ENVIRONMENTAL ASSESSMENT

# BIRD DAMAGE MANAGEMENT IN THE IDAHO WILDLIFE SERVICES PROGRAM

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In Cooperation With:

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UNITED STATES FISH AND WILDLIFE SERVICE
[redacted]

[redacted]

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**Table of Contents**

**Page**

**Acronyms Used in the EA**

| | |
|---|---|
| ADC | Animal Damage Control |
| APHIS | Animal and Plant Health Inspection Service |
| AVMA | American Veterinary Medical Association |
| AWACS | Airborne Warning and Control System |
| BA | Biological Assessment |
| BBS | Breeding Bird Survey |
| BDM | Bird Damage Management |
| BO | Biological Opinion |
| CBC | Christmas Bird Count |
| CDC | Centers for Disease Control and Prevention |
| CDFG | California Department of Fish and Game |
| CE | Categorical Exclusion |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| DP | Depredation Permit |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| EJ | Environmental Justice |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| FDA | Food and Drug Administration |
| FIFRA | Federal Insecticide, Fungicide and Rodenticide Act |
| FY | Fiscal Year |
| ID | Idaho |
| IASS | Idaho Agricultural Statistics Service |
| LD | Lethal Dose |
| IDA | Idaho Department of Agriculture |
| IDFG | Idaho Department of Fish and Game |
| IWDM | Integrated Wildlife Damage Management |
| $mi^2$ | square miles |
| MIS | Management Information System |
| MOU | Memoranda or Memorandum of Understanding |
| NASS | National Agricultural Statistical Service |
| NEPA | National Environmental Policy Act |
| NHPA | National Historical Preservation Act |
| RMP | Rocky Mountain Population |
| SHPO | State Historic Preservation Office |
| SOP | Standard Operating Procedure |
| T&E | Threatened and Endangered Species |

| | |
|---|---|
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USDI | U.S. Department of the Interior |
| USFWS | U.S. Fish and Wildlife Service |
| WS | Wildlife Services |

**NOTE:** On August 1, 1997, the Animal Damage Control program was officially renamed to Wildlife Services. The terms Animal Damage Control, ADC, Wildlife Services, and WS may be used synonymously throughout this Environmental Assessment.



# CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

## 1.0 INTRODUCTION

Across the United States, wildlife habitat has been altered 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, certain segments of the public strive for protection for all wildlife. Such protection can create localized conflicts between humans and wildlife. The Final Environmental Impact Statement (EIS) for the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) program summarizes the relationship in North 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."*

Wildlife damage management is the alleviation of damage or other problems caused by or related to the behavior of wildlife and is recognized as an integral component of wildlife management (The Wildlife Society 1992). WS uses an Integrated Wildlife Damage Management (IWDM) approach (WS Directive 2.105), commonly known as Integrated Pest Management where a combination of methods may be used or recommended to reduce wildlife damage. IWDM is the application of safe and practical methods for the prevention and reduction of damage caused by wildlife based on local problem analyses and the informed judgement of trained personnel. IWDM, described in USDA (1994, 1-7) includes methods such as habitat and behavioral modification to prevent or reduce damage or may require that the offending animal(s) be removed or that local populations or groups be reduced through lethal methods. Potential environmental impacts resulting from the application of various Bird Damage Management (BDM) techniques are evaluated in this EA.

Normally, according to the APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management actions considered in this analysis could each be afforded a Categorical Exclusion (CE) (7 CFR 372.5(c)). APHIS Implementing Regulations also provide that all technical assistance furnished by WS is categorical excluded (7 CFR 372.5(c)) (60 Federal Register 6,000, 6,003 (1995)). To evaluate and determine if any potentially significant or cumulative impacts from WS' current and planned damage management program occur, this Environmental Assessment (EA) has been prepared and documents the analysis. This analysis relies on existing data contained in published documents and USDA (1994) to which this EA is

tiered.

To fulfill Congressional direction pursuant to the Animal Damage Control Act of 1931, as amended (46 Stat. 1468; 7 U.S.C. 426-426c) and the Rural Development, Agriculture, and Related Agencies Appropriation Act of 1988 (Public Law 100-202), the purpose of wildlife damage management is to prevent or minimize damage to protected resources. Therefore, wildlife damage management is not based on punishing offending animals but is a means of reducing future damage and used as part of WS' Decision Model (Slate et al. 1992). The imminent threat of damage or loss of resources is often sufficient for individual actions to be initiated. The need for BDM is derived from the specific threats to resources.

## 1.1 WILDLIFE SERVICES PROGRAM

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

- Training of wildlife damage management professionals;
- Development and improvement of strategies to reduce losses and threats to humans from wildlife;
- Collection, evaluation, and dissemination of management information;
- Cooperative wildlife damage management programs;
- Informing and educating the public on how to reduce wildlife damage;
- Providing data and a source for limited-use management materials and equipment, including pesticides (USDA 1989).

WS is a cooperatively funded, service-oriented program. Before any wildlife damage management is conducted, *Agreements for Control* must be signed by the landowner/administrator for private lands and other comparable documents are in place for public lands. As requested, WS cooperates with land and wildlife management agencies to effectively and efficiently reduce wildlife damage according to applicable Federal, State and local laws (WS Directive 2.210).

## 1.2 NEED FOR ACTION

### 1.2.1 Need for BDM for the Protection of Agricultural Resources.

**Livestock Feed.**

Bird damage to agricultural crops costs U.S. farmers more than $100 million annually (Besser 1985) and can pose significant economic threat to agricultural producers (Besser et al. 1968, Dolbeer et al. 1978, Feare 1984). As the science of raising cattle progressed from range to feedlots, bird problems intensified. Cattle in feedlots and dairies provide a tremendous feeding opportunity for birds. Along with this method of cattle raising came the concept of the complete diet. The complete diet contains all of the nutrients and fiber that cattle need to increase weights, milk production, and improve the flavor and texture of meat. The basic constituent of most rations is silage with the addition of barley, corn, or other grains which may be incorporated as whole, crushed or ground grains. The silage/barley mixture is normally combined with hay, cull french fries, or other high fiber roughage. While cattle are unable to select for certain ingredients, starlings and other birds select for grains, cull French fries, or other items, thereby altering the composition and energy value.

Livestock feed losses to starlings has been demonstrated by Besser et al. (1968) who estimated annual loss in feedlots near Denver, Colorado at $84 per 1,000 birds. Forbes (1995) reported starlings consume up to 50% of their body weight each day. Glahn and Otis (1981) reported consumption of 4.8 kg of pelletized

feed per 1,000 bird minutes. The removal of high energy food ingredients is believed to reduce weight gains, milk yields, and is economically significant (Feare 1984).

Agriculture is Idaho's leading industry and livestock production and products are an important agricultural sector accounting for about 38% of total farm marketing receipts (IASS 1997). During FY 95, 96, and 97, a total of $311,707 in losses to livestock feed from starlings was reported to WS from cooperating livestock feeders, dairy farms, and grain storage operators in Idaho. This figure represents only a very small portion of the actual damage which occurs State-wide since WS only conducts BDM on a very small percentage of the total number of feedlots and dairies in Idaho. The second most destructive bird to livestock feed is gulls. Feed losses attributed to gulls totaled $63,001 in FY 95, 96, and 97. During the three-year period, $390,141 in losses to livestock feed were reported and confirmed by WS (Table 1-1).

As of January 1, 1997, there were an estimated 1.75 million head of cattle and calves in the State (IASS 1997). The average number of milk cows maintained in Idaho was 256,000 head during 1996 (IASS 1997) and has steadily increased since 1986. Idaho's cattle feedlots (with 1000 cattle or more) marketed 588,000 head in 1996 and the total red meat production was 547 million pounds (red meat production includes beef, veal, pork, lamb, and mutton). Between 1991 and 1996 there were an average of 148 livestock feedlots in the State. The total number of feedlots has increased since 1991 up to 160 in 1996.

**Table 1-1. Livestock Feed Losses.***

| FY | Species | Incidents | Loss ($) |
|---|---|---|---|
| 1997 | Starlings | 29 | 32,900 |
| | Ring-billed gulls | 2 | 6,000 |
| | Pigeons | 3 | 500 |
| | Common ravens | 1 | 3,000 |
| | Blackbirds | 1 | 50 |
| 1996 | Starlings | 48 | 232,400 |
| | Gulls[1] | 2 | 55,001 |
| | Pigeons | 3 | 0 |
| | American crows | 1 | 100 |
| 1995 | Starlings | 49 | 46,407 |
| | Ducks[2] | 4 | 7,500 |
| | Ring-billed gulls | 1 | 2,000 |
| | Pigeons | 13 | 4,173 |
| | Magpies | 2 | 110 |
| Total | | 160 | 390,141 |

[1]Gulls may be ring-billed, California, and/or herring.
[2]Ducks - unknown species of ducks.
*These losses represent only a portion of the total losses and serve more as an indicator of the types of damage rather than an indicator of the total magnitude of the damage.

**Crops.**

Wywialowski (1994) reported that in 1989, 8.7% and 16.6% of agricultural producers nationwide experienced bird damage to: 1) field crops and 2) vegetables, fruits, and nuts, respectively. Wheat and alfalfa are most susceptible to Canada goose and other waterfowl immediately after germination when the plant has emerged above the soil and the root system is not yet firmly established in the soil. Combined with sandy soils and wet conditions, which "loosen" the soil, the entire plant can be pulled out and consumed. Waterfowl (primarily mallards) and blackbirds can cause damage to wheat, barley, and other grains after swathing or prior to harvest (Besser 1985).

Receipts from crops (grains, fruits, vegetables, hay, etc.) accounted for 62% of all agricultural marketings in 1996 (IASS 1997). In 1996, Idaho ranked first, second, and third nationally (IASS 1997) in the production of: 1) potatoes, 2) sugar beets and barley, and 3) hops, spearmint, peppermint, prunes, and plums, respectively. Approximately 5.4 million acres of crops were harvested in 1996 with hay, wheat, and barley representing 85% of total acres. During FY 95, 96, and 97, bird damage reported to

and verified by WS to field crops, vegetables, fruit, turf, pasture, and hay crops totaled $42,436, $102,930 and $60,200, respectively (MIS 1995, 1996, 1997) (Table 1-2). About 73% ($149,600) of reported and verified bird damage to crops in Idaho, during FY 95, 96, and 97 was attributed to Canada geese.

### 1.2.2 Need for BDM for the Protection of Aquaculture Resources.

Bird predation at aquaculture facilities has been recognized as an economic problem for more than 300 years (Mills 1967). Open water areas and large concentrations of fish are natural attractants to fish-eating birds (Salmon and Conte 1981). Birds may also negatively affect aquaculture production by transmitting or transporting diseases, weeds, and parasites (Curtis et al. 1996). Trout raising continues to be an important commercial industry in Idaho (IASS 1997). Idaho trout production ranks first in the nation in pounds of food-size trout (food-size trout are defined as 12 inches long or longer), number sold, and total value. Between September 1995 and September 1996, about 76% of the trout and 75% of the live weight of trout produced in the U.S. came from Idaho producers (IASS 1997). During that period, Idaho producers marketed 40 million pounds of fish and sold more than 43 million fish valued at $32 million

**Table 1-2. Losses to Field and Hay Crops, Vegetables, Fruits, Turf, and Pasture. ***

| Fiscal Year | Species | Number of Incidents[1] | Loss ($) |
|---|---|---|---|
| 1997 | Starlings | 5 | 10,500 |
| | Canada geese | 20 | 38,600 |
| | Snow geese | 3 | 250 |
| | Greater sandhill cranes | 6 | 5,000 |
| | Ducks[1] | 2 | 850 |
| | American coots | 1 | 5,000 |
| | Blackbirds | 1 | 0 |
| 1996 | Starlings | 9 | 8,700 |
| | Geese[1] | 43 | 76,700 |
| | Greater sandhill cranes | 5 | 1,300 |
| | Blackbirds | 2 | 2,000 |
| | American crows | 9 | 7,700 |
| | Ducks[1] | 9 | 6,120 |
| | Magpies | 1 | 10 |
| | House sparrows | 2 | 300 |
| | Ibises | 1 | 100 |
| 1995 | Starlings | 3 | 150 |
| | Blackbirds | 2 | 1,500 |
| | Geese[1] | 27 | 34,300 |
| | Greater sandhill cranes | 8 | 1,701 |
| | Magpies | 5 | 260 |
| | Ibises | 1 | 3,500 |
| | American robins | 3 | 100 |
| | Ducks[1] | 6 | 1,025 |
| Total | | 176 | 205,666 |

[1]Unspecified Species.

*These losses represent only a portion of the total losses and serve as an indicator of the types of damage rather than an indicator of the total magnitude of the damage.

(IASS 1997). According to the National Agricultural Statistics Service (NASS), Idaho trout producers lost an estimated 4.4 million trout (650,000 pounds) to predators (NASS 1996). Predators were defined in the survey as including all predator species (mink, otters, birds, and other animals) and birds were not separated. During FY 95, 96, and 97, aquaculture producers reported to WS that fish-eating birds caused $135,325, $2,300, and $12,200 respectively, in damages to trout and other fishes (Table 1-3). This amount of reported damage represents only a small portion of the actual State-wide damage since WS only conducted BDM on a small percentage of aquaculture facilities in Idaho.

**Table 1-3. Aquaculture Losses.***

| FY | Species | Incidents | Loss ($) |
|---|---|---|---|
| 1997 | Ring-billed gulls | 2 | 2,000 |
| | Great blue herons | 18 | 6,200 |
| | Egrets/herons/ cormorants, mixed[1] | 4 | 4,000 |
| 1996 | Double-crested cormorants | 1 | 1,000 |
| | Great blue herons | 7 | 800 |
| | Herons and egrets mixed[1] | 2 | 500 |
| 1995 | Shorebirds[2] | 1 | 113,000 |
| | Ring-billed gulls | 4 | 1,800 |
| | Great blue herons | 32 | 16,925 |
| | Double-crested cormorants | 1 | 2,000 |
| | American white pelicans | 2 | 600 |
| | Mergansers | 1 | 1,000 |
| Total | | 75 | 149,825 |

[1]Mixed species of black-crowned herons, great blue herons, great egrets, and/or cormorants.
[2]Unspecified species.
*These losses represent only a portion of the total losses, and serve as an indicator of the types of damage rather than an indicator of the total magnitude of the damage.

The bird species commonly responsible for damage in Idaho are great blue herons, black-crowned night herons, ring-billed gulls, American white pelicans, and double-crested cormorants (MIS 1995, 1996, 1997).

### 1.2.3 Need for BDM for the Protection of Public Health and Safety; Livestock Health; and Property.

Birds occasionally damage resources other than livestock feed, crops, and aquaculture for which WS is requested to provide BDM. These resources include:

**Public Health and Safety.**

Idaho WS has been requested to reduce the health risks to the public from birds. Airports managers have requested WS assistance in resolving bird/aircraft strike threats. The risk that birds pose to aircraft is well documented with the worst case reported in 1960 when 62 people were killed in the crash of an airliner that collided with a flock of starlings[1] in Boston (Terres 1980). A more recent crash involving Canada geese occurred in 1995 when 24 military personnel aboard an Air Force Airborne Warning and Control System (AWACS) aircraft were killed after the aircraft's engines ingested geese during take-off (Cleary et al. 1996).

Generally, bird collisions occur when aircraft are near the ground. More than 45% of bird/aircraft collisions occur within 100 feet of the ground and more than 75% occur within 1,500 feet of the ground (USDA 1994). Idaho WS has responded to numerous requests from airport officials regarding bird threats to aviation safety (Table 1-4). A recent project involved helping a northern Idaho airport obtain a

[1]It is difficult to put a monetary value on public health and safety incidents, especially when human deaths or chronic illnesses occur, and values are underestimated.

Depredation Permit (DP) from the United States Fish and Wildlife Service (USFWS) to remove a limited number of birds.

**Table 1-4. Threats to Aviation Safety.**

| FY | Species | Incidents | Loss ($) |
|---|---|---|---|
| 1997 | Bald eagles | 1 | * |
| | Golden eagles | 1 | 7,500* |
| | California gulls | 1 | * |
| | Hawks, other[1] | 1 | * |
| 1996 | Gulls[2] | 4 | * |
| | Great blue herons | 2 | * |
| | American crows | 1 | 5,000* |
| | Canada geese | 2 | * |
| | Ducks[1] | 3 | 100 |
| 1995 | Canada geese | 2 | * |
| Total | | 14 | 12,600 |

[1]Unspecified species.
[2]May consist of ring-billed, California, and/or herring gulls.
*Dollar values refer to property loss. Unable to assess a value for the potential threats to human life and health.

Pigeons, starlings and house sparrows have been suspected of transmitting 38 different diseases to humans and pets, including Salmonellosis, Tuberculosis, Histoplasmosis, Toxoplasmosis, Ornithosis, Cryptococcosis, Encephalitis and Newcastle Disease (Weber 1979, Stickley and Weeks 1985). Of those diseases, Ornithosis and Histoplasmosis are the two which WS is probably most concerned about as being a public health hazard and a hazard to WS employees who conduct BDM activities where disease transmission may occur. Although Idaho WS has no record of employees contracting bird related diseases while conducting BDM, the threat is always present and precautions are taken to avoid possible exposures. WS employees are encouraged to wear respirators and other personal protective equipment as recommended by the Centers for Disease Control and Prevention (CDC 1997) when working in bird roosts or conditions which may present threats of airborne diseases. Table 1-5 provides information on the number of incidents of disease threat or transmission WS responded to during FY 95, 96, and 97.

**Livestock Health.**

Birds have been implicated in the transmission of livestock diseases such as Transmissible Gastroenteritis Virus, Tuberculosis, and Coccidiosis which have been linked to migratory flocks of starlings and blackbirds (Gough and Beyer 1982). Table 1-5 provides the number of incidents reported to and/or confirmed by WS involving threats or possible disease transmission to the public and livestock[2]. A dairy operator near [redacted] ID and his consulting veterinarian highly suspected that starlings were responsible for transmitting Salmonella to his dairy cattle where up to 6 cattle died from the disease [redacted]. This same dairy owner and veterinarian also suspected that starlings transmitted Bovine Viral Diarrhea to the same cattle. Costs to vaccinate, monitor the disease, and loss of milk production was estimated at $5,000.

**Property Protection.**

Each year woodpeckers damage structures and cause economic losses to property owners in the U.S. (Craven 1984). This damage occurs when woodpeckers "drum," a form of territorial display, and when

[2]Estimates of the dollar value of this type of damage are very difficult to assess and are probably underestimated.

they chisel holes in the sidewalls of structures and pull out the insulation to make a cavity (Evans et al. 1983, Graves and Andelt 1987, Marsh 1994). Damage usually occurs in the spring of the year, which is concurrent with the breeding season. Woodpeckers can also cause severe damage to utility poles resulting in significant economic loss to utility companies. Poles weakened by woodpecker damage reduce longevity, present a safety hazard, and may collapse under adverse conditions. In 1981 and 1982, the central [redacted] replaced 2,114 woodpecker damaged poles within their system at an approximate cost of $560,000 (Stemmerman 1988). During FY 95, pileated woodpeckers in Idaho were responsible for $255,200 damages to utility poles, and northern flickers caused an estimated $31,225, $29,032, and $88,525 in damages to homes, buildings, and beehives during FY 95, 96, and 97, respectively (Table 1-6).

