabbits, Bushy-tailed Woodrats, Feral Rabbits, Norway Rats, Red Squirrels, Deer Mice, Field Mice, House Mice and Jackrabbits	$1,154,626
TOTAL		$1,298,401

[1] Resource Types are listed in order with respect to the value of the damage.
[2] Rodent species are listed in chronological order with respect to the value of damage to the resources reported, with the exception of Human Health and Safety resources which are sometimes difficult to quantify. Although they are not technically rodents, jackrabbits, cottontail rabbits and feral rabbits are included here since they cause similar damage problems.
[3] Damage assessments for potential disease transmission and safety threats to airstrips are difficult to quantify.

Major Issues Analyzed in Detail

Primary issues addressed in the EA include those issues of concern from the public and/or professional communities about potential environmental impacts that may occur from WS' proposed RDM program. These issues were considered in detail, as required by the National Environmental Policy Act (NEPA). Issues relating to the reduction of wildlife damage were raised during the scoping process in preparing USDA (1994) and during the interdisciplinary approach used for preparing the EA. These issues were consolidated into the following primary issues that were considered in detail:

1. Cumulative effects on target species populations.
2. Impacts of RDM on non-target species, including Threatened or Endangered (T/E) species.
3. Effectiveness and selectivity of damage management strategies.
4. Risks posed by RDM to the public and domestic pets.
5. Impacts of beaver dam breaching on wetland wildlife habitat areas.

Cumulative Effects on Target Species Populations

Cumulative effects are the additive impacts on a species population from all causes, including the mortality caused by Idaho WS activities. The magnitude of impact is described in USDA (1994) as *"...a measure of the number of animals killed in relation to their abundance."* Magnitude[1] may be determined either quantitatively or qualitatively. Quantitative determinations are based on population estimates, allowable harvest levels and actual harvest data. Qualitative determinations are based on population trends and estimated harvest data when available.

Generally, WS only conducts RDM on species: 1) whose populations are relatively high (Conover 2002), 2) normally only after they have caused damage, and 3) after a request has been received from the resource owner/manager to conduct RDM. WS' annual take of targeted rodent species during this 5-year review period did not exceed the levels analyzed in the EA and WS activities are determined as having a low magnitude of impact on those species killed by WS.

[1] It is recognized that other mortality (*i.e.*, auto collisions, disease, starvation, predation, other natural mortality, etc.) occurs throughout Idaho but no reliable system exists for recording this information.

Impact of RDM on Non-target Species, Including T/E Species

A concern among some members of the public and wildlife professionals, including WS personnel, is the effect of RDM on non-target species, particularly federally designated T/E species. During the review period, WS targeted and killed an estimated 10,990 rodents and killed 17 non-target animals (target to non-target capture rate of <0.15%) (Table 2). No T/E species were harmed or killed, or designated critical habitat or essential fish habitat impacted from WS' RDM. The non-target animals killed were one (1) mallard, 5 raccoons, 5 muskrats and 6 river otters. Most of these animals were taken in quick-kill traps intended for beavers, with the exception of 2 raccoons that were captured and killed in snares.

Table 2. Total number of target and non-target animals killed during RDM activities in FY 2003 through FY 2007 (MIS 2003, 2004, 2005, 2006, 2007).

Species Killed	Target	Non-target	Total
Beavers	308	0	308
Black-tailed Jackrabbits	100[1]	0	100
Deer Mice	125[1]	0	125
Fox Squirrels	4	0	4
Ground Squirrels	6,380[2]	0	6,380
Mallard	0	1	1
Muskrats	2	5	7
Pocket Gophers	57[1]	0	57
Porcupine	1	0	1
Raccoons	0	5	5
River Otters	0	6	6
Voles	392[1]	0	392
Woodrats	4	0	4
Yellow-bellied Marmots	3,617[1]	0	3,617
TOTAL	10,990	17	11,007

[1] Includes estimated number killed from use of rodenticides.
[2] Includes Columbian ground squirrels (n=372) and southern Idaho ground squirrels (n=450), the remaining majority were Piute ground squirrels, however, small numbers of Belding's and Wyoming ground squirrels were also killed.