**Table 1-5. Threats to Public and Livestock Health.**

| FY | Species | Incidence | Type | Loss ($) |
|---|---|---|---|---|
| 1997 | Starlings | 1 | HHS | * |
| | Pigeons | 7 | HHS | * |
| 1996 | Starlings | 5 | HHS[1] and livestock health | 1,500* |
| | Pigeons | 9 | HHS/droppings | 632* |
| | Turkey vultures | 1 | HHS/droppings | 100* |
| | Magpies | 2 | HHS/droppings | 200* |
| 1995 | Starlings | 10 | HHS/droppings | 351* |
| | Pigeons | 37 | HHS/droppings | 5,034* |
| | Ducks[2] | 2 | HHS/droppings | 101* |
| | Canada geese | 1 | HHS/droppings | 2,000* |
| | Swallows[3] | 4 | Disease threat | * |
| | Ring-billed gulls | 2 | Landfills | * |
| | Magpies | 1 | HHS/droppings | 100* |
| | Blackbirds | 2 | Disease threat | * |
| | American crows | 1 | Landfills | * |
| | Common ravens | 1 | Landfills | * |
| | House finches | 1 | Droppings | 100* |
| Total | | 79 | | 10,118 |

[1]HHS - Human (public) Health and Safety.
[2]Unspecified species.
[3]Swallows - Unspecified species. Could be one or more of the following swallow species; barn, cliff, tree, bank, or northern rough-winged.
*Dollar values refer to property loss. Unable to assess a value for potential threats to pubic health.

A golf course near [redacted], ID reported that American coots were causing damage to golf greens and turf. WS confirmed that the coots were pulling up grass plants by the roots and consuming them. An estimation for repairing and reseeding the turf and greens was made at costing $5,000.

WS responded to several requests for assistance where pigeons were defacing property and damaging structures from roosting activities and accumulations of fecal material. Two such incidents occurred near [redacted] where several hundred pigeons were roosting inside industrial buildings occupied by people. Property managers and workers were concerned about possible disease transmission and the cost to clean machinery and floors where pigeon droppings accumulated.

[redacted] a telecommunications company contacted WS for assistance in solving a problem with common raven nests on a microwave tower. The company explained that the nests posed a potential hazard

**Table 1-6. Property Losses**.

| FY | Species | Incidents | Type | Loss ($) |
|---|---|---|---|---|
| 1997 | Northern flickers | 44 | Buildings and homes | 88,575 |
| | Red-headed woodpecker | 1 | Home | 200 |
| | Pileated woodpeckers | 1 | Electric poles | 1,000 |
| | Woodpeckers[1] | 1 | Home | 100 |
| | Starlings | 11 | Buildings, homes other property | 2,060 |
| | Pigeons | 32 | Buildings, homes, other property | 15,301 |
| | Ducks[2] | 1 | Other property | 200 |
| | Ring-billed gulls | 2 | Homes and products | 7,000 |
| | House sparrows | 2 | Food items and buildings | 300 |
| | House finches | 1 | Other property | 0* |
| | Barn swallows | 1 | Home | 50 |
| | American robins | 1 | Home | 0* |
| | American crows | 12 | Other property | 100 |
| | Common ravens | 1 | Other property | 0* |
| | Golden eagles | 1 | Aircraft | 7,500 |
| | Magpies | 15 | Buildings, homes, other property | 4,705 |
| 1996 | Northern flicker | 52 | Buildings and beehives | 29,032 |
| | Woodpeckers[1] | 1 | Buildings | 200 |
| | Pigeons | 20 | Buildings and machinery | 5,845 |
| | Starlings | 15 | Buildings and landscaping | 1,891 |
| | Swallows[2] | 1 | Buildings | 100 |
| | Magpies | 23 | Beehives and landscaping | 9,457 |
| | Canada geese | 9 | Landscaping | 6,000 |
| | American crows | 6 | Landscaping and property | 0* |
| | American robins | 1 | Buildings | 0* |

Table continued on next page.

**Table 1-6. Property Losses continued**.

| FY | Species | Incidents | Type | Loss ($) |
|---|---|---|---|---|
| 1996 | House finches | 1 | Buildings | 50 |
| 1995 | Northern flickers | 45 | Buildings, houses | 31,225 |
| | Woodpeckers[1] | 1 | Trees | 600 |
| | Starlings | 6 | Buildings | 2,100 |
| | Pigeons | 1 | Buildings | 0* |
| | Pileated woodpeckers | 3 | Electric poles and buildings | 255,200 |
| Total | | 312 | | 468,791 |

[1]Unspecified species of woodpecker.
[2]Unspecified species of swallows. Could be barn, cliff, tree, bank, and/or northern rough-winged swallow.
*Unable to assess a value for damage.

during lightning storms because they could catch fire, damaging wiring on the towers and disrupt service. Overall, $468,791 in bird damages to property were reported and/or verified by WS during FY 95, 96, and 97.

### 1.2.4 Nuisances.

Birds sometimes congregate in such numbers that their presence can create a nuisance. Examples are urban starling and crow roosts where excreta accumulates and noises of the birds are annoying, Canada geese loitering near public parks or food serving areas, gulls frequenting picnic areas and eateries, etc[3]. WS investigates and helps resolve situations where birds are causing a nuisance. For most nuisance complaints, WS provides technical assistance to resolve the problem. Table 1-7 provides the number of nuisance complaints WS responded to during FY 95, 96, and 97.

## 1.3 PURPOSE OF THE EA.

This EA evaluates ways by which the BDM responsibility of Idaho WS would be conducted to resolve bird conflicts. The EA analyzes European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), domestic feral pigeon (pigeon) (*Columbia livia*), blackbird (Icterinae), ring-billed gull (*Larus delawarensis*), California gull (*L. californicus*), herring gull (*L. argentatus*), great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), double-crested cormorant (*Phalacrocorax pelagicus*), American white pelican (*Pelecanus erythrohynchos*), northern flicker (*Colaptes auratus*), common raven (*Corvus corax*), American crow (*C. brachyrhynchos*), turkey vulture (*Cathartes aura*), black-billed magpie (*Pica pica*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), Canada goose *(Branta canadensis*), greater sandhill crane (*Grus canadensis*), American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), and feral, domestic, non-indigenous, and exotic bird damage management for the protection of agricultural and natural resources, aquaculture, property, and public health and safety in Idaho. Hereinafter, the term blackbirds refers to the red-winged blackbird (*Agelaius phoeniceus*), Brewer's blackbird (*Euphagus cyanocephalus*), yellow-headed blackbird

[3]Estimates of the dollar value of this type of damage are very difficult to assess.

(*Xanthocephalus xanthocephalus*), and brown-headed cowbird (*Molothrus ater*).

Other bird species such as American robins (*Turdus migratorius*), house finches (*Carpodacus mexicanus*), ibis spp. (*Plegadis* spp.), merganser spp. (*Lophodytes cucullatus* and *Mergus* spp.), pileated woodpeckers (*Dryocopus pileatus*), red-headed woodpeckers (*Melanerpes erythrocephalus*), snow geese (*Chen caerulescens*), swallows spp. (*Hirundo* spp., *Tachycineta* spp., *Riparia riparia*, and *Stelgidopteryx serripennis*), barn owls (*Tyto alba*), and western screech owls (*Otus kennicotti*) are briefly mentioned in this EA. However, because WS does not intentionally direct lethal control towards these birds nor predicts any future need, addressing NEPA compliance for these birds and all other bird species not analyzed in Chapter 4 of this EA will be administered through CEs and/or predator EAs (see Section 1.0).

### 1.3.1 Area of Analysis

Idaho encompasses about 53.5 million acres; during Fiscal Year (FY) 97, WS had 392 *Agreements for Control* to conduct BDM on 582,350 acres (MIS 1997). However, WS generally only conducts BDM on a small portion of the properties under *Agreement* in any year. In FY 97, 53 BDM projects were conducted on 37 properties covering an area of about 8,929 acres or about 1.5% of the area under agreement and about 0.017% of the land area of Idaho (MIS 1997). Although the area worked by WS is relatively small in relation to the State, the projects are considered important to the requesters and WS.

### 1.3.2 Summary of Proposed Action.

The proposed action is to continue the current WS BDM program in Idaho for the protection of agricultural and natural resources, aquaculture, property, and public health and safety. This service, at a minimum, would be technical assistance or self-help advice,

**Table 1-7. Nuisance Incidents**.

| FY | Species | Incidents | Loss ($) |
|---|---|---|---|
| 1997 | American crows | 11 | 0* |
| | Pigeons | 5 | 1,051 |
| | Black-billed magpies | 10 | 50 |
| | Common ravens | 1 | 0* |
| | American robins | 1 | 0* |
| | Starlings | 3 | 200 |
| | Swallows[1] | 1 | 50 |
| 1996 | Common ravens | 1 | 0* |
| | Swallows[1] | 3 | 250 |
| | House sparrows | 1 | 0* |
| | American crows | 5 | 0* |
| | Northern flickers | 1 | 100 |
| | Black-billed magpies | 10 | 0* |
| | Canada geese | 1 | 1,000 |
| | American robins | 1 | 0* |
| | Starlings | 5 | 150 |
| 1995 | Ducks[1] | 2 | 50 |
| | Ring-billed gulls | 1 | 0* |
| | Magpies | 7 | 110 |
| | American crows | 8 | 5 |
| | Common ravens | 1 | 0* |
| | House sparrows | 2 | 250 |
| | Hawks[1] | 1 | 0* |
| | Pigeons | 1 | 10 |
| | American robins | 2 | 0* |
| | Swallows[1] | 3 | 1 |
| Total | | 88 | 3,229 |

[1]Unspecified species.

*Unable to assess a value for nuisance complaints.

or where appropriate and when cooperative funding is available, direct operational assistance by WS personnel. An IWDM approach would be used, which would consider all legal and appropriate methods either used singly or in combination to meet the requester needs for reducing damage. Non-lethal methods may include, but are not limited to, habitat modification, cultural practices, animal behavior modification, lure crops, decoy traps, nest destruction, relocation, chemical repellents, and alpha chloralose (oral tranquilizer). Lethal methods used by WS may include shooting, egg addling or destruction, DRC-1339 and euthanasia using $CO_2$. Not all methods are used on every project, but rather the WS Decision Model (Slate et al. 1994) is used to determine the most appropriate method(s) from those available to effectively resolve a particular problem. BDM would be allowed in the State, when requested, on private or public property where a need exists and an *Agreement for Control* or other comparable document has been completed. All management actions would comply with Federal, State, and local laws and regulations.

## 1.4 RELATIONSHIP OF THIS EA TO OTHER MANAGEMENT AND ENVIRONMENTAL DOCUMENTS

WS issued an EIS on the national APHIS, WS program (USDA 1994). This EA is tiered to USDA (1994) wherever pertinent information is applicable.

WS would only conduct BDM on public lands at the request of the land managing agency or permittee and in concurrence with the agency's land use plans or comparable documents.

## 1.5 DECISION TO BE MADE

Based on the scope of this EA, the decision to be made is:

- Should BDM as currently implemented be continued?
- If not, how should WS fulfill its legislative responsibilities for managing bird damage?
- Might the proposal have significant impacts requiring preparation of an EIS?

## 1.6 SCOPE OF THIS ANALYSIS

### 1.6.1 Actions Analyzed.

This EA evaluates BDM to protect agricultural and natural resources, aquaculture, livestock health, property, and public health and safety on private and public property in Idaho.

### 1.6.2 Resources Not Currently Protected by WS BDM.

The current BDM program operates on a small percentage of properties in Idaho as stated on in Section 1.3.1. This EA analyzes impacts not only at the current program level, but at increased program levels should individuals or agencies request assistance. Any increase is anticipated to be small with a few additional impacts.

### 1.6.3 Period for Which This EA is Valid.

This EA would remain valid until WS determines that new needs for action or new alternatives having different environmental effects must be analyzed. At that time, this analysis and document would be reviewed and revised as necessary. WS would also review this EA each year to ensure that it is complete and appropriate to the scope of WS BDM.

### 1.6.4 Site Specificity.

This EA analyzes potential impacts of BDM on private and public lands under *Agreements for Control* in Idaho, and on areas where additional agreements may be written in the reasonably foreseeable future. Because the proposed action is to continue the current program and because the program's goals and responsibility are to provide service when requested within the constraints of available funding and personnel, it is conceivable that additional BDM efforts could occur. This EA anticipates this potential expansion and analyzes the impacts of such expanded efforts as part of the current program. The EA emphasizes significant issues as they relate to specific areas whenever possible. However, the issues that pertain to BDM are the same, for the most part, wherever they occur, and are treated as such. The WS Decision Model (Slate et al. 1992) and WS Directive 2.105 are site-specific procedures for determining methods and strategies to use or recommend for individual actions. Decisions made using the model would be in accordance with mitigation and Standard Operating Procedures (SOP) described herein and adopted or established as part of the Decision.

## 1.7 PREVIEW OF THE REMAINDER OF THIS EA

The remainder of this EA is composed of three Chapters and seven Appendices. Chapter 2 discusses the issues, issues not analyzed in detail, and affected environment. Chapter 3 describes each alternative, alternatives not considered in detail, mitigation and SOPs. Chapter 4 analyzes the environmental impacts associated with each alternative considered in detail. Appendix A is the literature cited, Appendix B discusses the legal authorities of Federal and State agencies in Idaho, Appendix C addresses BDM methods available for use in Idaho, Appendix D provides the list of preparers, consultants, and reviewers, Appendix E provides the informal consultation with the USFWS and their concurrence of findings of WS' Biological Assessment (BA), Appendix F provides the list of tables and figures, and Appendix G displays graphics of Breeding Bird Survey (BBS) and Christmas Bird Count (CBC) population trend data.

## CHAPTER 2: ISSUES

### 2.0 INTRODUCTION

Chapter 2 discusses the issues, including issues that will receive detailed environmental impacts analysis in Chapter 4 (Environmental Consequences), issues used to develop mitigation measures and SOPs, and issues that will not be considered in detail, with the rationale. Pertinent portions of the affected environment will be addressed in this chapter in the discussion of issues used to develop mitigation measures. Additional affected environments will be incorporated into the discussions of the environmental impacts in Chapter 4.

The following issues were identified as requiring detailed analysis in Chapter 4 of this EA.

**Issue 1** - Cumulative Effects of WS BDM on Target Bird Species Populations

**Issue 2** - Effects of WS BDM on Non-target Species Populations, Including Threatened and Endangered (T&E) Species

**Issue 3** - Risks Posed by WS BDM Methods to the Public and Domestic Pets

**Issue 4** - Efficacy and Selectivity of BDM Methods

**Issue 5** - Cost-Effectiveness of BDM Methods

### 2.1 ISSUES USED TO DEVELOP MITIGATION MEASURES AND SOPs

#### 2.1.1 Effects of WS BDM on Non-target Species Populations, Including T&E Species.

A common concern among members of the public and wildlife professionals, including WS personnel, is the effect of BDM on non-target species, particularly T&E species. WS' mitigation measures and SOPs are designed to reduce the effects on non-target species' populations and are presented in Chapter 3.

To reduce the risks of adverse effects to non-target species, WS would select BDM methods that are as target-selective as possible or apply such methods in ways to reduce the likelihood of impacting non-target species. Prior to the application of DRC-1339, for example, pre-baiting is required to monitor for non-target species that may consume treated bait. If non-target species that could consume treated bait are observed, then the use of DRC-1339 would be postponed or not applied. For trapping activities, WS would select trapping locations which are highly used by the target species and use baits which are preferred by the target species.

To avoid jeopardizing T&E species, biological evaluations were conducted to assess potential adverse effects and to establish mitigation measures and SOPs. WS consulted with the USFWS concerning potential impacts of WS methods on T&E species and has obtained a Biological Opinion (BO) (USFWS 1992a). Section 7 of the Endangered Species Act (ESA) requires Federal agencies to insure that their actions are not likely to jeopardize the continued existence of T&E species. If it is determined that a listed species is likely to be adversely affected by the proposed project, the ESA requires a formal Section 7 consultation. In July 1997, WS prepared a BA of the proposed actions and forwarded it to the USFWS for concurrence of findings (Appendix E). The USFWS concurred with the BA that the proposed action is unlikely to adversely affect listed species in Idaho (Appendix E).

### 2.1.2 Risks Posed by WS BDM Methods to the Public and Domestic Pets.

The primary toxicant used and proposed for use by Idaho WS is DRC-1339. DRC-1339 is one of the most extensively researched chemicals and causes a quiet, uneventful, and apparently painless death (USDA 1994, USDA 1995). DRC-1339 is regulated by the U.S. Environmental Protection Agency (EPA) through the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), by Idaho State Pesticide Laws, and by WS Directives. Based on a thorough Risk Assessment, APHIS concluded that, when WS program chemical methods are used according to label directions, they are highly selective to target individuals or populations, and such use has negligible impacts on the environment (USDA 1994). The Idaho WS program properly disposes of any excess solid or hazardous waste.

Shooting with shotguns, air rifles, and other firearms is selectively used for the target species and helps in reinforcing other bird scaring and harassment efforts. The use of firearms does pose certain risks. However, to reduce these risks, WS personnel are required to be trained in the safe use and handling of firearms and must receive refresher training at least every three years (WS Directive 2.615). Safety records indicate that Idaho WS has never had a firearm related injury or fatality.

### 2.1.3 American Indian and Cultural Resource Concerns.

WS actions on tribal lands are only conducted at the tribe's request and under signed agreement; thus, the tribes have control over any potential conflict to cultural resources on tribal properties. In consideration of American Indian cultural and archeological interests, the WS program solicited input from the [redacted] within the analysis area. Each Tribe was requested to identify any cultural concerns relating to the proposed WS program; none of the Tribes identified any such concerns. The Idaho State Historical Preservation Office (SHPO) indicated that none of the BDM methods constitute *"undertakings"* as defined by the National Historic Preservation Act (36 CFR Part 800).

### 2.1.4 Environmental Justice and Executive Order 12898 - *"Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."*

Environmental Justice (EJ) is a movement promoting the fair treatment of people of all races, income and culture with respect to the development, implementation and enforcement of environmental laws, regulations and policies. EJ has been defined as the pursuit of equal justice and equal protection under the law for all environmental statutes and regulations without discrimination based on race, ethnicity, or socioeconomic status (The EJ movement is also known as Environmental Equity -- which is the equal treatment of all individuals, groups or communities regardless of race, ethnicity, or economic status, from environmental hazards).

EJ is a priority both within APHIS and WS. Executive Order 12898 requires Federal agencies to make EJ part of their mission, and to identify and address disproportionately high and adverse human health and environmental effects of Federal programs, policies and activities on minority and low-income persons or populations. To meet this, WS developed a strategy that: 1) identifies major programs and areas of emphasis to meet the intent of the Executive Order, 2) minimize any adverse effects on the human health and environment of minority and low-income persons or populations, and 3) carries out the APHIS mission. To that end, APHIS operates according to the following principles: 1) promote outreach and partnerships with all stakeholders, 2) identify the impacts of APHIS activities on minority and low-income populations, 3) streamline government, 4) improve the day-to-day operations, and 5) foster non-discrimination in APHIS programs. In addition, APHIS plans to implement Executive Order 12898 principally through its compliance with the provisions of NEPA.

All WS activities are evaluated for their impact on the human environment and compliance with

Executive Order 12898 to insure EJ. WS personnel use wildlife damage management methods as selectively and environmentally conscientiously as possible. It is not anticipated that the proposed action would result in any adverse or disproportionate environmental impacts to minority and low-income persons or populations.

### 2.1.5 Public's Concern About the Use of Chemicals.

Much of the public concern over the use of toxicants for wildlife damage management is based on an erroneous perception that WS uses non-selective, outdated chemical methodologies. However, chemical methods used and proposed for use by WS have a high degree of selectivity. Currently, the use of toxicants by WS in all instances is regulated by the EPA through the FIFRA, by Memoranda of Understanding (MOUs) with other agencies, and by WS Directives. Based on a thorough Risk Assessment, APHIS concluded that, when WS program chemicals are used according to label directions, they are selective for target individuals or populations, and such use has negligible impacts on the environment (USDA 1994). A decision to ban toxicants is outside the scope of WS' authority. WS could elect not to use toxicants, but those registered for use in Idaho are an integral part of IWDM and their selection for use follows criteria in the WS Decision Model (Slate et al. 1992).

### 2.1.6 Humaneness and Animal Welfare Concerns of Methods Used by WS.

The issue of humaneness and animal welfare, 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. Schmidt (1989) indicated that vertebrate pest damage management for societal benefits could be compatible with animal welfare concerns, if *" . . . the reduction of pain, suffering, and unnecessary death is incorporated in the decision making process."*

Suffering is described as a *" . . . highly unpleasant emotional response usually associated with pain and distress."* However, suffering *" . . . can occur without pain . . . ,"* and *" . . . pain can occur without suffering . . . "* (AVMA 1987). Because suffering carries with it the implication of a time frame, a case could be made for *" . . . little or no suffering where death comes immediately . . . "* (CDFG 1991), such as shooting.

Defining pain as a component in humaneness of WS methods appears to be a greater challenge than that of suffering. Pain obviously occurs in animals. Altered physiology and behavior can be indicators of pain, and identifying the causes that elicit pain responses in humans would *" . . . probably be causes for pain in other animals . . . "* (AVMA 1987). However, pain experienced by individual animals probably ranges from little or no pain to significant pain (CDFG 1991).

Pain and suffering, as it relates to WS damage management methods, has both a professional and lay point of arbitration. Wildlife managers and the public would be better served to recognize the complexity of defining suffering, since *" . . . neither medical or veterinary curricula explicitly address suffering or its relief"* (CDFG 1991).

Therefore, humaneness, in part, appears to be a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. The challenge in coping with this issue is how to achieve the least amount of animal suffering with the constraints imposed by current technology and funding.

WS has improved the selectivity and humanness of management techniques through research and development. Research is continuing to bring new findings and products into practical use. Until new findings and products are found practical, a certain amount of animal suffering could occur when some BDM methods are used in situations where non-lethal damage management methods are not practical or

effective.

Idaho WS personnel are experienced and professional in their use of management methods so that they are as humane as possible under the constraints of current technology, workforce and funding. Mitigation measures/SOPs used to maximize humaneness are listed in Chapter 3.

## 2.2 ISSUES NOT CONSIDERED IN DETAIL, WITH RATIONALE

### 2.2.1 WS' Impact on Biodiversity.

No WS BDM in Idaho is conducted to eradicate a native wildlife species. WS operates according to international, Federal, and State laws and regulations enacted to ensure species viability. Several State statutes direct agencies to consider biological sustainability when making management decisions (Center for Wildlife Law 1996). Idaho does not have a formal biodiversity policy, although it has policies related to wildlife habitat and preservation (Center for Wildlife Law 1996). For instance, Idaho Code 38-1302, the Idaho Forest Practices Act, states that it is the public policy of the State to encourage forest practices that maintain and enhance *"habitat for wildlife and aquatic life."* Any reduction of a local population or group is frequently temporary because immigration from adjacent areas or reproduction soon replaces the animals removed. The impacts of the current WS program on biodiversity are considered minor and not significant nation-wide or State-wide (USDA 1994). WS operates on a relatively small percentage of the land area of Idaho, WS' take of any wildlife species is a small proportion of the total population.

### 2.2.2 Bird Damage is a Cost of Doing Business - a "Threshold of Loss" Should be Established Before Allowing any Lethal BDM.

WS is aware of concerns that Federal BDM should not be allowed until economic losses become unacceptable. This type of policy would be inappropriate to apply to public health and safety situations. Although some losses can be expected and tolerated by agriculture producers and property owners, WS has the legal responsibility and direction to respond to requests for BDM, and it is program policy to aid each requester to minimize losses. The WS Decision Model (Slate et al. 1992) is used to determine an appropriate strategy.

In a ruling for *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 it was only necessary to show that damage from wildlife is threatened, to establish a need for wildlife damage management (U.S. District Court of Utah 1993).

### 2.2.3 BDM Should Not Occur at Taxpayer Expense, but Should be Fee Based.

Funding for WS comes from many sources besides Federal appropriations. Such non-Federal sources include State general appropriations, local government funds (County or City), and private funds which are all applied toward program operations. WS was established by Congress as the program responsible for providing wildlife damage management to the people of the United States. Federal, State and local officials have decided that WS 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. A commonly voiced argument for publicly funded wildlife damage management is that the public should bear responsibility for damage to private property caused by public wildlife. The protection of agricultural resources, property, and public health and safety will

always be conducted by someone. A Federal WS program provides a service to the agricultural producers, protects property, natural resources, and public health and safety, and conducts an environmentally, economically, and biologically sound program in the public interest.

Currently, livestock producers provide funding to WS for BDM at feedlots and dairies through a mandatory collection of $.04 per head of cattle during brand inspection which occurs at the sale of an animal. Livestock producers, dairy operators, and feedlot managers also individually pay for the cost of DRC-1339 when used for reducing damage to livestock feed from starlings and blackbirds. Thus, for the primary focus of BDM in the State, it is fee based.

### 2.2.4 Lethal BDM is Futile Because 50-65% of Blackbird and Starling Populations Die Each Year.

Because natural mortality in blackbird populations is 50-65% per year, some persons argue that this shows lethal BDM is futile (USDA 1994). However, the rate of natural mortality has little or no relationship to the effectiveness of lethal BDM because natural mortality generally occurs randomly throughout a population and throughout the course of a year. Natural mortality is too gradual in concentrations of depredating birds to adequately reduce damage. It is apparent that the rate of mortality from BDM in Idaho is well below the extent of any natural fluctuations in overall annual mortality and is, therefore, inconsequential to regional populations. The resiliency of bird populations does not mean individual BDM actions are not successful in reducing damage, but that periodic BDM actions are necessary in many damage situations.

### 2.2.5 Live-capture and Relocation (Rather Than Killing) of Problem Birds.

Live-capture and relocation may be appropriate in some situations (i.e., if the problem species' population is at very low levels, there is a suitable relocation site, and the additional dollars required for relocation can be obtained.) However, those species that often cause damage problems (i.e., starlings, blackbirds, Canada geese, sandhill cranes, gulls, fish-eating birds, woodpeckers, etc.) are relatively abundant in much of the suitable habitat in Idaho, and relocation is not necessary for the maintenance of viable populations. Any decisions on relocation of migratory waterfowl are coordinated with local [redacted] and [redacted] officials. Although relocation is not necessarily precluded, it would in many cases be logistically impractical.

### 2.2.6 Appropriateness of Preparing an EA (Instead of an EIS) For Such a Large Area.

Some individuals might question whether preparing an EA for an area as large as 53.5 million acres would meet the NEPA requirements for site specificity. As mentioned earlier (Section 1.3), Idaho WS has agreements to conduct BDM on only 582,350 acres in Idaho. In any given year, WS only conducts BDM on or about 9,000 acres or 0.017% of the land area in Idaho. If in fact a determination is made through this EA that the proposed action would have a significant environmental impact, then an EIS would be prepared. In terms of considering cumulative impacts, one EA analyzing impacts for the entire State may provide a better analysis than multiple EA's covering smaller zones.

### 2.2.7 Human Affectionate-Bonds with Individual Birds and Charismatic and Esthetic Birds.

The human attraction to animals has been well documented throughout history and may have instigated the domestication of animals. The American public is no exception and today many American households own pets. In addition, some people consider individual wild mammals and birds as “pets,” or exhibit affection toward these animals, especially people who come in contact with birds such as

homeowners and visitors to city/State parks, etc. Examples would be people who visit a city park to feed waterfowl and homeowners who have bird feeders or bird houses.

Public reaction to damage management actions are variable because the public is comprised of different values toward wildlife. Some individuals that are negatively affected by birds support lethal removal or relocation. Other individuals affected by the same birds may oppose lethal removal or relocation. Individuals unaffected by the damage may be supportive, neutral, or opposed to the bird's removal based on personal views.

The pubic's ability to view wild mammals or birds in a particular area would be more limited if the wildlife are removed or relocated. However, immigration of wildlife from other areas could possibly replace the animals removed or relocated during a damage management action. In addition, the opportunity to view or feed other wildlife would be available if an individual makes the effort to visit other parks or areas with adequate habitat.

Idaho WS does not often get involved with nuisance problems at city/State parks where capture and relocation or lethal removal of waterfowl or other birds would be the most appropriate damage management action. However if WS did receive a request from city/State park officials or from others sources, WS will coordinate damage management activities with appropriate natural resources agencies/officials before implementing any actions. Attempts will be made to notify the public who may have developed bonds with the bird(s) in question. WS will consider any concerns raised and will try to mitigate those concerns. Rationale would be provided to the public for the need to remove or relocate the bird(s) and the disposition of the bird(s). Damage management actions would be carried out in a caring, humane, and professional manner.

## CHAPTER 3: ALTERNATIVES

### 3.0 INTRODUCTION

This Chapter consists of four parts: 1) introduction, 2) description of alternatives considered and analyzed in detail, including the No Action/Proposed Action (Alternative 1), 3) alternatives considered but not analyzed in detail with rationale, and 4) mitigation and SOPs for BDM techniques. Four alternatives were recognized, developed, analyzed in detail by WS, and reviewed by the [redacted]). Three additional alternatives were considered but not analyzed in detail.

### 3.1 DESCRIPTION OF THE ALTERNATIVES

#### 3.1.1 Alternative 1 - Continue the Current Federal BDM Program (No Action/Proposed Action).

The No Action alternative is a procedural NEPA requirement (40 CFR 1502), 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 the Council on Environmental Quality's (CEQ's) definition (CEQ 1981).

The No Action/Proposed Action is to continue the current Idaho WS BDM program for the protection of agricultural and natural resources, aquaculture, property, and public health and safety. A major goal of the program is to minimize bird-related losses. To meet this goal, WS would respond to all requests for assistance with, at a minimum, technical assistance, or, where appropriate and when cooperative funding is available, operational damage management, whereby WS personnel conduct damage management actions. An IWDM approach would be implemented allowing for the use of all legal methods, either singly or in combination, to meet the requester needs for reducing bird damage. Agricultural producers, property owners and others requesting assistance would be provided information regarding the use of effective non-lethal and lethal techniques, as appropriate. Non-lethal methods include, but are not limited to, lure crops, environmental/habitat/behavior modification, decoy traps and other live traps, exclusionary devices, nest destruction, chemical repellents, and alpha chloralose. Lethal methods considered by WS include: shooting, egg addling/destruction, snap traps, DRC-1339, and American Veterinary Medical Association approved euthanasia techniques such as $CO_2$. BDM would be allowed in the State, when requested, on private or public property where a need has been documented and an *Agreement for Control* or other comparable document has been completed. All management actions would comply with appropriate laws, orders, policies, and regulations.

#### 3.1.2 Alternative 2 - Non-lethal Damage Management Required Before Lethal.

This alternative would not allow for the use of lethal methods by WS until non-lethal methods have been employed in a given damage situation and found to be ineffective or inadequate. No preventive lethal damage management would be allowed. Producers, however, would still have the option of implementing their own lethal damage management measures.

### 3.1.3 Alternative 3 - Technical Assistance Only.

This alternative would not allow for WS operational BDM in Idaho. WS would only provide technical assistance and make recommendations when requested. Producers, property owners, agency personnel, or others could conduct BDM using traps**,** shooting, Avitrol, or any non-lethal method that is legal. Avitrol could only be used by State certified pesticide applicators in Idaho. Currently, DRC-1339 and alpha-chloralose are only available for use by WS employees. Therefore, use of these chemicals by private individuals would be illegal.

### 3.1.4 Alternative 4 - No Federal WS BDM.

This alternative would eliminate Federal involvement in BDM in Idaho. WS would not provide direct operational or technical assistance and requesters of WS services would have to conduct their own BDM without WS input. Information on BDM methods development would still be available to producers and property owners. DRC-1339 and alpha-chloralose are only available for use by WS employees. Therefore, use of these chemicals by private individuals would be illegal. Avitrol could be used by any State certified restricted-use pesticide applicator.

## 3.2 BDM STRATEGIES AND METHODOLOGIES AVAILABLE TO WS IN IDAHO

The strategies and methodologies described below are common to Alternatives 1 and 2. Under Alternative 3, WS personnel would only make technical assistance recommendations and conduct demonstrations Alternative 4 would terminate both WS technical assistance and operational BDM by WS. The methods used or recommended by WS would be supported by the WS Decision Model (Slate et al. 1992).

### 3.2.1 Integrated Wildlife Damage Management (IWDM).

The most effective approach to resolving wildlife damage is to integrate the use of several methods simultaneously or sequentially. The philosophy behind IWDM is to implement effective management methods in a cost-effective[4] manner while minimizing the potentially harmful effects on humans, target and non-target species, and the environment. IWDM draws from an array of options to create a combination of methods for the specific circumstances. IWDM may incorporate cultural practices (i.e., animal husbandry), habitat modification (i.e., exclusion), animal behavior (i.e., scaring), local population reduction, or any combination of these, depending on the characteristics of the specific damage problem. 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
- Presence of non-target species

### 3.2.2 The IWDM Strategies That WS Employs.

**Technical Assistance Recommendations.** The implementation of damage management actions is the responsibility of the requester, however, WS personnel provide information, demonstrations, and advice

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

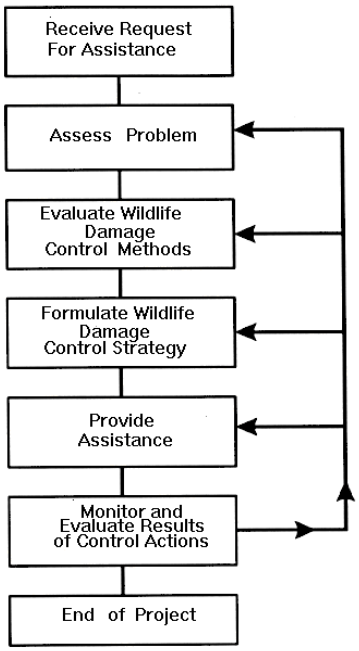
on available and appropriate wildlife damage management methods. Technical assistance includes demonstrations on the proper use of management devices (i.e., propane exploders, exclusionary devices, cage traps, etc.) and information on animal husbandry, habitat management, and animal behavior modification that could reduce damage. Technical assistance is generally provided following consultation, or an on-site visit with the requester. Generally, several management strategies are described to the requester for short and long-term solutions to damage problems; these strategies are based on the level of risk, need, and practical application.

**Direct Damage Management Assistance.** This is the conduct or supervision of damage management by WS personnel. Direct damage management assistance is initiated when the problem cannot effectively be resolved through technical assistance, and when *Agreements for Control* or other comparable documents provide for WS direct damage management. The initial investigation defines the nature, history, extent of the problem, species responsible for the damage, and methods that would be available to resolve the problem. Professional skills of WS 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. WS considers the biology and behavior of the damaging species and other factors using the WS Decision Model (Slate et al. 1992). The recommended strategy(ies) may include any combination of preventive and corrective actions that could be implemented by the requester, WS, or other agency personnel, as appropriate. Two strategies are available: 1) preventive damage management and 2) corrective damage management.

**Preventive Damage Management** is the practice of applying wildlife damage management strategies before damage occurs, based on historical problems and the probability of the damage recurring and an imminent threat of public health or disease transmission. As requested and appropriate, WS personnel provide information and conduct demonstrations or take action to prevent historical losses from recurring. Examples would be applying bird-proof netting over fruit trees before the fruit becomes attractive to birds and the removal of a bird(s) from a food processing plant, restaurant, or feedlot before the bird(s) has caused damage or threat to public or livestock health.

**Corrective Damage Management** is applying wildlife damage management to stop or reduce current losses. As requested and appropriate, WS personnel provide information and conduct demonstrations, or with the appropriately signed *Agreement for Control* or other comparable document, take action to prevent additional losses. For example, in areas where birds are consuming livestock feed, WS may provide information to the resource owner about exclusionary methods, animal husbandry, mechanical scare devices and pyrotechnics, or conduct operational damage management to reduce losses.

**Figure 3-1. APHIS, WS Decision Model**




### 3.2.3 WS Decision Making.

The WS Decision Making process is a procedure for evaluating and responding to damage complaints (Figure 3-1). WS personnel are frequently contacted only **after** requesters have tried non-lethal methods and found them to be inadequate for reducing damage to an acceptable level. WS personnel evaluate the

appropriateness of strategies, and methods are evaluated for 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 developed 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. In terms of the WS Decision Model (Slate et al. 1992), most damage management efforts consist of continuous feedback between receiving the request and monitoring the results with the damage management strategy.

**3.2.4 BDM Methods Available for Use.** (Appendix C further describes BDM Methodologies)

**3.2.4.1 Non-chemical, Non-lethal Methods.**

**Agricultural producer and property owner practices** consist primarily of non-lethal preventive methods such as cultural methods[5] and habitat modification.

**Animal behavior modification** refers to tactics that alter the behavior of birds to reduce damages. Some but not all of these devices are:

- Exclusions such as netting
- Propane exploders
- Pyrotechnics
- Distress calls and sound producing devices
- Visual repellents and scaring tactics

**Relocation** of damaging birds to other areas.

**Nest destruction** of the target species before eggs or young are in the nest.

**Habitat/environmental modification** to attract or repel certain bird species.

**Live traps** are various types of traps designed to capture birds alive for relocation or euthanasia. Some examples are: clover traps, decoy traps, nest box traps, mist nets, etc.

**Lure crops/alternate foods** are crops planted or other food resources provided to mitigate the potential loss of higher value crops.

**3.2.4.2 Chemical, Non-lethal Methods.**

**Methyl Anthranilate** is a taste repellent for birds. It is normally applied to turf or surface water to repel birds from small areas.

**Avitrol** is a chemical frightening agent, however, a small portion of the birds could be killed if they consume too much treated bait (Johnson and Glahn 1994).