Mallards are managed by the USFWS and IDFG. Hunting seasons in Idaho are set and bag limits are determined annually, but normally, the hunting season begins during the first or second week in October and runs through the third or forth week of January of the following year. Bag limits for ducks (mallards, teal, canvasback, pintail, etc.) normally run from 6 to 7 of any kind per day with a possession limit of no more than 12 to 14 ducks per hunter after the first day. Mid-winter waterfowl surveys conducted by IDFG in 2002 through 2007 counted an average of 283,006 ducks (17 different species) with mallards making up about 53% (n=150,502) of the total count (IDFG 2007a). IDFG data from 2002 to 2006 statewide post-hunting season surveys estimated that the average annual duck harvest for this time period was 291,700 birds (IDFG 2007a). Although specific waterfowl species were not identified in IDFG mid-winter waterfowl counts, it is reasonable to conclude that mallards are probably the most common represented waterfowl in hunter harvest.

Raccoons, muskrats and river otters are classified by the IDFG as "furbearers" and have established harvest regulations on their take. Take of raccoons (trapping and hunting) is open statewide, year-round with no limit on number of take (IDFG 2006a). The annual average number of raccoons harvested by trappers and hunters during the past 5 trapping seasons (2003-2007) has been 1,173 animals (IDFG 2003, 2004, 2005, 2006b, 2007b). The trapping season for muskrats is open for 5 to 6½ months (length of season depends on which IDFG Region trapping occurs), with no limit on number of take (IDFG 2006a). The annual average number of muskrats harvested by trappers during the past 5 trapping seasons (2003-2007) has been 12,352 animals (IDFG 2003, 2004, 2005, 2006b, 2007b). Fur harvest of river otters is regulated by a trapping quota through a 5-5½ month trapping season (length of season depends on which IDFG Region trapping occurs) and the average annual harvest during the past 5 trapping seasons (2003-2007) has been 107 otters (IDFG 2003, 2004, 2005, 2006b, 2007b).

After evaluating the impacts of WS' RDM on mallard, raccoon, muskrat and river otter populations, it is determined WS' non-target take is having a low magnitude of impact.

Effectiveness and Selectivity of Damage Management Strategies

During this 5-year review period, all RDM methods applied by WS were used as selectively and humanely as practically possible, and in conformance with the WS Decision Model (Slate et al. 1992) and WS Program Directives. The selectivity of each method is based, in part, on the application of the method and the skill of the WS employee, and the direction provided by WS Directives and policies. The perceived humaneness of each method is based, in part, on the perception of the pain or anxiety caused by the method.

WS personnel are trained in the proficient use of each method and are certified by the Idaho State Department of Agriculture as pesticide applicators for each pesticide that is used during damage management activities. WS did not use or employ any method that was not discussed or analyzed in the RDM EA, with the exception that 2 yellow-bellied marmots were inadvertently killed by a dog owned by a WS employee (one each in FY05 and FY06) after the marmots were attempting to escape from being mortally wounded by shooting. Since the dog was the actual cause of death, it was recorded as the method used.

Effectiveness of the various methods may vary widely depending on local circumstances at the time of application. Some methods may be more or less effective or applicable depending on weather conditions, time of year, biological and economic considerations, legal and administrative restrictions, or other factors. Because these various factors may at times preclude use of certain methods, it is important to maintain the widest possible selection of control tools to most effectively resolve wildlife damage problems. Table 3 provides the methods used in addressing RDM activities during this 5-year review period.

Table 3. RDM methods used by FY. An "X" indicates the method was used at least once during that FY.