**Alpha-chloralose** is used as an immobilizing agent, which is a central nervous system depressant, and used to capture waterfowl or other birds.

**3.2.4.3 Mechanical, Lethal Methods.**

[5] Generally involves modifications to the level of care or attention given to protected resources.

**Egg addling/destruction** is the practice of destroying the embryo in the egg prior to hatching; physically breaking or oiling eggs; or directly removing eggs from a nest and destroying them.

**Shooting** is the practice of selectively removing target birds by shooting with an air rifle, shotgun, or rifle.

**Snap traps** are modified rat traps that are used to remove individual birds.

**3.2.4.4 Chemical, Lethal Methods.** (See Section 2.1.5 for registration and risk information)

**DRC-1339** is a slow acting avicide for reducing damage from several species of birds, including blackbirds, starlings, pigeons, crows, ravens, magpies, and gulls. DRC-1339 is highly toxic to sensitive species but only slightly toxic to non-sensitive birds, predatory birds and mammals. This chemical is the primary chemical method used for starling and blackbird damage management under the current and proposed action.

**$CO_2$** is sometimes used to euthanize birds which are captured in live traps and when relocation is not a feasible option. Live birds are placed in a container such as a plastic 5-gallon bucket or chamber and sealed shut. $CO_2$ gas is released into the bucket or chamber and birds quickly die after inhaling the gas.

## 3.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL WITH RATIONALE

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

### 3.3.1 Compensation for Bird Damage Losses.

The Compensation Alternative would require the establishment of a system to reimburse persons impacted by bird damage. This alternative was eliminated from further analysis because no Federal or State laws/policies or regulations exist to authorize such payments. Under this alternative, WS would not provide any direct operational BDM. Aside from the lack of legal authority, analysis of this alternative in USDA (1994) indicates it has many drawbacks, some of these are:

- It would require larger expenditures of money and labor to investigate and validate all losses, and administer appropriate compensation.
- Compensation would most likely be below full market value.
- It would be difficult to make timely responses to all requests.
- Many losses could not be verified, for example, it would be impossible to prove conclusively in some situations that birds were responsible for disease outbreaks.
- Compensation would provide less incentive to limit losses through improved husbandry or cultural practices, or other management strategies.
- Not all entities would rely completely on compensation and lethal damage management would most likely continue as permitted by law.
- Compensation would not be practical for reducing threats to public health and safety.

### 3.3.2 Bounties.

Bounties are payment of funds for killing birds suspected of causing losses. This alternative is not supported by wildlife and agricultural agencies such IDFG, IDA, and USFWS. WS does not have the authority to establish a bounty program and does not support this concept because:

- Bounties are generally not effective in reducing damage and it would be difficult to measure overall efficacy.
- Circumstances surrounding the bounty of birds are completely unregulated.
- There is a tendency for fraudulent claims to occur. It is difficult or impossible to prevent claims for birds taken from outside damage management areas.

### 3.3.3 Short Term Eradication and Long Term Population Suppression.

In Idaho, eradication of native bird species is not a desired population management goal of State agencies. Although generally difficult to achieve, eradication of a local population of pigeons or starlings may be the goal of individual BDM projects. This could, in part, be because pigeons and starlings are not native to North America and are only present because of human introduction. However, eradication as a general strategy for reducing bird damage would not be considered in detail because:

- WS opposes eradication of any native wildlife species.
- IDFG and IDA oppose eradication of native Idaho wildlife species.
- Eradication is not acceptable to most members of the public.
- Regional or State-wide attempts at eradication of any native bird species would be next to impossible under the restrictions on methods and areas where BDM could be used in Idaho.

Suppression would direct efforts toward managed reduction of targeted populations or groups of birds. In areas where damage could be attributed to localized populations, WS could decide to implement local population suppression, if supported by the WS Decision Model (Slate et al. 1992) and after consulting with the IDFG and USFWS. However, with the constraints on BDM methods, localized population suppression would be difficult to maintain.

Problems with the concept of suppression are similar to those described above for eradication. It is not realistic or practical to consider large-scale population suppression as the basis of the WS program in Idaho. Typically, WS activities in the State would be conducted on a very small portion of the sites or areas inhabited or frequented by the targeted species as discussed in Section 1.3.

## 3.4 MITIGATION AND STANDARD OPERATING PROCEDURES FOR BDM TECHNIQUES

Mitigation measures are features of an action that serve to prevent, reduce, or compensate for impacts that otherwise might result from that action. The current WS program, nationwide and in Idaho, uses many such mitigation measures and are discussed in detail in Chapter 5 of USDA (1994). The following mitigation measures apply to the alternatives in this EA, as indicated in the columns.

**Table 3-1. Mitigation Measures.**

| MITIGATION MEASURES | ALTERNATIVES | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| ***Animal welfare and humaneness of methods used by WS*** | | | | |
| WS would continue to improve the selectivity and humaneness of management devices. | X | X | X | |
| Chemical immobilization/euthanasia procedures that do not cause pain would be used. | X | X | | |
| All live traps would be maintained with food and water. | X | X | | |

| MITIGATION MEASURES | ALTERNATIVES | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| The use of newly-developed, proven, non-lethal methods would be encourages when appropriate. | X | X | X | |
| ***Safety concerns regarding WS' BDM methods*** | | | | |
| All pesticides are registered with the EPA and IDA. | X | X | | |
| EPA-approved label directions would be followed by WS employees. | X | X | | |
| The WS Decision Model (Slate et al. 1992), designed to identify the most appropriate BDM strategies and their impacts, is used to determine management strategies. | X | X | | |
| Most avicides and live traps would be primarily restricted to private lands. | X | X | | |
| WS employees that use pesticides are trained to use each material and are certified to use pesticides under EPA approved certification programs. | X | X | | |
| WS employees, who use pesticides, participate in IDA approved continuing education to keep abreast of developments and maintain their certifications. | X | X | | |
| Live traps would be placed so that captured animals would not be readily visible from any road or public area. | X | X | | |
| Warning signs would be posted at feedlots and dairies where DRC-1339 is applied to cull French fries. These signs would be removed at the end of the BDM period. | X | X | | |
| USFWS and IDFG personnel are notified prior to WS' use of avicides at feedlots and dairies. | X | X | | |
| Avicide use, storage, and disposal conforms to label instructions and other applicable laws and regulations, and Executive Order 12898. | X | X | | |
| Material Safety Data Sheets for avicides are provided to all WS personnel involved with specific BDM activities. | X | X | X | |
| ***Concerns about impacts of BDM activities on T&E species, Species of Special Concern, and non-target species.*** | | | | |
| WS consulted with the 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. | X | X | | |
| Live traps in areas occupied by peregrine falcons would be checked at least daily. | X | X | | |
| The presence of non-target species are monitored before using avicides at feedlots and dairies to reduce the risk of mortality to non-target species. | X | X | | |

| MITIGATION MEASURES | ALTERNATIVES | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| If non-target species are present or likely to be present at feedlots or dairies where avicides are being applied, then WS would remain on site to discourage non-target visitation. | X | X | | |
| Research is being conducted to: 1) improve BDM methods and strategies, 2) increase selectivity for target species, 3) develop effective non-lethal methods, and, 4) evaluate non-target hazards and environmental impacts. | X | X | X | |
| WS personnel are trained and experienced to select the most appropriate method for taking targeted animals and excluding non-target species. | X | X | | |
| WS would initiate informal consultation with the USFWS following any incidental take of T&E Species. | X | X | | |
| Only WS personnel trained in whooping crane identification would be used in greater sandhill crane damage management projects. | X | X | | |
| WS personnel would contact cooperating agencies to determine peregrine falcon nesting and roosting locations in areas where pigeon damage management is proposed. | X | X | | |
| If a bald eagle, peregrine falcon, or whooping crane is encountered during aerial hazing operations, activities would cease until the bird(s) is gone. | X | X | | |
| When practical, WS would work with the [redacted] to facilitate removal of depredating greater sandhill cranes by licensed sport hunters during the legal sport hunting seasons. | X | X | X | |

## CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

### 4.0 INTRODUCTION

Chapter 4 provides information needed for making: 1) informed decisions and 2) in selecting the appropriate alternative for meeting the purpose of the proposed action. The chapter analyzes the environmental consequences of each alternative in: 1) relation to the issues identified for detailed analysis in Chapter 2 and 2) comparison with the proposed action to determine if the real or potential impacts are greater, lesser, or similar.

### 4.1 ENVIRONMENTAL CONSEQUENCES

The following resource values in Idaho are not expected to be significantly impacted by the alternatives analyzed: soils, geology, minerals, water quality/quantity, flood plains, wetlands, visual resources, air quality, prime and unique farmlands, aquatic resources, timber, and range. These resources will not be analyzed further. In addition, no Environmental Justice issues have been identified relative to BDM that are inconsistent with Executive Order 12898.

**4.1.1 Social and Recreational Concerns.** It is not anticipated that the proposed action would result in any adverse cumulative impacts to social and recreational resources. Further discussion of WS activities on social and recreational concerns are found in USDA (1994).

**4.1.2 Cumulative and Unavoidable Impacts.** Cumulative and unavoidable impacts are discussed in relationship to each of the key bird species and the environmental impacts are analyzed in this Chapter. This EA recognizes that the total annual removal of individual birds by all causes is the cumulative mortality. It is not anticipated that the proposed action would result in any adverse cumulative impacts to bird populations, including T&E species (Section 4.2).

**4.1.3 Wastes (Hazardous and Solid).** When avicide-treated bait cannot be used or when baits are not totally consumed, the bait is disposed of according to label instructions or directions provided by the IDA. It is not anticipated that the proposed action would result in any adverse cumulative impacts because of solid or hazardous wastes.

**4.1.4 Target and Non-target Wildlife Species.** Cumulative impacts to potentially affected bird species are addressed in detail in Section 4.2.1.

**4.1.5 Irreversible and Irretrievable Commitments of Resources.** Other than relatively minor uses of fuels for motor vehicles and electricity for office operations, no irreversible or irretrievable commitments of resources result from the Idaho WS program. Based on these estimates, the Idaho WS program produces negligible impacts on the supply of fossil fuels and electrical energy.

**4.1.6 Impacts on Cultural or Historical Sites or Resources.** WS BDM actions are not *"Federal undertakings"* and would not adversely affect historic resources. The Idaho SHPO concurs with this finding and no additional mitigations are required. Any WS BDM conducted on American Indian tribal land which is managed or controlled by the tribe would be coordinated with the respective tribal members or elders.

## 4.2 ISSUES ANALYZED IN DETAIL

This Section analyzes the environmental consequences of the issues analyzed in detail using the current program as the baseline for comparison with the other alternatives to determine if the real or potential impacts are greater, lesser or the same. Table 4-6 summarizes a comparison of the issues and impacts of each Alternative.

### 4.2.1 Cumulative effects of WS BDM on Target Species Populations.

Analysis of this issue is limited primarily to those species most often killed during WS BDM. The analysis for magnitude of impact generally follows the process described in Chapter 4 of USDA (1994). Magnitude is described in USDA (1994) as " . . . *a measure of the number of animals killed in relation to their abundance*." Magnitude may be determined either quantitatively or qualitatively. Quantitative determinations are based on population estimates, allowable harvest levels, and actual harvest data. Qualitative determinations are based on population trends and harvest data when available. Generally, WS only conducts damage management on species whose population densities are high and usually only after they have caused damage.

#### 4.2.1.1 Alternative 1 - Continue the Current Federal BDM Program (No Action/Proposed Action).

The majority of targeted bird species are migratory and range from northern to southern latitudes during the year, therefore, this analysis focuses on regional, subregional and Idaho population data. The BBS and CBC are used as sources of information about population trends. The BBS is a national survey that annually gathers data during the nesting season, primarily in June, regarding breeding birds. The survey consists of about 3700 routes across the U.S. and Canada. The northwest and southwest regions, as defined by Dolbeer and Stehn (1983), are used because the boundaries of these geographical units are based on ecological differences making regions more meaningful in terms of migratory bird problems. The CBC is also an annual survey conducted in one day during a 2-week period around Christmas and coordinated by the National Audubon Society. The surveys are timed and area searches by groups of bird watchers within 15-mi diameter circles. The data are used by the USFWS to calculate winter population trends for about 300 species. The data base contains bird counts from 1959-1997.

**Non-lethal Damage Management Activities.**

Preference is given to non-lethal damage management when practical and effective (WS Directive 2.101). Idaho WS dispersed about 2,560 birds of at least 4 species (Canada geese,

ducks, turkey vultures, and common ravens) during FY 95, 96, and 97 using non-chemical harassment methods such as propane exploders and pyrotechnics. One advantage of dispersing birds would be that relatively no cumulative impacts occur. However, there would be the possibility that the birds could return to the damage site and inflict additional damages or move to another site and continue to cause damage. Normally, large scale relocation activities are limited to wild and feral/domestic waterfowl in and around urban areas and city/State parks. Live capture and relocation is not normally practical for smaller birds such as starlings, blackbirds, pigeons, etc. because of: 1) the number of birds WS confronts annually, 2) potential public safety and health issues (i.e., capturing birds at an airport where they were involved with aircraft hazards and relocating those birds to another area where they could return to an airport and continue to be a safety hazard to aircraft, and relocating birds being removed because of potential disease transmission to people could potentially threaten public health at the new site), 3) competition for food resources and other limiting factors with other birds and wildlife, 4) acceptable release sites, and 5) costs of relocation would increase because of the great distance it requires to relocate birds if trying to prevent them from returning to the original site.

**Lethal Damage Management Activities.**

Lethal damage management is implemented when a BDM problem cannot effectively be resolved through non-lethal damage management and where *Agreements for Control* or other comparable documents provide for direct damage management. Table 4-1 provides information on the

**Table 4-1. Birds Killed by WS in FY 95, 96, and 97.**

| FY | Species | Damage Management Methods | | | |
|---|---|---|---|---|---|
| | | Snap Trap | Shooting | DRC-1339 | Live-trapping and Euthanasia |
| 1997 | Northern flickers | 6 | 3 | | |
| | Ring-billed gulls | | 2 | | |
| | American coots | | 14 | | |
| | Western screech owl[1] | 1 | | | |
| | Pigeons | | 387 | 35 | 905 |
| | Starlings | 6 | 2 | 56,931[2] | |
| 1996 | Northern flickers | 4 | | | |
| | Gulls[3] | | 49 | | |
| | Great blue herons | | 2 | | |
| | Pigeons | | 348 | | |
| | Starlings | 4 | | 284,705[2] | |
| 1995 | Northern flickers | 1 | 2 | | |
| | Ring-billed gulls | | 11 | | |
| | Pigeons | | 313 | 4,100[2] | 214 |
| | Starlings | 4 | | 135,504[2] | |

[1] Non-target taken in a snap trap set for a northern flicker.
[2] Estimated take as recorded on WS' MIS. These are considered minimum estimates.

number of birds Idaho WS killed by method during BDM in FY 95, 96, and 97.

**USFWS Depredation Permits (DPs).**

The USFWS has authority for management of migratory birds and to issue DPs (50 CFR 21.41) to persons who clearly show evidence of migratory birds causing or about to cause damage. WS has the responsibility for responding to and attempting to reduce damage caused by migratory birds as specified in an MOU with the [redacted] and an MOU with the [redacted] and when funding permits. In cases where intermittent damage is occurring and it is not feasible or practical for WS to provide operational assistance, WS could recommend to the [redacted] the issuance of a DP to the resource owner (WS Directive 2.301). The [redacted] is the only Federal agency authorized to issue DPs for migratory birds and is responsible for that NEPA analysis. Table 4-2 provides information on the number of requests for assistance WS received in FY 95, 96, and 97 for BDM and the number of DPs WS recommended and forwarded to the [redacted]

#### 4.2.1.1.1 WS, at Times, Conducted Lethal BDM on the Species Below.

**Starling and Blackbird Biology and Population Impacts.**

Starlings were introduced into North America in 1890-91 when about 80 pairs were released into New York City's Central Park (Bump and Robbins 1966). In just 100 years, starlings had colonized the U.S. and expanded into Canada and Mexico, and have become one of the most common birds in North America (Feare 1984).

Precise counts of blackbird and starling do not exist, but one estimate placed the U.S. summer population of blackbirds at more than 1 billion birds (USDA 1994) and the winter population at 500 million birds (Royall 1977). Meanley and Royall (1976) estimated 538 million blackbirds and starlings in winter roosts across the country during the winter of 1974-75. Of this total about 26% or 139 million were in the west (Meanly and Royall 1976).

An extensive population survey by Dolbeer and Stehn (1983) showed that in the northwestern U.S., the number of breeding starlings tripled between 1968 and 1981. BBS data (Sauer et al. 1997) indicate a decrease of about 1.4% annually in the starling breeding populations in the western U.S. from 1966-1996, however, Idaho population trend data shows

**Table 4-2. Requests for Assistance With Migratory Birds and the Number of DPs Recommended by WS in FY 95, 96, and 97.**

| Species | Requests for Assistance[1] | Permits Recommended[2] |
|---|---|---|
| American coots | 1 | 1 |
| American crows | 24 | 0 |
| American robins | 5 | 0 |
| American white pelicans | 2 | 0 |
| Bald eagles | 1 | 1 |
| Barn swallows | 9 | 0 |
| Black-billed magpies | 52 | 0 |
| Black-crowned night herons | 32 | 0 |
| Blackbirds | 1 | 0 |
| California gulls | 1 | 0 |
| Canada geese | 68 | 3 |
| Barn owls | 1 | 0 |
| Common ravens | 20 | 0 |
| Double-crested cormorants | 2 | 2 |
| Ducks[3] | 19 | 0 |
| Egrets/herons/cormorants[4] | 4 | 3 |
| Golden eagles | 2 | 0 |
| Great blue herons | 42 | 2 |
| Greater sandhill cranes | 16 | 0 |
| Hawks[3] | 2 | 0 |
| House flinches | 3 | 0 |
| Ibises[3] | 2 | 0 |
| Mergansers[3] | 2 | 0 |
| Multiple species[4] | 6 | 6 |
| Northern flickers | 123 | 5 |

Table continued on next page.

an increase of about 2% per year for that same time period.

**Table 4-2. Continued from previous page.**

| Species | Requests for Assistance[1] | Permits Recommended[2] |
|---|---|---|
| Owls[3] | 1 | 0 |
| Pileated woodpeckers | 6 | 2 |
| Red-headed woodpeckers | 1 | 0 |
| Ring-billed gulls | 19 | 5 |
| Snow geese | 1 | 0 |
| Turkey vultures | 1 | 0 |
| Woodpeckers[3] | 3 | 0 |
| TOTAL | 472 | 30 |

[1] Number of requests for BDM assistance from the public.
[2] Number of depredation permits recommended by WS after conducting on-site assessments.
[3] Unspecified species.
[4] More than one species of birds were involved in the depredation.

The nationwide starling population has been estimated at 140 million (Johnson and Glahn 1994) and Meanly and Royall (1976) report that the 1974-75 winter starling population in the western States was estimated at 27.8 million birds. All of the above information indicate that populations of starlings and blackbirds are health and viable. The estimated natural mortality of starlings is about 50%. Based on the 1974-75 wintering population estimate, about 14 million starlings die annually in the western States and about 70 million starlings die annually to natural mortality nationally (Meanly and Royall 1976).

Red-winged blackbird population trends show a decrease of about 1% annually from 1966-1996 (Sauer et al. 1997). Yellow-headed blackbirds show a 2.5% per year decrease from 1966-1996 and a slightly lower decrease of about 1% per year from 1980-1996 (Sauer et al. 1997). BBS population trends for Brewer's blackbird from 1966 to 1996 show a decrease of approximately 2.5% per year, and during this same time period, brown-headed cowbird showed an increase of 2% per year (Sauer et al. 1997). Since Idaho WS has not targeted or baited for any red-winged blackbirds, yellow-headed blackbirds, Brewer's blackbirds, or brown-headed cowbirds, there would be no cumulative effects. However, it is possible that some of these species could be present and unidentifiable in flocks of starlings where Idaho WS conducts BDM at feedlots and dairies. Because of this possibility, Idaho WS has determined that BDM would likely have minimal cumulative effects to populations of these blackbirds despite of the BBS population trends, and the removal of damaging blackbirds would have a low magnitude of impact.

Data from Packham (1965) suggests that an average of 57 starlings were killed per pound of DRC-1339 treated bait used at feedlots. Based on the amount of bait distributed by Idaho WS, this would have resulted in a starling take of 531,696 (FY 95), 682,689 (FY 96), and 270,009 (FY 97). Those estimates would account for only 1.9%, 2.5%, and 0.9%, respectively, of the estimated wintering population in the western States reported by Meanly and Royall (1976), and 0.38%, 0.49%, and 0.18%, respectively, of the estimated national population.

Cumulative impacts would be mortality caused by Idaho WS BDM and other known causes of mortality (USDA 1994). Given that the FY 97 estimated mortality caused by Idaho WS accounts for 0.4% of the estimated starling population (27.8 million) in the western States and that the anticipated kill should not exceed 3.6% (1,000,000 starlings) of the population in any future year under the current program, BDM as proposed would have no adverse impact on breeding starling populations (Appendix G).

In addition, starlings, being non-indigenous and because of their negative impacts and competition with native birds, are considered by many wildlife biologists and ornithologists to be an undesirable component of North American wild and native ecosystems. Any reduction in starling populations in North America, even to the extent of complete eradication, could be considered a beneficial impact to native bird species. Additionally, blackbird populations are healthy enough, and the problems they cause great enough, that the [redacted] has established a standing depredation order for use by the public. Under this "order" (50 CFR 21.43), no Federal permit is required by anyone to remove blackbirds if they are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance.

**Feral, Domestic Pigeon Biology and Population Impacts.**

Pigeons, also known as rock doves, are an introduced non-native species to North America and are not protected by law. Any lethal Idaho WS BDM would likely be restricted to sites where pigeons are causing damage, or are considered a health threat or nuisance, and reduction or removal of a local population could be attempted. This action would be considered a beneficial impact since it would reduce disease threats and property damage/defacing.

During FY 95, 96, and 97, Idaho WS killed 6,302 pigeons (Table 4-1). Those birds were taken by shooting (1048 pigeons), live-trapping and euthanasia (1,119 pigeons), and DRC-1339 (4135 pigeons). Western regional BBS (Sauer et al. 1997) and CBC (Sauer et al. 1996) population trend data indicate that pigeon populations are stable region-wide and in Idaho. The impact of Idaho WS BDM is not having an adverse affect on pigeon populations in Idaho or the western CBC region (Appendix G)

**Ring-billed Gull Biology and Population Impacts.**

Ring-billed gulls appear similar to California and herring gulls but are smaller, have yellow feet, and a yellow bill with a black band near the tip. Ring-billed gulls are the most common gulls in Idaho and populations are concentrated near lakes, reservoirs, and other large bodies of water. Like most gulls, ring-billed gulls are omnivorous, feeding on animal and plant matter. Common feeding sites are open refuse dumps, livestock feedlots, fish hatcheries, open fields and food processing plants. Spring arrival of migrants in Idaho begins in March and autumn migration is normally completed in October (Larrison et al. 1967), however, some ring-billed gulls may remain longer or not migrate at all.

BBS population trend data indicate that ring-billed gulls in Idaho have increased about 2% annually from 1966-96 and that 94% of the BBS regions throughout the United States and Canada show this same increase in populations (Appendix G) (Sauer et al. 1997). WS removed 13 ring-billed gulls during FY 95, 96, and 97 by shooting, however, during that same time period, 49 gulls classified as *"Gulls, other"* were removed by shooting (Table 4-1). *"Gulls, other"* are unspecified species, but are probably a combination of ring-billed, California, and herring gulls. WS used the total number of gulls removed (62) in the analysis in the event that all 49 "G*ulls, other"* were ring-billed gulls.

Between FY 95 and 97, WS responded to 19 requests for assistance to reduce ring-billed gull damage. After on-site investigations and assessments, WS recommended that the [redacted] issue five ring-billed gull DPs. Because ring-billed gull population trend data indicate that populations are increasing, the annual removal of damaging gulls by WS under the current program results in a low magnitude of impact.

**California Gull Biology and Population Impacts.**

The California gull is a medium-sized greenish-footed gull, with a gray mantle and black wingtip. The bill is yellow with a red or red and black spot on both sides of the lower mandible (Larrison et al. 1967). It is similar in coloration and size to the ring-billed gull but lacks the black band around the bill (Robbins

et al. 1983). California gulls migrate from the Pacific coast and arrive in Idaho in late March to late April. They normally migrate back to the Pacific coast during August, with most of the population gone by October; stragglers may stay as late as December (Larrison et al. 1967). During the summer, they are more abundant in southern Idaho and the Snake River basin when compared to northern and central Idaho. Scattered flocks and nesting colonies can be found near irrigated agricultural areas. Some adults winter in southern Idaho and feed on earthworms, grasshoppers, and aquatic invertebrates and small invertebrates in fields (Larrison et al. 1967). It is common to see California gulls and ring-billed gulls together in the same flock.

BBS and CBC population trend data indicate that California gull populations are relatively stable in the United States (Sauer et al. 1996, 1997) (Appendix G). Half of the BBS regions report California gull population trends reflect increasing populations while the other half show slightly declining populations. In Idaho, BBS data from 1966 to 1996 shows a 5.7% decrease per year (Sauer et al. 1997).

WS did not report killing any California gulls during FY 96-97. However, during that same period, 49 *"Gulls, other"* were reportedly killed by shooting. Although *"Gulls, other"* may contain a combination of ring-billed, California, and herring gulls, WS used the total number of *"Gulls, other"* (49) in the cumulative impacts analysis in the event that all were California gulls.

During FY 95-97, WS responded to 1 request for assistance for California gull BDM. After WS conducted an on-site investigation and assessment, no recommendation of a DP was made to the [redacted] Although BBS California gull population trend data indicate that they are decreasing in Idaho, they are increasing in the central BBS region. Removal of damaging California gulls under the current Idaho WS has a low magnitude of impact.

**Herring Gull Biology and Population Impacts.**

The herring gull is not common to Idaho, but possibly seen during their migration flights from Pacific coastal areas to northern Canada and Alaska in early spring and back during autumn (Robbins et al. 1983). It is the largest of the 3 species of gulls in Idaho with the body length of about 20 inches and wing span of about 55 inches. Most distinctive adult characteristics are a red dot on the lower bill and pinkish legs and feet. The herring gull can be found near garbage dumps and near lakes and rivers.

BBS population trend data for the western U.S. indicate that herring gull populations have been increasing about 8.6% each year from 1966 to 1996 (Sauer et al. 1997) (Appendix G). WS did not killed any herring gulls in FY 95, 96, and 97, however, 49 gulls classified as *"Gulls, other*" were killed in FY 96. *"Gulls, other"* are unspecified species and can be all or a combination of ring-billed gulls, California gulls, and herring gulls. Because WS can not be certain that the *"Gulls, other"* are not all herring gulls, a conservative approach will be taken by using all 49 *"Gulls, other"* in the analysis for herring gull population impacts.

During FY 95, 96, and 97, Idaho WS did not respond to any requests for herring gull BDM. Because herring gull populations are increasing in the western U.S., the annual removal of damaging gulls by WS under the current program results in a low magnitude of impact.

**Northern Flicker Biology and Population Impacts.**

Flickers have a strong, sharply pointed bill for chiseling and digging into trees or branches for insects, and to excavate nesting cavities. Flickers have black spots on a tanish-white breast and belly and are about 11 inches in length. Males have a black or red "mustache" extending from the gape of the beak to below the eyes. In summer, flickers are distributed from Alaska to the southern regions of the U.S. (Short 1982) and migrate to Mexico and the southern U.S. during winter. The habitats of the flicker are diverse,

from shrub deserts and tree-bordered streams of the Great Plains to everglade hammocks, city parks, montane fir forests, and farm pastures.

Flickers' diet consist of ants, termites, beetles, crickets, aphids, caterpillars, including their eggs, pupae, and larvae, and other insects obtained from trees and the ground (Short 1982). Vegetation such as berries and other fruits make up a large part of the diet in the autumn and winter. The nesting season in Idaho begins in April. Males claim territories and attract females by "drumming," vocalizing, wing flicking, and other displays. Nests are constructed in cavities of dead trees, buildings, fence posts, telephone poles, etc.

During FY 95-97, Idaho WS did not move or disperse any flickers using non-lethal techniques. Idaho WS did kill 16 flickers causing damage to property after the property owners' non-lethal attempts to resolve the damage were unsuccessful (Table 4-1). Those birds were removed by shooting (5), and use of snap traps (11). Between FY 95 and 97, WS services responded to 133 requests for assistance to resolve damage problems from woodpeckers (123 for northern flickers, 3 for "other" species of woodpeckers, 6 for pileated woodpeckers, and 1 for a red-headed woodpecker). After on-site investigations and damage assessments, Idaho WS recommended that 7 DPs (5 for northern flickers and 2 for pileated woodpeckers) be issued by the [redacted]

The BBS (Sauer et al. 1997) and CBC population trend graphs (Sauer et al. 1996) for the western regions indicate that northern flicker populations have slightly decreased (Appendix G). However, contrary to this, the BBS population trend results data for Idaho (the BBS has the northern flickers listed as the red-shafted flicker) reflects a population increase of about 2% annually from 1966 to 1996 (Sauer et al. 1997). Because northern flicker populations appear to be slightly decreasing and/or increasing in Idaho, WS removal of damaging flickers under the current program results in only a low magnitude of impact.

**Great Blue Heron Biology and Population Impacts.**

One of the tallest birds in Idaho, the great blue heron stands about 38 inches tall and has a wing span of about 70 inches (Robbins et al. 1983). Great blue herons are the most widely distributed herons in the U.S. Bent (1963) and Roberts (1992) report that it is commonly seen in Idaho during the spring, summer, and autumn. Herons feed on fish and other aquatic vertebrates and are commonly viewed standing or wading on the shores of ponds, creeks, and rivers. The head of the heron is largely white with dark underparts and the body is primarily bluish in color.

The BBS population trend data for Idaho indicate that great blue heron populations have been increasing about 4% annually from 1966 to 1996 (Sauer et al. 1997) (Appendix G) and indicate that out of a total of 101 BBS regions, great blue heron population trends are increasing in 81 regions (80%).

During FY 95-97, WS shot 2 great blue herons (Table 4-1) and provided assistance with 16 incidents of great blue heron damage and 4 incidents of egrets/herons/cormorants damage and recommended that four DPs be issued by the [redacted] (Table 4-2). Because great blue heron populations appear to be increasing in Idaho, removal of damaging herons by WS under the current program results in a low magnitude of impact.

**American Coot Biology and Population Impacts.**

American coots or "mud hens," are common, duck-sized, blackish-gray birds with a white bill and are distributed over most of the lower 48 States and in Canada (Larrison et al. 1967). Coots migrate to Idaho in late March or mid-April. Autumn flocks form in August and September and migrate to wintering areas. Like several species of waterfowl, coots are omnivorous, with aquatic and terrestrial plants and invertebrates making up most of their diet.

Coots are managed by the USFWS and IDFG for the purpose of hunting and recreation. The 1996 hunting season extends for 93 days in Duck Hunt Areas 1 and 2, and 94 days in Duck Hunt Area 3 (IDFG 1996a). The daily bag limit is 25 coots with a maximum possession limit of 25 after the first day of season. According to Sauer et al. (1997), coot population trends in Idaho have been gradually declining by about 3.7% annually, however, in the Great Plains States and in the Central BBS region, their populations are increasing. CBC population trend data (Sauer et al. 1996) indicate that their populations are relatively stable.

WS data between FY 95-97 indicate that lethal damage management actions resulted in the removal of 14 coots by shooting (Table 4-1). During the same time period, WS responded to one incident of coot damage and recommended to the [redacted] that a DP be issued (Table 4-2). Because the coot is a game bird in Idaho and because there is a hunting season, any birds taken by WS during a damage management action would have minimal impacts to the population. If extensive lethal BDM toward coots would be conducted, WS would consult with the [redacted] regarding potential impacts to the population and hunting opportunities.

#### 4.2.1.1.2. WS Did Not Conduct Lethal BDM on the Species Below, but Did Provide Technical Assistance or Nonlethal Operational BDM.

Even though WS did not provide any lethal BDM to reduce damage to the species below, occasions could arise whereby lethal BDM would be required to reduce damages to acceptable levels or reduce public health and safety risks or threats.

**American White Pelican Biology and Population Impacts.**

American white pelicans are white in color with black wing tips, wing spans of up to 110 inches (Robbins et al. 1983) and weights of 9 to 10 lbs. (Abbate 1993). Summer distributions extend from northern California to British Columbia and eastwardly to Ontario (Abbate 1993). Pelicans arrive in Idaho from winter migration during March. The majority of pelicans nest in large, calm bodies of water in southern Idaho, but some will nest along slow-moving rivers throughout the State. Abbate (1993) estimated the nesting population of pelicans in Idaho between 500 to 1000 individuals during the 1980's. Sexual maturity occurs at about four years of age. Pelicans migrate from Idaho during November to winter on the coastal waters of Mexico and Texas.

The pelican's diet consists primarily of "rough fish" however, reports of pelicans consuming exclusively trout have been documented (Abbate 1993). Adults consume about 2 pounds of fish per day, while chicks require about 3 to 4 pounds per day. The general population trend for pelicans in North America has been upward since the era of inadequate colony protection during the early 1970's (Abbate 1993). Data from the Western BBS region reflects this upward trend in populations and indicates that the western U.S. population has increased nearly 3% annually from 1966 to 1996 (Sauer et al. 1997).

During FY 95-97, WS did not kill any pelicans. WS responded to two incidents of pelican damage to aquaculture but did not recommended DPs be issued by the [redacted] to reduce pelican damage. Because of the increased population trend as indicated in the Western BBS survey and the possible need in the future to use lethal methods in reducing pelican damage, the removal of damaging pelicans by WS would likely result in only a low magnitude of impact.

**Black-crowned Night Heron Biology and Population Impact.**

Black-crowned night-herons are characterized by heavy bodies, short thick necks, and short legs. They are common in Idaho along the Snake River and its tributaries, but are rarely reported in the mountains and the eastern interior of Idaho (Roberts 1992). The diet of the night-heron consists of fish, crustaceans,

aquatic insects, frogs, and small mammals (King and Pyle 1966) and is normally a nocturnal hunter (Bent 1963). The neck and belly are white and have light gray wings. The back and crown of the head are black (Robbins et al. 1983).

BBS population trend data indicate that black-crowned night herons in the Western region are increasing at about 9% annually from 1966 to 1996 (Sauer et al. 1997) and CBC data (Sauer et al. 1996) also show this increasing population trend (Appendix G).

During FY 95-97, WS did not kill any black-crowned night herons. Between FY 95 and 97, WS responded to 32 incidents of black-crowned night heron damage (Table 4-2). After on-site investigations and damage assessments, WS did not recommend any DPs be issued by the [redacted] Because black-crowned night heron populations appear to be increasing in Idaho, removal of damaging herons by WS would result in a low magnitude of impact.

**Canada Goose Biology and Population Impacts.**

Canada geese are the most common and recognized geese in North America. Their body length varies between 16 to 25 inches with a wingspan of 50 to 60 inches (Robbins et al. 1983). Canada geese are readily recognized by their black heads and necks, brownish body and wings, and whitish hind part (Johnsgard 1975). There are at least ten subspecies of Canada geese, however, the *"Greater"* subspecies is the more common in Idaho.

Summering and wintering geese in Idaho belong to the Rocky Mountain Population (RMP) and Pacific Population. IDFG management goals and objectives for Canada geese combine both populations and state to: 1) increase Idaho's breeding and wintering populations, 2) increase the annual goose harvest to 50,000 birds, 3) maintain the average number of geese harvested per hunter per season above 3, and 4) increase hunter days to 130,000 annually (IDFG 1990). During the 1995-96 hunting season, an estimated 98,000 geese were harvested in Idaho; in the RMP, the estimated harvest was 33,400 birds (IDFG 1996b).

The Pacific Flyway management goals for the RMP are to: 1) gradually increase the population to exceed 60,000 geese as measured by the average of the most recent three years of the midwinter inventory, 2) maintain the seasonal breeding, wintering, and molting distribution of this population, 3) maintain suitable amounts of breeding and wintering habitats, and 4) maintain optimum amounts of sport hunting opportunities and viewing, educational, and scientific pursuits (USFWS 1992b, IDFG 1997). The *Plan* specifies that: 1) when the 3-year average midwinter index is less than 60,000, major hunting restrictions should be considered, 2) when the 3-year average midwinter index is from 60,000-80,000 geese, minor harvest adjustments may be made for individual flocks and reference areas, and 3) when the 3-year average midwinter index is above 80,000 geese, consideration should be given to liberalize regulations for most flocks and reference areas (USFWS 1992b, IDFG 1997). The current 3-year (1994-96) midwinter index is 94,809 geese. Due to population growth and hunting season length, limits have been steadily liberalized in recent years; the current Federal regulations allow for a 100-day season, and bag and possession limits of four and eight, respectively. Regulations allow for an early September season but the combined hunting season may not exceed 107 days. In recent years, Idaho selected the most liberal seasons and limits allowed under Federal regulations. In 1996, September hunts were held in eastern Idaho (IDFG 1997) due to growing populations of geese and damage to crops.

The BBS population trend data from 1966 to 1996 reflects an increase of Canada geese by about a 4% and 14% annually for Idaho and in the U.S., respectively (Sauer et al. 1997).

During FY 95-97, WS did not use lethal BDM methods to reduce damage by Canada geese, however, non-lethal methods were used during this same time period to move or disperse 2,450 geese from agricultural crops and other areas where they presented public health and safety problems. In FY 95-97, WS provided

assistance with 68 incidents of damage by Canada geese and after on-site damage assessments, WS recommended that three DPs be issued by the [redacted] Because Canada goose populations appear to be increasing, removal of damaging geese by WS would result in a low magnitude of impact and have low impacts to hunting opportunities.