Method	FY03	FY04	FY05	FY06	FY07
Aluminum Phosphide	X	X	X	X	X
Cage Trap	X	X	X	X	X
Foothold Trap	X	X	X	X	X
Gas Cartridge					X
Quick-kill Trap	X	X	X	X	X
Shooting	X	X	X	X	X
Snare	X	X	X	X	X
Zinc Phosphide	X	X	X	X	X

Risks Posed by RDM to the Public and Domestic Pets

During the 5-year review period, an estimated 10,990 rodents were targeted and killed by WS during RDM activities. There were no known incidents of domestic pets being harmed or killed, or reports received of risks or injuries to the public resulting from WS' use of RDM methods. When comparing this information with the total usage of RDM methods, overall risk posed to the pubic and domestic pets was extremely low.

Impacts of Beaver Dam Breaching on Wetland Wildlife Habitat Areas

WS breached 61 beaver dams during the 5-year review period (Table 4). Fifty-five dams were removed by binary explosives and 6 by hand method (hand shovel). All beaver dams removed were on private property. When WS is requested to breach a beaver dam, it is typically because the dams have caused flooding of roads, crops, timber, pastures and/or other types of property or resource damage.

Table 4. Number of beaver dams removed by method and FY (MIS 2003, 2004, 2005, 2006, 2007).

FY	Number of Dams Removed	Resource Type Damaged	Method Used	Average Number of Pounds of Explosives Used Per Dam
03	None			
04	9	Flooding Pasture	Binary Explosives	7.3
05	12	Flooding Pasture	Binary Explosives	5
06	None			
07	33	Flooding Pasture	Binary Explosives	4.5
	1	Flooding Road	Binary Explosives	15
	6	Girdling Trees	Hand Removal[1]	NA[2]

[1] Hand shovel was used.
[2] Not Applicable.

All WS Explosive Specialists are required to attend 30 hours of extensive explosive safety training and spend time with a certified Explosive Specialist in the field prior to obtaining certification. Once certified, re-certification is required every 2 years and Explosives Specialists must pass competency evaluations/exams administered by WS' Explosives Training Officers. Idaho's most experienced and primary Explosive Specialist has 18 years of explosives experience and has been certified for 14 years. Explosive handling and use procedures follow the rules and guidelines set forth by the Institute of Makers of Explosives, the safety arm of the commercial explosive industry in the United States and Canada. WS also adheres to Federal and State transportation and storage regulations, such as the Occupational Safety and Health Administration; Bureau of Alcohol, Tobacco and Firearms; and Idaho Department of Transportation.

Beaver dams were breached in accordance with exemptions from permit requirements established by regulation or as allowed under a Nationwide Permit granted under Section 404 of the Clean Water Act and U. S. Army Corps of Engineers Branch Guidelines established in 1996 (USACE 1996) specifically for Idaho. A review of the Section 7 Consultation and Letters of Concurrence from the USFWS and NOAA Fisheries determined that the dams were breached in accordance with established procedures, protocols and environmental concerns.

Compliance and Monitoring

WS' RDM activities have been conducted in a manner consistent with all applicable environmental laws and regulations, including the ESA and NEPA. Substantial changes in the scope of work or changes in relevant guidance documents or environmental regulations may trigger the need for further analysis.

RESULTS OF THE 5-YEAR REVIEW

The WS program described in the 2003 EA continued during FY 2003 through 2007 and based on a 5-year review of RDM activities, the effects of implementing the program have been consistent with the analysis in the EA and are not having a significant impact, individually or cumulatively, on the quality of the human environment, and that the affected environment remains essentially unchanged. Therefore, revision of the EA is not deemed necessary and the April 28, 2004 Decision remains appropriate.

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7/29/08
Date

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APPENDIX A

Idaho WS Rodent Damage Management EA Quality Assurance Checklist[2]

Effects on Target Species Populations

- ✓ Rodent Damage Management (RDM) actions were directed toward localized populations or groups and/or individual offending animals, depending on the species and magnitude of the problem.
- ✓ WS generally conducts activities on "anthropogenic abundant[3] species."

Effects on Non-target Species Populations

- ✓ Non-target animals captured were released at the capture site unless the Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) Specialist determined that they would not survive.
- ✓ Impact of RDM on non-target animals is negligible.
- ✓ WS personnel are experienced and trained to select the most appropriate method for taking targeted rodents and excluding non-target animals.