**Mallard Biology and Population Impacts.**

The mallard is the world's most familiar duck (Gooders and Boyer 1986) and is the most adaptable, occupying a wide range of habitats. The domestic duck, commonly found on farms and inter-urban lakes and ponds, is a product of the domestication of the mallard. Clutch sizes vary from 10-12 eggs and incubation takes about 28 days. One of the mallard's foraging characteristics is its ability to utilize agricultural grain crops as well as natural aquatic foods (Johnsgard 1975).

The IDFG (1990) reports that population trends have steadily declined for the past 15 years and is below the USFWS' desired level nationwide. The decline of mallards is not fully understood, however, most waterfowl biologists agree that recurring drought conditions in nesting areas in Canada are an important factor. Duck production depends upon water conditions and when water is abundant, production is good and poor production is expected when water is scarce. Other factors that may influence mallard population trends are predation, limited nesting habitat, liberal hunting regulations, and harvesting females. In contrast with the IDFG population data, BBS (Sauer et al. 1997) data indicate that population trends of mallards have increased about 4% annually between 1966 and 1996. Nevertheless, WS lethal damage management has never been used to reduce mallard damage and as a result none have been killed. However, non-lethal methods were used in FY 95-97 to move or disperse 30 dabbling ducks (several species of ducks are grouped into this classification) from agricultural crops. In FY 95-97, WS received 19 requests for BDM assistance from the public and natural resource agencies to help reduce duck damage. However, after on-site damage assessments were conducted, WS did not recommend that any DPs be issued by the [redacted] If WS perceived any need to conduct lethal damage management of mallards or any other wild waterfowl, WS would first consult with [redacted]

**Common Raven Biology and Population Impacts.**

Ravens are widely distributed throughout the Holarctic Regions of the world including Europe, Asia, North America and extend 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). Ravens also cause damage to livestock feed, fodder and silage bags, and sometimes interfere with civilian and military aviation flights and jeopardize public safety.

Knight and Call (1981) summarized a number of studies on raven territories and home ranges in the western U.S. Nesting territories ranged in size from 3.62mi$^2$ to 15.7mi$^2$ in Wyoming and Oregon and home ranges varied from 2.53mi$^2$ to 3-6mi$^2$ in Utah and Oregon. BBS data suggest that raven populations are increasing. Trend data from the BBS (1966-1996) show that raven populations in Idaho are increasing at about 10% annually (Sauer et al. 1997). Ravens are seen year-round across the State, suggesting they are abundant. If current raven densities in Idaho were conservatively estimated at about one raven/15mi$^2$, there would be an estimated population of about 5,500 ravens in the State.

During FY 95, WS used non-lethal methods to move or disperse about 60 ravens from areas where they were causing damage. Between FY 95 and 97, WS responded to 20 requests for raven BDM assistance (Table 4-2). After on-site investigations and assessments of damage, WS did not recommend any DPs be issued by the [redacted]. Trend information, cited above, suggests that WS could remove damaging ravens

without adversely impacting the overall raven population in Idaho.

**American Crow Biology and Population Impacts.**

American crows are distributed north to south from the Yukon Territory, Canada, to Baja, California and Gulf of Mexico, and are found from the west coast to the east coast (Johnston 1961). American crows can be found throughout the year in Idaho (Roberts 1992). From their spring nesting colonies, or autumn and winter roosts, they forage for insects, grain, and carrion. In the Pacific Northwest there is little doubt that crows have adapted well to urban life, with many cities supporting populations of crows (Angell 1978). Johnston (1961) reports that crows reach their peak abundance in agricultural areas where there are wooded areas, and have increased in numbers where agricultural practices have increased.

According to the BBS population trend results, crow populations have shown a steady increase of about 2% annually from 1966 to 1996 (Sauer et al. 1997). Crow populations are healthy enough, and the problems they cause great enough, that the USFWS has established a standing depredation order for use by the public. Under this "order" (50 CFR 21.43), no Federal permit is required by anyone to remove crows if they are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance.

During FY 95-97, WS did not use lethal BDM to reduce damage caused by crows, nor were non-lethal methods used to move or disperse crows. Between FY 95-97, WS provided assistance involving 11 incidents of crow damage (Table 4-2), however did not recommend that the [redacted] issue any DPs.

**Black-billed Magpie Biology and Population Impacts.**

Like ravens and crows, black-billed magpies are omnivorous and very opportunistic in their feeding habits (Hall 1994). Farmers growing alfalfa for seed in southern Idaho have confirmed that magpies cause damage when they prey on valuable leaf-cutter bees. The bees are raised as pollinators of alfalfa seed crops, and magpies can cause economic losses as they feed on the pupae emerging from the bee boards housed near the alfalfa fields. Magpies have also been reported creating nuisances when concentrated in large numbers or nesting near patios, outdoor eateries, and other structures of private residents and commercial buildings and businesses.

Gazda and Connelly (1993) documented a nesting density of 35 active magpie nests/mi$^2$ on the Sterling Wildlife Management Area in southeastern Idaho. Magpie populations are apparently healthy enough, and the losses they cause are great enough that the [redacted] has established a standing depredation order. Under this "order" (50 CFR 21.43), no Federal permit is required by anyone to remove magpies if they are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance.

Magpie BBS data for Idaho reflects a slight decrease of about 1% annually from 1966 to 1996 (Sauer et al. 1997), however, from 1992 to present, magpie populations appear to be stable.

WS did not kill any magpies in FY 95-97 (Table 4-1), nor were any moved or dispersed by non-lethal methods. Between FY 95-97, WS received 52 requests for assistance with magpie damage management (Table 4-2), however, WS did not recommend that the [redacted] issue any DPs.

**Turkey Vulture Biology and Population Impacts.**

This species breeds from Canada to southern South America, adapting equally well to deserts, eastern

deciduous forests, and tropical lowlands (Wilbur 1983). Adult turkey vultures are black in color with a bright-red, naked head (Robbins et al. 1983), while immature vultures have black heads. Turkey vultures migrate to Idaho during early April, nest, and return to their winter range in September (Larrison et al. 1967). In western North America, turkey vultures nest predominately in caves, however hollow trees, thickets, and old buildings are also selected (Jackson 1983, Ritter 1983). Usually two eggs are laid during nesting but as many as four eggs have been documented (Jackson 1983).

Turkey vultures are carrion feeders, eating fresh meat or carrion in advanced stages of decay, and will readily feed on mammal and bird carcasses of various sizes. In search of food, vultures soar in circle-type patterns. When food is located by a single bird, it is not long before other vultures are aware of the find and join the feeding.

Local vulture populations have been known to increase and decline (Wilbur 1983) which suggests that food availability could be a limiting factor. A major range expansion into the northeastern U.S. began after 1920, possible caused by a decline in bison carrion in the west and an increase of white-tailed deer populations and other road-killed animals.

The population trend data from 1966 to 1996 indicates that out of 86 BBS regions, turkey vulture population trends are increasing in 78 regions (91%) including the western region (Sauer et al. 1997). One region reports populations are stable, and seven report declining trends (8%) (Sauer et al. 1997).

During FY 95-97, WS did not use lethal BDM to reduce damage by turkey vultures, however, non-lethal methods were used in FY 96 to disperse 20 vultures from an airport where they presented a public safety problem with aircraft. Additionally, WS did not recommend that the [redacted] issue any DPs to reduce turkey vulture damage.

**House Sparrow Biology and Population Impacts.**

House sparrows or English sparrows were introduced to North America from England in 1850 and have spread throughout the continent (Fitzwater 1994). The species is not protected by Federal or State laws. Like starlings and pigeons, because of their negative impacts and competition with native bird species, house sparrows are considered by many wildlife biologists, ornithologists, and naturalists to be an undesirable component of North American native ecosystems. House sparrows are found in nearly every habitat except dense forest, alpine, and desert environments. It prefers human-altered habitats, and is abundant on farms and in cities and suburbs (Robbins et al. 1983).

BBS population trends from 1966-96 show that house sparrows are decreasing in Idaho by about 5% per year. This trend is also reflected throughout North America in that only five BBS regions (8%) out of 64 report house sparrow populations as stable and/or increasing. Between FY 95-97 WS did not kill any house sparrows (Table 4-1) and because they are not afforded protection by Federal law, DP's are not required before they can be killed by the public.

Any BDM involving lethal damage management by WS would probably be restricted to individual sites. Any reduction in house sparrow populations, even to the extent of complete eradication, could be considered a beneficial impact on populations of native bird species.

**Greater Sandhill Crane Biology and Population Impacts.**

The greater sandhill crane is the largest of six subspecies of sandhill cranes and is common to southern and southeastern Idaho during spring, summer, and autumn. During the winter, it migrates to northern areas of Mexico and parts of Texas and New Mexico.

Greater sandhill crane adults stand about 37 inches high and have a wing span of about 80 inches (Robbins et al. 1983). Adult bird coloration is gray with a red crown. Juvenile bird coloration is brownish and they lack the red crown. Adult males are larger than females and weigh about 12 and 9 pounds, respectively. Greater sandhill's breeding habitats in the western U.S. consist of open mountain parks in coniferous forests, willow-dotted streams in sagebrush areas, shallow marshes in sagebrush or arid grasslands, beaver ponds, and other associated wetland habitats (Johnsgard 1983). Their densest known summer concentrations occur at Gray's Lake, Idaho. It was estimated in 1996 that about 49% (8,334) of the total RMP population was in eastern Idaho (IDFG 1997).

Foraging behaviors of sandhill cranes vary by season and area and they adjust their diets to local resources. However, corn and other small grains are the most important food items during spring migration and an important aspect of crane survival in winter and spring (Johnsgard 1983). Other food items consist of invertebrates (worms, grasshoppers, grubs, etc.) and various vegetation. Sandhill cranes forage primarily on land and do much digging with their bills when necessary to extract food items from the soil (Johnsgard 1983). In eastern Idaho, sandhill cranes feed heavily on small grains and potatoes during late summer and autumn. Significant losses have been documented for many years. As a result, the Idaho Fish and Game Commission approved a management plan for reducing sandhill crane crop damage (IDFG 1997), which recommends providing 600-1,000 acres of lure crops, organized hazing programs, issuance of Federal/State DPs, and a autumn hunting season.

BBS population trends for Idaho show that greater sandhill crane populations have decreased annually by about 2.4% from 1966 to 1996, but show an annual increase for that same time period in the western BBS region of about 5% (Sauer et al. 1997).

During FY 95-97, WS did not kill any greater sandhill cranes (Table 4-1) but did receive 16 requests for sandhill crane damage management assistance; no DPs were recommended to the [redacted] Because sandhill crane populations appear healthy, and are sport hunted in Idaho and other States, removal of greater sandhill cranes causing damage by WS would result in a low magnitude of impact and have low impacts to hunting opportunities.

**Double-crested Cormorant Biology and Population Impacts.**

The double-crested cormorant is one of six species of cormorants breeding in North America and has the widest range (Hatch 1995). The double-crested cormorant inhabiting southern Idaho belongs to the West Coast population and numbers about 31,000 breeding pairs. The number of breeding pairs in southern Idaho is estimated between 500 and 5,000 (Hatch 1995). Adult cormorants stand 27 inches tall with wing spans of 50 inches (Robbins et al. 1983) and males weight about 5.3 pounds and females about 5 pounds (Abbate 1993). Plumage of adults is black with a greenish gloss and juveniles are dark brown with a pale neck and underparts (Palmer 1962).

Hatch (1995) reports that West Coast populations in Canada and the U.S. are increasing, but the status of the Mexican populations is unclear. The western BBS region reflects that double-crested cormorants have been increasing about 2% each year from 1966 to 1996 (Sauer et al. 1997).

Idaho WS has not used lethal means to reduce cormorant damage to aquaculture, nor have non-lethal methods been used to move or disperse cormorants from areas experiencing damage, or where they have presented a public health or safety problem. WS has responded to two requests in FY 95-97 for BDM assistance in dealing with cormorant damage and one incident of egrets/herons/cormorants (Table 4-2) damage. These responses resulted in WS recommending that the [redacted] issued two DPs. Because cormorant populations appear to be increasing in the Western BBS region, removal of damaging cormorants would result in a low magnitude of impact.

**Golden Eagle Biology and Population Impacts.**

The golden eagle is the largest of two species of eagles in North America and its distribution extends north to the arctic regions and south in to Mexico (Brown and Amadon 1989). Its distribution in other old world countries extends into North Africa, Arabia, the Himalayas, and Europe. It is probably the most numerous eagle of its size in the world, by reason of the extent of its range and the huge areas of mountain country it frequents. Robbins et al. (1983) reports that mature eagles are 32 inches in length with a wing span of 78 inches. They are a dark brown color with a lighter brown, golden neck, and legs are feathered to the feet. Home ranges of golden eagles in California vary from 19 to 59 square miles, with an average of 35 (Brown and Amadon 1989). Most of the prey is taken on the ground after being spotted from the air, and scavenging is also utilized. Golden eagles spend much of their time soaring and gliding above hills, cliffs, and ridges searching for prey. The excessive amount of soaring and the extent they cover sometimes interferes with low level aviation operations near airports.

Golden eagles are provided Federal protection through the Bald Eagle Protection Act of 1940 which prohibits, except under certain specified conditions, the taking, possession, and commerce of such birds, and assesses penalties for violating the Act. Population trend data for golden eagles in the BBS western region indicates that populations are increasing about 4% annually (Sauer 1997).

Golden eagles have been implicated in creating hazards to low flying aircraft near military and civilian airports and have been reported striking military aircraft in flight. An incident involving a golden eagle occurred in FY 97 when military personnel from Mountain Home Air Force Base reported to WS that a golden eagle was struck by a military aircraft during takeoff. The aircraft safely returned and landed at the airstrip and the pilot suffered no injuries. However, the aircraft did received minor damage which was assessed at $7,500 (MIS 1997).

The USFWS is in the process of drafting a Director's Order outlining a procedure for resolving depredating golden eagle situations. The Director's Order will establish a procedure for handling and disposition of damaging eagles. WS will coordinate any eagle damage management with the [redacted] Idaho WS has never used lethal methods to resolve BDM complaints regarding golden eagles.

**Bald Eagle Biology and Population Impacts.**

Bald eagles are unnoticeably smaller in body size and weight to golden eagles, but have a slightly wider wing span. Mature bald eagles have a distinct white head and tail and legs are unfeathered. They have a much heavier bill than golden eagles. Immature bald eagles are easily mistaken for golden eagles since the two species' coloration is similar. Bald eagles are normally found in Idaho near large bodies of water, rivers and creeks, and marshes. Food habits of bald eagles are varied and they partake in scavenging more often than hunt for live prey. It is not uncommon to find bald eagles feeding on livestock carcasses or carcasses of deer and other large animals killed near highways.

The bald eagle is provided Federal protection through the Bald Eagle Protection Act of 1940 which prohibits, except under certain specified conditions, the taking, possession, and commerce of such birds, and assesses penalties for violating the Act. Additionally, the bald eagle is provided further protection since it is a Threatened species in the conterminous (lower 48) States (50 CFR 17.11). Population trend data for bald eagles in the BBS western region indicates that populations are increasing about 8% annually (Sauer 1997)

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Bald eagles have been involved in creating hazards to low flying aircraft near civilian airports. A recent incident involving bald eagles occurred during FY 97 at the Boise Municipal Airport when several

commercial and private pilots reported bald eagles flying at low levels near the airport and landing directly on the runways. To help solve this problem, WS requested to the [redacted] that a permit be issued to airport officials to use non-lethal harassment methods to encourage the eagles to leave the area.

When WS responds to such requests for assistance, consultation with the [redacted] is initiated and they are informed of the incident. Idaho WS has never used lethal methods to resolve damage/hazard complaints of bald eagles. If operational assistance is necessary, WS obtains the necessary approval from the [redacted] and non-lethal methods are employed. However, the 1992 [redacted] stipulates that WS is allowed incidental take of 2 bald eagles nationwide per year, with the exception of the Southwestern population. The BO references that the USFWS has determined that this level of impact is not likely to result in jeopardy to the species, thus, having no cumulative impacts on the target species.

**Feral, Domestic, Non-indigenous, and Exotic Birds Biology and Population Impacts.**

WS is requested to provide BDM for losses or nuisances created by feral, free-ranging, domestic, non-indigenous, and exotic birds (WS Directive 2.320). The terms "feral" and "free-ranging" relate to domestic animals which have permanently escaped confinement or have been released into the wild, rural areas, city parks, etc. Feral and free-ranging birds are not necessarily dependent upon people for food or care. Examples of these are domestic mallards and geese, muscovy ducks, peacocks, golden pheasants, monk parakeets, etc. "Domestic" refers to animals which are generally animals such as chickens, turkeys, guineafowl, racing pigeons, domestic ducks and geese, ostriches, emus, etc. and have escaped temporarily from their confinements or owners and are still totally dependent on people for food and care. "Exotic" and "Non-indigenous" refers to animals not native to Idaho which have been illegally or accidentally introduced or released in the wild.

Birds classified or termed feral, free-ranging, domestic, non-indigenous, and exotic are not considered wildlife and are not afforded lawful protection or managed by the USFWS or IDFG. Therefore, no populations or population trend data exist. Any BDM involving lethal damage management by WS would be restricted to individual sites. In those cases where birds are causing damage or are a nuisance, complete removal of the local population could be desired. This would be considered a beneficial impact on the human environment since it would be requested by the affected property owner, administrator, or resource management agency.

During FY 95-97, WS did not use lethal methods on feral, domestic, non-indigenous, and exotic birds. However, because of the status of these birds, any lethal removal would be considered a benefit to native species.

#### 4.2.1.2 Alternative 2 -Non-lethal Required Before Lethal.

Under this alternative, WS removal of target species may sometimes be less than that of the *Proposed Action* because lethal BDM would be restricted to situations where non-lethal damage management has been tried without success. For many damage situations, this alternative would be similar to the current program because many agricultural producers and property owners have tried non-lethal methods without success or found them to be impractical for their situation. For the same reasons described in Section 4.2.1.1, it is unlikely that state-wide, target species' populations would be adversely affected by implementation of this alternative. Impacts and hypothetical risks of illegal toxicant use would probably be slightly greater than the *Proposed Action*.

#### 4.2.1.3 Alternative 3 - Technical Assistance Only.

Under this alternative, WS would have no impact on target species populations directly. Private

efforts to reduce or prevent damage and perceived disease transmission risks could increase, resulting in increased potential impacts on those populations. For the same reasons shown in Section 4.2.1.1, it is unlikely that starling, blackbird or other target populations would be affected significantly by implementation of this alternative. Impacts and hypothetical risks of illegal toxicant use would be greater under this alternative. DRC-1339 is currently only available for use by WS employees. It is hypothetically possible that frustration caused by the inability to reduce losses would lead to illegal use of toxicants which could increase impacts.

#### 4.2.1.4 Alternative 4 - No Federal WS BDM.

Under this alternative, WS would not have any impact on target species' populations in the State. Private efforts to reduce or prevent depredations would increase which could result in impacts to target species' populations. Impacts to target species under this alternative could be the same, less, or more than those of the Proposed Action depending on the level of effort expended. For the same reasons shown in the population impacts analysis in Section 4.2.1.1, it is unlikely that starlings, blackbird or most other target species populations would be adversely affected by implementation of this alternative. DRC-1339 is currently only available for use by WS employees. It is hypothetically possible that frustration caused by the inability to reduce losses would lead to illegal use of toxicants which could increase impacts.

### 4.2.2 Effects of WS BDM on Non-target Species Populations, Including T&E Species.

#### 4.2.2.1 Alternative 1 - Continue the Current Federal BDM Program (No Action/Proposed Action).

According to Idaho WS Annual Reports, only one non-target bird is known to have been killed during BDM from 1989 to 1997. That incident involved the accidental killing of a western screech owl in FY 97 when the bird entered a nest box trap set for starlings. Although there have not been any confirmed cases of non-target bird deaths from WS use of DRC-1339 in Idaho, there was an incident in November 1997 where several hundred ring-billed gulls were found dead on a reservoir about 10 miles away from where WS conducted a DRC-1339 baiting operation to reduce starling damage several days previously. Although no gulls were present at the time the DRC-1339 bait was placed, it is conceivable that a flock of gulls could have found and consumed some of the treated bait before it was entirely consumed by starlings. Beginning in FY 98, WS implemented a mitigation measure to reduce the potential for non-target bird deaths during DRC-1339 feedlot baiting operations. If prebaiting observations or prior history suggest a likelihood of non-target bird presence, then any treated bait applied to a site must be constantly monitored to ensure that non-target birds do not arrive and consume bait. Alternatively, some type of structure or feeding station could be used that would only allow access by the target species but not by non-target birds.

While every precaution would be taken to safeguard against killing non-target birds, at times changes in local flight patterns and other unanticipated events could result in the incidental death of unintended species. These occurrences are rare and should not affect the overall populations of any species under the current program.

Interspecific nest competition has been well documented with some non-indigenous species. Miller (1975) and Barnes (1991) reported starlings were responsible for a severe depletion of the eastern bluebird (*Sialis sialis*) population due to nest competition. Nest competition by starlings has also been known to adversely impact American Kestrel (*Falco sparverius*) (Nickell 1967, Von Jarchow 1943, Wilmers 1987), red-bellied woodpeckers (*Centurus carolinus*), Gila woodpeckers (*Centurus uropygialis*) (Ingold 1994, Kerpez and Smith 1990), and wood ducks

(*Aix sponsa*) (Shake 1967, Heusmann et al. 1977, Grabill 1977, McGilvery and Uhler 1971). Weitzel (1988) reported nine native species of birds had been displaced by starling nest competition, and Mason et al. (1972) reported starlings evicting bats from nest holes. Reduction of nest site competition could be a beneficial impact for some native species. Although such reductions are not likely to be significant, the benefits would probably outweigh any adverse affects from non-target takes.

Interspecific brood parasitism is defined as the laying of an egg or eggs by one species of bird into a host nest of another species of birds. Unsuspecting of the egg laying, the host normally accepts and incubates the egg(s) and raises the young as their own. The brown-headed cowbird is 1 of 5 species of cowbirds that are brood parasites (Orians 1985) which have lost the instinct for nest building, egg incubation, and caring for the young (Smith 1977). As a result of the brood parasitism, egg and chick survival of the hosts is jeopardized. In most cases of brood parasitism, the young of the host species die because they are unable to compete with the cowbird chick for food and space inside the nest.

A Section 7 Programmatic Consultation between the USFWS and WS (USDA 1990), determined that certain damage management methods could have a "may effect" determination to American peregrine falcon, bald eagle, and whooping crane. As a result of these determinations, the USFWS prepared a BO regarding the extent of effects (USFWS 1992b). The BO concluded that damage management methods previously mentioned in this EA, which are used in BDM will not jeopardize the continued existence or adversely modify critical habitats of those species. However, the BO did conclude that DRC-1339 may adversely affect the whooping crane. Mitigation measures to avoid negative impacts to T&E species as well as the inherent safety features of DRC-1339 that preclude hazards to mammals and plants are described in Appendix F of USDA (1994) and in Section 3.4 of this EA. Those measures would assure there would be no jeopardy to T&E species, or adverse impacts on mammalian, or non-T&E bird scavengers from the Proposed Action.

Idaho WS requested informal consultation with the USFWS pursuant to Section 7 of the ESA for those T&E species found in Idaho. As part of the consultation, WS conducted a BA which proposed mitigation measures to avoid adverse effects to peregrine falcons and whooping cranes (Appendix E). The USFWS concurred with the assessment of the effects on T&E species and mitigation measures (Appendix E).

#### 4.2.2.2 Alternative 2 -Non-lethal Required Before Lethal.

Under this alternative, WS take of non-target birds would be similar or slightly less than the *Proposed Action* because reasonable efforts would be made to implement non-lethal control. Mitigation measures to avoid T&E species impacts are described in Section 3.4. Those measures would help insure that adverse impacts would not likely occur to T&E species from WS BDM if Alternative 2 would be implemented. However, if WS was restricted to implementing non-lethal damage management prior to lethal damage management, efforts by agricultural producers, property owners or others to reduce or prevent damage could increase. This could result in less experienced persons implementing BDM, which could lead to greater take of non-target species. Hazards to peregrine falcons, bald eagles, whooping cranes, and other T&E species could be greater under this alternative. It is hypothetically possible that frustration caused by the inability to reduce losses could lead to illegal use of toxicants which could further lead to unknown impacts to non-target species populations, including T&E species.

#### 4.2.2.3 Alternative 3 - Technical Assistance Only.

Alternative 3 would not allow any WS direct operational BDM in Idaho. There would be no impact on non-target or T&E species by WS BDM from this alternative. Technical assistance or self-help information would be provided when requested to agricultural producers, property owners, or others. Although technical assistance could lead to more selective use of BDM methods by private entities than that which would occur under Alternative 4, private efforts to reduce or prevent damage could result in less experienced persons implementing BDM methods and lead to a greater take of non-target wildlife. Hazards to raptors, peregrine falcons, bald eagles, and other T&E species could be greater under this alternative. It is possible that, similar to Alternative 4, frustration from the resource owner due to the inability to reduce losses could lead to illegal use of toxicants, or other non-specific damage management methods could lead to unknown impacts to non-target species populations, including T&E species. Potential hazards and threats to raptors, including peregrine falcons and bald eagles, could therefore be greater under this alternative if chemicals that are less selective or that cause secondary poisoning are used by frustrated private individuals.

#### 4.2.2.4 Alternative 4 - No Federal WS BDM.

Alternative 4 would not allow any WS BDM in Idaho. There would be no impact on non-target or T&E species by WS BDM from this alternative. However, private efforts to reduce or prevent damage could increase, resulting in less experienced persons implementing damage management methods and could lead to greater take of non-target wildlife than the *Proposed Action*. Hazards to raptors, peregrine falcons, bald eagles, and other T&E species could, therefore, be greater under this alternative. As in Alternative 3, possible frustrations caused by the inability to reduce losses could lead to illegal use of toxicants which could impact local non-target species populations, including T&E species.

### 4.2.3 Risks Posed by WS BDM Methods to the Public and Domestic Pets.

The effects on safety from WS BDM include potential benefits by fostering a safer environment from reduced disease transmission and bird/aircraft strikes, and potential negative effects that might result from the exposure of the public to BDM methods. WS uses chemical methods that are deemed appropriate to reduce a variety of damage problems, and WS personnel are aware of the potential risks to non-target species and humans (See Appendix C for a detailed description of BDM methods and chemicals). The use of toxicants by WS is regulated by the EPA through the FIFRA, by State law, the IDA, and by WS Directives. Along with effectiveness, cost and social acceptability, risk is an important criterion for the selection of damage management strategies. Determination of risks to non-target animals, the public, and WS personnel would be an important prerequisite for successful application of the IWDM approach. Based on a thorough Risk Assessment (USDA 1994, Appendix P), APHIS concluded that, when chemicals are used according to label directions, they are selective for target individuals or populations, and such use has negligible impacts on the environment.

#### 4.2.3.1 Alternative 1 -Continue the Current Federal BDM Program (No Action and Proposed Action).

Under this alternative, BDM conducted by WS in Idaho is guided by WS, APHIS, and USDA Directives, Cooperative Agreements and MOUs with other agencies, the USFWS BO, and Federal, State, and local law and regulations. WS is not aware of any record of harm or injury that has occurred to the public or pets as a result of WS BDM in Idaho. The BDM methods used by Idaho WS are discussed in Appendix C of this EA and used as prudently as possible.

#### 4.2.3.2 Alternative 2 -Non-lethal Required Before Lethal.

Impacts under this alternative would be similar to those described in Alternative 1 once the non-lethal before lethal requirement has been met.

#### 4.2.3.3 Alternative 3 - Technical Assistance Only.

Under this alternative, less selective use of methods by individuals less experienced in their application could occur. Frustration caused by the inability to reduce losses could lead to illegal use of toxicants which could lead to unknown impacts to humans and pets. Hazards to humans and pets could be greater under this alternative if chemicals that are less selective or that cause secondary poisoning are used.

#### 4.2.3.4 Alternative 4 - No Federal WS BDM.

Alternative 4 would not allow any WS BDM in Idaho. There would be no impact to humans or pets by WS BDM. However, private efforts to reduce or prevent damage could increase, resulting in less experienced persons implementing damage management methods and leading to a greater risk than the No Action/Proposed Action alternative. Hazards to humans and pets could, therefore, be greater under this alternative if chemicals that are less selective or that cause secondary poisoning are used. It is hypothetically possible that frustration caused by the inability to reduce losses could lead to illegal use of toxicants.

### 4.2.4 Efficacy and Selectivity of WS BDM Methods.

Under the current program, all methods are used as effectively and selectively as practically possible, in conformance with the WS Decision Model (Slate et al. 1992) and WS Directives. The selectivity of each method is based, in part, on the application of the method, the skill of the personnel using the method and the guidance provided by WS Directives and policies for WS personnel.

The efficacy and selectivity of each alternative are based on the types of methods employed under that alternative. WS personnel are trained in the use of each method, and are certified by the IDA as restricted-use pesticide applicators for each pesticide that is used. Some methods may be more or less effective, or applicable depending on weather conditions, time of year, biological considerations, economic considerations, legal and administrative restrictions, or other factors. Because these various factors, may at times, preclude use of certain methods, it is important to maintain the widest possible selection of damage management methods to most effectively and selectively resolve bird damage problems (see Appendix C for a more detailed discussion of methods).

#### 4.2.4.1 Alternative 1 -Continue the Current Federal BDM Program (No Action/Proposed Action).

**DRC-1339** - Over 30 years of studies have demonstrated the safety and efficacy of this compound. Non-target hazards are low due to the low degree of sensitivity that most birds and mammals have for this chemical, thus the selectivity to specific most pest bird species (USDA 1994). Prebaiting is usually conducted to monitor for the presence of non-target and target species consumption to increase efficacy.

**Avitrol** - Prebaiting is usually conducted to increase baiting efficacy and selectivity. Any granivorous bird associated with the target birds could be affected by Avitrol if it consumed treated bait. However, Avitrol only affects a very small number of birds in a baited area. Laboratory studies with predator and scavenger species have shown minimal potential for secondary poisoning, and during field use, only magpies and crows appear to have been secondarily affected by Avitrol (Schafer et al. 1974).

**Methyl anthranilate** is a non-lethal bird repellent derived from a human food additive. The chemical is effective in reducing bird food consumption and area-use, and is selective in that it primarily repels birds.

**Alpha-chloralose** is delivered as a bait to targeted birds, and is selective and effective in immobilizing targeted individuals. Removal of uneaten bait and immobilized birds reduces secondary non-target hazards.

**Live traps** are erected in locations where a targeted population is causing damage or where other techniques cannot be safely used. Live traps, as applied and used by WS, are highly selective for target species. If a non-target is accidentally captured, it would be released unharmed.

**Nest box traps** are effective and selective in capturing secondary cavity nesting birds (DeHaven and Guarino 1969, Knittle and Guarino 1976).

**Snap traps** are used to remove individual birds, primarily northern flickers and magpies, that are causing damage. Selectiveness can be increased by placing the traps near where the damage is occurring and by baiting the trap with food items which are highly attractive to the targeted species and less attractive to non-target birds.

**Nest destruction** is selective for targeted species/individuals because nests would be identified by species-specific characteristics and nesting material. Heusmann and Bellville (1978) reported this method effective, but time-consuming.

**Egg addling/destruction** is highly selective because the eggs of specific birds are targeted for destruction, no impacts to other species would occur. This method is considered highly selective, but time consuming.

**Shooting** is selective for target species (USDA 1994). It would also be effective as a dispersal technique or to reinforce dispersal techniques.

There are several other BDM methods used by WS under the current program. Appendix C provides a description of each.

#### 4.2.4.2 Alternative 2 -Non-lethal Required Before Lethal.

Under this alternative, the efficacy of the WS program would be reduced, but selectivity would be similar to the current program. For many damage situations, this alternative would be similar to the current program because requesters have generally tried one or more non-lethal methods without success or have considered and found them to be impractical for their situations. This alternative does not preclude requesters the option of implementing their own lethal damage management measures, which could decrease the selectivity of BDM.

#### 4.2.4.3 Alternative 3 - Technical Assistance Only.

Under this alternative, WS would not have an operational BDM program to assist requesters to reduce bird damage. Efficacy of the WS program would not be a consideration. Assistance would be limited to providing technical assistance and instructional demonstrations on legally available methods and self-help advice. Selectivity of WS BDM would also not be a consideration because entities experiencing damage would be implementing the damage management, which could decrease the selectivity of BDM.

#### 4.2.4.4 Alternative 4 - No Federal WS BDM.

Under this alternative, WS BDM would not be a consideration because the Idaho WS program would not conduct nor provide technical assistance to entities experiencing bird damage. Private efforts to reduce or prevent damage would probably increase which could result in less efficacy and selectivity in using BDM methods. It is reasonable to assume that frustration caused by the inability to reduce losses through legal means in a timely manner could lead to the use of illegal techniques which could result in unwanted impacts to bird populations and the environment.

### 4.2.5 Benefit-Cost Analysis of Starling Damage Management at Feedlots and Dairies.

NEPA does not require a benefit-cost analysis, and consideration of this issue is not essential to making a reasoned choice among the alternatives being considered. However, cost-effectiveness is a logical concern to WS, the public, and cooperators. Additionally, the Government Performance and Results Act requires Federal agencies to develop a means of measuring and quantifying program results and performance, and a benefit-cost analysis helps address this requirement.

This benefit-cost analysis is limited specifically to evaluating WS' efforts to reduce the consumption of cattle feed at feedlots and dairies by starlings. The benefit of the program is determined by comparing the difference between the estimated value of losses with the program in place with the value of what losses would reasonably be expected without the program in place. The benefit is then compared to WS' program cost to determine the efficiency of the program in terms of the net savings generated from WS' involvement.

Only quantifiable values are considered in the analysis, such as: 1) daily consumption of cattle rations by starlings, and 2) the number of birds killed or removed from the damage management site. It **does not** consider losses and costs which are difficult to quantify such as: 1) weight loss of feeder cattle caused by starlings harassing and spooking livestock, 2) potential transmission of bird-borne livestock diseases, treatment, and prevention, 3) fecal contamination of the feed, 4) nuisances, and 5) cleaning starling fecal material from feedlot and dairy equipment, machinery, and structures. The analysis also does not attempt to look at the longer-term off-site effects of starlings and other pest birds in the ecosystem, such as nest site competition with indigenous species, competition for food resources, public health and safety issues, and damage caused by the same birds at other sites.

A critical part for determining the efficiency of the program is the estimation of what losses might reasonably be expected in the absence of a WS BDM program. Besser et al. (1968) reported that starlings obtained 50% of their diet from livestock feed troughs (the rest of the birds' diet is assumed to have been spilled grain which would otherwise not be used by livestock). Today's feedlots and dairies, however, are probably more efficient and less wasteful with spilling grain than those of 30 years ago, and it would be reasonable to estimate that starlings consume about 33% of their daily diet from spilled or unusable grain and other cattle ration (E. W. Schafer, National Wildlife Research Center, Ft. Collins, CO, pers. comm.). Besser et al. (1968) also reported that the typical daily food consumption per starling per day is about 0.0625 pounds (about 1 oz.).

#### 4.2.5.1 Alternative 1 -Continue the Current Federal BDM Program (No Action/Proposed Action).

The benefit-cost analysis will be conducted for starling damage management conducted in FY 97 at feedlots and dairies. Because of limited data and lack of absolute methods for estimating bird populations at feedlots, this analysis will calculate the net savings after WS BDM has been

completed based on the estimated number of starlings killed.

**Cattle Ration Losses.**

Cattle ration may contain many different feed items such as milo, corn, barley, and other grains, protein pellets, mineral supplements, cull potato byproducts, hay, and other fiber. Starlings tend to select for cull French fries, cracked corn, protein pellets and barley. The combined average estimated value for grains, livestock pellets, and other food items in FY 97 was $115 per ton (Table 4-3).

**Table 4-3. Number and Type of Starling Damage Management Projects in FY 97 and Estimated Losses.**

| Number of Projects | Cattle Feeding Operation | Food Item Selected by Starlings | Estimated Price per Ton in $ | Estimated Loss $ |
|---|---|---|---|---|
| 6 | Feedlot | Cull French fries | 15 | 8,800 |
| 1 | Feedlot | Cull bread | 40 | 200 |
| 3 | Feedlot | Corn/wheat | 140 | 7,000 |
| 1 | Dairy | Cull French fries | 15 | 3,000 |
| 5 | Dairy | Protein pellets | 240 | 9,000 |
| 1 | Dairy | Corn | 130 | 3,000 |
| 6 | Dairy | Silage/grains | 125 | 700 |
| 1 | Dairy | Rolled barley | 100 | 1,000 |
| 1 | Dairy | Rolled oats | 145 | 200 |
| Total 25 | | | Average $115 | 32,900 |

**FY 97 Results of Starling Damage Management.**

In FY 97, WS conducted 25 starling damage management projects and applied 58.8 ounces (1668
grams) of DRC-1339 to 4737 pounds of bait material (Table 4-4). MIS data on the number of starlings killed is inconsistent and likely represents a minimal estimate of numbers of birds killed, because most birds typically die some distance from the treatment site. Instead of relying on MIS
data, it is probably more reasonable to base estimates of numbers of starlings killed on research studies conducted in Idaho where DRC-1339 was used on cull French fries and other grain baits. The Denver Wildlife Research Center and Division of Wildlife Services, Bureau of Sport Fisheries and Wildlife, U.S. Department of the Interior (USDI), conducted several studies on this issue in the mid-1960's. Packham (1965) reported that 1 pound of cull French fries and barley grain treated with DRC-1339 killed an average of 57 starlings from winter field tests conducted in 1964-65, while the following winter (Packham 1966) an average of 44 starlings were killed per pound of treated bait. Hickman (1967) reported an average of 24 starlings killed with each pound of treated cull French fries and barley grain baits. Combined, the 3 studies produced an

average efficacy ranging from 57 to 24 starlings killed per pound of treated bait. To provide the most conservative approach in analyzing the benefit-cost ratio, the lower figure of 24 starlings per pound of treated bait will be used. Based on 4,737 pounds of bait used, WS killed an estimated 113,688 starlings at feedlots and dairies in FY 97.