Protecting human safety

- ✓ Conspicuous, bilingual warning signs alerting people to the presence of damage management devices were placed at major access points when such devices were set in the field.
- ✓ No injuries or illnesses to members of the public occurred as a result of WS activities.
- ✓ Binary explosives storage site was inspected weekly to ensure security and public safety.

Use of Pesticides

- ✓ All pesticides used were registered with the Environmental Protection Agency (EPA) and Idaho State Department of Agriculture (ISDA).
- ✓ Pesticide use, storage and disposal conform to label instructions, WS Directives, other applicable laws and regulations and Executive Orders 12898 and 13045.
- ✓ To the best of the knowledge of the project or program manager, APHIS, WS employees followed label directions for pesticide use during the reporting period.
- ✓ No violations of pesticide laws or regulations were noted or documented during field inspections by program or project managers or by State or Federal pesticide regulators.
- ✓ APHIS, WS employees that used rodenticides during the reporting period were trained and, for restricted use pesticides, certified to use such rodenticides in accordance with EPA and ISDA approved programs and participate in continuing education programs to keep abreast of developments and to maintain their certifications.
- ✓ Material Safety Data Sheets for pesticides are provided to all WS personnel involved with specific RDM activities.

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[2] Checklist of Standard Operating Procedures to minimize or avoid adverse environmental effects.

[3] Species which are "common" due to human-caused environmental changes, such as yellow-bellied marmots, ground squirrels, beavers, voles and jackrabbits that have benefited from humans converting vast forests of North America into farms, fields, pastures and house lots (Conover 2002).

Historic Preservation

- ✓ APHIS, WS determined this program's actions are not the kind of actions with potential to affect historic resources.
- ✓ APHIS, WS consulted with the State Historic Preservation Office and received their concurrence that the program is not likely to affect historic properties or archeological sites.

Humaneness

- ✓ Rodents captured in cage traps were humanely euthanized with CO_2 gas, gunshot to the brain, etc.
- ✓ Cage traps that were left unattended for more than 48 hours were maintained with food and water.
- ✓ Research on selectivity and humaneness of management practices would be monitored and adopted as appropriate.
- ✓ The use of trapping devices and snares conform to current laws and regulations administered by the Idaho Department of Fish and Game and Idaho WS policy.

Threatened and Endangered (T/E) and Sensitive Species

- ✓ No T/E species, critical habitat or essential fish habitat were adversely affected by RDM activities.
- ✓ WS has consulted with the U.S. Fish and Wildlife Service (USFWS) regarding the nation-wide program and would continue to implement all applicable measures identified by the USFWS to ensure protection of T/E species.
- ✓ No ground squirrel control operations were conducted in identified range of the northern Idaho ground squirrels.
- ✓ Snares set on land for beavers in areas occupied by gray wolves were equipped with break-away locks.
- ✓ WS employees did not set any bait at beaver trap sets that could be attractive to bald eagles.

Native American Cultural Issues

- ✓ No activities were conducted on Native American tribal lands and actions would only be conducted on tribal lands at the request of the tribe.

Federal, State, County, City and other Public Land Management Issues/Conflicts

- ✓ RDM activities on Federal, State, County, City and other public lands were conducted in accordance with Work Plans or signed Cooperative Agreements or Agreement for Control.
- ✓ Vehicle access was limited to existing roads or trails unless otherwise authorized by the land agency.
- ✓ No conflicts with the public occurred during the reporting period.

Additional Measures to Minimize Impacts

- ✓ The WS Decision Model was used to identify the most appropriate wildlife damage management strategies and their impacts.
- ✓ Preference is given to nonlethal damage management when practical and effective.

- ✓ Lethal control was implemented only after a request for assistance was received from the resource owner/manager when a RDM problem could not effectively be resolved through nonlethal damage management and where Agreements for Control or other comparable documents provide for operational damage management.

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7/29/08
Date