During FY 97, an estimated $32,900 in starling damages were reported to WS from feedlots and dairies where starling damage management projects were conducted (Table 4-3). An estimated $3,434 were expended by WS in providing BDM at those feedlots and dairies (Table 4-5).

**Table 4-4. Starling Damage Management in FY 97.**

| FY 97 | |
|---|---|
| Number of Projects | 25 |
| Grams of DRC-1339 Used. | 58.8 oz. (1668g) |
| Estimated pounds of Diluted Treated Grain Bait Used. | 407 lbs |
| Estimated pounds of Diluted Treated Cull French Fries Bait Used. | 4,330 lbs |
| Estimated Number of Starlings Killed[1] | 113,688 |
| Amount of Time Used to Conduct Projects. | 72 hours |
| Duration of Projects | Oct 2, 1996 - Apr 10, 1997 (191 days) |

[1]Based on 4,737 lbs of diluted treated bait at a rate of 24 starlings killed per pound of bait (Hickman 1967).

**Estimating the Net Savings of the Program.**

In the absence of starling damage management at those feedlots and dairies, the estimated amount of cattle ration that 113,688 starlings could consume is calculated by multiplying the total number of starlings by their daily consumption of 0.0625 pounds of cattle ration per day, then multiply by 0.67 (the proportion of cattle ration consumed by starlings from feed bunks and silage storage), and lastly, multiply that figure by a total of 170 days which represents a 3-year average of the duration in Idaho when starlings most commonly cause damage to feedlots and dairies (the duration is defined as the total number of consecutive days in a FY beginning with the first day WS conducts starling damage management at feedlots and dairies through the last day starling damage management is conducted in that same FY) (The duration in FY 95 was 176 days, November - April; in FY 96 it was 144 days,

**Table 4-5. Estimated Costs to WS to Conduct Starling Damage Management at Feedlots and Dairies in FY 97.**

| Description of Expense | $ |
|---|---|
| Salary and Benefits - 72 Hours at $17.61/Hour | 1,268 |
| Cost for 58.8 oz. (1668 g ) of DRC-1339 | 1,141 |
| Average Vehicle Usage of 100 Miles Round-trip for Each of the 25 projects at an Estimated Cost of $ 0.31 per mile. | 775 |
| Equipment, Supplies, and Miscellaneous Expenses ($10 per project). | 250 |
| Total | 3,434 |

October - March; and in FY 97 191 days, see Table 4-4, October - April. The 3-year average is 170 days). The amount of cattle ration consumed by starlings is estimated at 809,316 pounds and would be valued at $46,536 (based on the value of cattle ration at $115 per ton, see Table 4-3).

The benefit, or avoided losses with the starling damage management program, is calculated by subtracting the losses that are reported with the program in place ($32,900) from the estimated losses to cattle ration in the absence of WS' starling damage control program ($46,536), yielding a difference of $13,636. This estimate of benefit is likely to be understated as it does not include expenditures incurred by feedlot and dairy operators to reduce starling damages in the absence of WS' intervention. WS' program cost to reduce starling damage in FY 97 is estimated at $3,434. Thus, the benefit-cost ratio of this program is calculated as 4:1, indicating that the program is economically efficient. This positive net impact does not reflect other benefits of the program in avoiding losses or damages caused by starlings such as 1) weight loss of cattle caused by starling harassment, 2) potential transmission of bird-borne diseases, treatment, and prevention, 3) fecal contamination of cattle ration, 4) nuisances, and 5) cleaning starling fecal matter from equipment, machinery, and structures.

#### 4.2.5.2 Alternative 2 -Non-lethal Required Before Lethal.

Under this alternative, the costs to conduct BDM would probably increase because of: 1) the extra time WS would need to conduct and/or supervise non-lethal BDM and to monitor the results, and 2) the increased costs to purchase additional pyrotechnics and other non-lethal devices to adequately furnish the demand. In addition, for many damage situations, this alternative would be similar to the current program because many agricultural producers and property owners use one or more non-lethal methods without success or found them to be impractical or ineffective in their situations. Requesters, however, would still have the option of implementing their own lethal damage management.

#### 4.2.5.3 Alternative 3 - Technical Assistance Only.

WS' costs to implement this alternative would probably be lower than the current program. The number of WS personnel that conduct BDM could be reduced to those needed to provide technical assistance and make recommendations. However, WS procurement costs to purchase additional BDM equipment for loan and demonstration purposes would increase.

#### 4.2.5.4 Alternative 4 - No Federal WS BDM.

No Federal funds would be expended on WS BDM, therefore, cost-effectiveness of WS BDM would not be an issue.

## 4.3 SUMMARY OF WS' IMPACTS

Table 4-6 presents a relative comparison of the anticipated impacts of each of the four alternatives as they relate to each of the 5 major issues identified in Chapter 2.

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**Table 4-6. Relative Comparison of Anticipated Impacts From Alternatives**.

| Issues/Impacts | *Alt. 1 Current Program* | *Alt. 2 Non-lethal* | *Alt. 3 Tech. Assist* | *Alt. 4 No Program* |
|---|---|---|---|---|
| Target Species Impacts | Low | Low | Low | NA |
| Impacts to Non-target Species | Low risk | Low risks | Probably greater risks than Alt. 1-2 | Probably greater risks than Alt. 1-3 |
| Safety Concerns | Low | Low | Low | NA |
| Selectivity and Efficacy of Methods | Best | Similar selectivity as Alt. 1 but lower effectiveness | Lower than Alt.1-2 | Lower than Alt. 1-3 |
| Benefit-cost | Best | Similar to Alt. 1 | NA | NA |

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## Appendix B

## LEGAL AUTHORITIES OF FEDERAL AND STATE AGENCIES IN IDAHO AND COMPLIANCE WITH FEDERAL LAWS

### A. LEGAL AUTHORITIES

**WS Legislative Authority.**

The primary, statutory authority for the WS program is the Animal Damage Control Act of March 2, 1931 (7 U.S.C. 426-426c; 46 Stat. 1468), as amended, which provides that:

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

Since 1931, with the changes in societal values, WS policies and programs place greater emphasis on the part of the Act discussing "*bringing (damage) under control*," rather than "*eradication*" and "*suppression*" of wildlife populations. In 1988, Congress strengthened the legislative authority of WS with the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988 (Public Law 100-202, Dec. 22, 1987, Stat. 1329-1331). This Act states, in part:

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

**Idaho State Animal Damage Control Board.**

Establishment of the Idaho ADC State Board was provided for under Idaho Code 25-128. The Board is composed of the Chairman of the State Board of Sheep Commissioners, a representative of the Idaho Cattle Association, the Director of the IDFG, and the Chairmen of the 5 ADC Districts in the State of Idaho. The Board is charged with coordinating and giving general direction to, *"Programs to prevent and control damage or conflicts on federal, state, or other public or private lands caused by predatory animals, rodents, or birds injurious to animal husbandry, agriculture, horticulture, forestry, wildlife and public health and safety . . . "* Under provisions of a 1988 MOU between the State ADC Board and the WS program, WS cooperates with the Board in carrying out BDM.

**Idaho Department of Fish and Game.**

The IDFG is charged with the management, preservation, and protection of all wildlife in Idaho (Title 36, Idaho Code), including protected birds. However, under the current MOU between IDFG and the State ADC Board, WS is delegated the responsibility of prevention and reduction of damage caused by predatory



animals and other vertebrate pests, including T&E species within Idaho. The MOU states that WS is responsible for responding to and conducting BDM for all complaints involving starlings, **major complaints** involving substantial numbers of migratory non-game birds; **major complaints** between May 1 and August 15 involving 100 birds or more for ducks, geese, and sandhill cranes; and **all complaints**, regardless of the number of birds between August 16 and April 30. The MOU also states that WS will respond to **all bird complaints** received from Federal and private fish hatcheries/farms and all migratory bird complaints on or adjacent to USFWS refuges. The IDFG agrees to respond to **minor complaints** (involving one or several birds) of migratory non-game birds and **minor complaints** (involving 100 birds or less) of ducks, geese, and sandhill cranes between May 1 and August 15.

**Idaho Department of Agriculture.**

Under the provisions of Idaho Code 22-103(24), the Director of IDA is authorized, *"To take all steps that are deemed necessary to prevent and control damage or conflicts on federal, state, or other public or private lands caused by predatory animals, rodents, or birds, including threatened or endangered wildlife within the state of Idaho as are established by federal or state law, federal or state regulation, or county ordinance, that are injurious to animal husbandry, agriculture, horticulture, forestry, wildlife and public health and safety."*

**United States Fish and Wildlife Service.**

The USFWS has the responsibility and authority for management of all Federally listed T&E species and migratory birds. However, by the provisions of an MOU between the USDA and USDI, WS has the responsibility for protecting agricultural resources and other private property from the depredations of migratory birds. WS is responsible for assisting the Federal Aviation Administration and other Federal agencies requiring assistance, and State and local airport authorities in resolving hazards to aircraft and passengers created by the presence of migratory birds.

## B. COMPLIANCE WITH FEDERAL LAWS

Several other Federal laws authorize, regulate, or otherwise affect WS BDM. WS complies with these laws, and consults and cooperates with other agencies as appropriate.

**National Environmental Policy Act (Public Law 91-190, 42 U.S.C. 4321, *et seq.*; Stat. 852), as**

**amended.**

NEPA is the basic national charter for protection of the environment. It has two objectives: 1) to consider significant environmental impacts because of a major proposed Federal action during decision making, and 2) to inform the public that the agency did consider environmental concerns in its decision making process. All WS activities, including BDM, are subject to NEPA, and NEPA requires WS to plan and coordinate with other agencies and the public on its EAs. This EA meets the NEPA requirement for BDM in Idaho.

**Endangered Species Act of 1973 (16 U.S.C. 1531, 1543; 87 Stat. 884), as amended.**

It is Federal policy, under the ESA, that all Federal agencies shall seek to conserve T&E species and shall utilize their authorities in furtherance of the purposes of the Act (ESA Sec.2(c)). WS conducted a Section 7 consultation 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*" (ESA Sec.7(a)(2)). WS has obtained a Biological Opinion from the USFWS describing potential effects on T&E species and prescribing reasonable and prudent measures for avoiding jeopardy (USDA 1994, Appendix F).

**Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711; 40 Stat. 755), as amended.**

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 "*take*" of these species by private entities, except as permitted by the USFWS; therefore the USFWS issues permits to private entities for reducing bird damage. WS provides on-site assessments for persons experiencing migratory bird damage to obtain information on which to base damage management recommendations. Damage management recommendations could be in the form of technical assistance or operational assistance. In severe cases of bird damage, WS provides recommendations to the USFWS for the issuance of DPs to private entities. Starlings, pigeons, house sparrows and domestic waterfowl are not classified as protected migratory birds and therefore have no protection under this Act. USFWS DPs are also not required for yellow-headed, red-winged, rusty, and Brewer's blackbirds, cowbirds, all grackles, crows, and magpies found committing or about to commit depredation upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance (50 CFR 21.43).

**Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 *et seq.*; 86 Stat. 975) as amended.**

FIFRA requires the registration, classification, and regulation of all pesticides used in the United States. The EPA is responsible for implementing and enforcing FIFRA. All chemical methods used or recommended by the WS program in Idaho are registered with and regulated by the EPA and the IDA, and used by WS in compliance with labeling procedures and requirements.

**National Historic Preservation Act of 1966 (16 U.S.C. 470-470w-6), as amended.**

The NHPA, and its implementing regulations (36 CFR 800), require Federal agencies to: 1) determine whether activities they propose constitute *"undertakings"* that can result in changes in the character or use of historic properties, 2) if so, to evaluate the effects of such undertakings on such historic resources and consult with the State Historical 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. WS has determined BDM actions are not undertakings as defined by the NHPA because such actions do not have the potential to result in changes in the character or use of historic properties.

# Appendix C

## BDM METHODS AVAILABLE FOR USE IN IDAHO

### NON-LETHAL METHODS - NON-CHEMICAL

**Agricultural producer and property owner practices.** These consist primarily of non-lethal preventive methods such as cultural methods and habitat modification. Cultural methods and other management techniques are implemented by the agricultural producer and property owners. Producers and property owners are encouraged to use these methods, based on the level of risk, need, and professional judgement on their effectiveness and practicality. Producer and property owner practices recommended by WS include:

**Cultural methods.** These generally involve modifications to the level of care or attention given to the resource which may vary depending on the age, size, and location of the resource. Husbandry practices include but are not limited to techniques such as night feeding, indoor feeding, closed barns or corrals, removal of spilled grain or standing water, and use of bird proof feeders (Johnson and Glahn 1994).

**Animal behavior modification.** This refers to tactics that alter the behavior of wildlife and reduce damages. Animal behavior modification may use scare tactics or exclusion to deter or repel birds that cause loss or damage (Twedt and Glahn 1982). Some but not all devices used to accomplish this are:

- Bird-proof exclusions and feeders
- Electronic guards
- Propane exploders
- Pyrotechnics
- Distress calls and sound producing devices
- Chemical frightening agents
- Repellents
- Visual scare devices

These techniques are generally only practical for small areas. Scaring devices such as distress calls, helium filled eye spot balloons, raptor effigies and silhouettes, mirrors, and moving disks can be effective but usually for only a short time before birds become accustomed and learn to ignore them (Schmidt and Johnson 1984, Bomford 1990, Rossbach 1975, Graves and Andelt 1987, Mott 1985, Shirota et al. 1983, Conover 1982, Arhart 1972 ). Mylar tape has produced mixed results in its effectiveness to frighten birds (Dolbeer et al. 1986, Tobin et al. 1988).

**Auditory scaring devices** such as propane exploders, pyrotechnics, electronic guards, scare crows, and audio distress/predator vocalizations, are often not practical under large feedlot situations because of the disturbance to livestock, although livestock would habituate to the noise. Birds, too, quickly learn to ignore scaring devices if the birds' fear of the methods is not reinforced with shooting or other tactics.

**Bird proof exclusions** can be effective but are often cost-prohibitive, particularly because of the aerial mobility of birds which require overhead barriers as well as conventional netting. In spite of the high cost, many of the larger aquaculture operators in south-central Idaho have modified their operations to totally exclude fish-eating birds. Exclusion adequate to stop bird movements can also restrict movements of livestock, people and other wildlife (Fuller-Perrine and Tobin 1993). Heavy plastic strips hung vertically in open doorways have been successful in some situations in excluding birds (Johnson and Glahn 1994). Plastic strips, however, can prevent filling of the feed troughs at livestock feeding facilities or can be covered up when the feed is poured into the trough by the feed truck. They are not practical for open-air feedlot operations that are not housed in buildings.

**Relocation** of damaging birds to other areas following live capture generally would not be effective nor cost-effective. Since starlings, blackbirds, pigeons, and most other damaging species are common and numerous throughout Idaho, they are rarely if ever relocated because habitats in other areas are generally already occupied. Relocation of wildlife often involves stress to the relocated animal, poor survival rates, and difficulties in adapting to new locations or habitats.

However, there are exceptions to the rule for relocating birds. Relocation of damaging birds might be a viable solution and acceptable to the public when the birds were considered to have high value such as migratory waterfowl or T&E species. In these cases, WS would consult with the USFWS and IDFG to coordinate capture, transportation, and selection of suitable relocation sites.

**Nest destruction** is the removal of nesting materials during the construction phase of the nesting cycle. Nest destruction would only be applied when dealing with a single or very few birds. This method is used to discourage birds from constructing nests in areas which may create nuisances for home and business owners. Heusmann and Bellville (1978) reported that nest removal was an effective but time-consuming method because problem bird species are highly mobile and can easily return to damage sites from long distances, or because of high populations. This method poses no imminent danger to pets or the public.

**Live traps include:**

**Clover, funnel, and common pigeon traps** are enclosure traps made of nylon netting or hardware cloth and come in many different sizes and designs, depending on the species of birds being captured. The entrance of the traps also vary greatly from swinging-door, one-way door, funnel entrance, to tip-top sliding doors. Traps are baited with grains or other food material which attract the target birds. WS' standard procedure when conducting pigeon trapping operations is to ensure that an adequate supply of food and water is in the trap to sustain captured birds for several days. Active traps are checked daily, every other day, or as appropriate, to replenish bait and water and to remove captured birds.

**Decoy traps** are used by WS for preventive and corrective damage management. Decoy traps are

similar in design to the Australian Crow Trap as reported by Johnson and Glahn (1994) and McCracken (1972). Live decoy birds of the same species that are being targeted are usually placed in the trap with sufficient food and water to assure their survival. Perches are configured in the trap to allow birds to roost above the ground and in a more natural position. Feeding behavior and calls of the decoy birds attract other birds which enter and become trapped themselves. Active decoy traps are monitored daily, every other day, or as appropriate, to remove and euthanize excess birds and to replenish bait and water. Decoy traps and other cage/live traps, as applied and used by WS, pose no danger to pets or the public and if a pet is accidentally captured in such traps, it can be released unharmed.

**Nest box traps** are used by WS for corrective damage management and are effective in capturing local breeding and post breeding starlings and other targeted secondary cavity nesting birds (DeHaven and Guarino 1969, Knittle and Guarino 1976).

**Mist nets** are more commonly used for capturing small-sized birds such as house sparrows, finches, etc. but can be used to capture larger birds such as ducks and ring-neck pheasants. It was introduced in to the United States in the 1950's from Asia and the Mediterranean where it was used to capture birds for the market (Day et al. 1980). The mist net is a fine black silk or nylon net usually 3 to 10 feet wide and 25 to 35 feet long. Net mesh size determines which birds can be caught and overlapping “pockets” in the net cause birds to entangle themselves when they fly into the net.

**Cannon nets** are normally used for larger birds such as pigeons, feral ducks, and waterfowl and use mortar projectiles to propel a net up and over birds which have been baited to a particular site. This type of net is especially effective for waterfowl that are flightless due to molting and other birds which are typically shy to other types of capture.

**Bal-chatri traps** are small traps used for capturing birds of prey such as hawks and eagles. Live bait such as pigeons, starlings, rodents, etc. are used to lure raptors into landing on the trap (Hygnstrom and Craven 1994) where nylon nooses entangle their feet and hold the bird. The trap is made of chicken wire or other wire mesh material and formed into a Quonset-hunt shape cage which hold the live bait. The outside top and sides are covered with many nooses consisting of strong monofilament line or stiff nylon string.

**Environmental/Habitat/Behavior modification** is an integral part of BDM. The type, quality, and quantity of habitat are directly related to the wildlife that are produced. Therefore, habitat can be managed to not produce or attract certain bird species or to repel certain birds. Most habitat management revolves around airports and bird aircraft strike problems and blackbird and starling winter roosts. Habitat management around airports is aimed at eliminating bird nesting, roosting, loafing, or feeding sites. Generally, many bird problems on airport properties can be minimized through management of vegetation and water from runway areas. Habitat management is often necessary to minimize damage caused by blackbirds and starlings that form large roosts during late autumn and winter. Bird activity can be greatly reduced at roost sites by removing all the trees or selectively thinning the stand. Roosts often will re-form at traditional sites, and substantial habitat alteration is the only way to permanently stop such activity (USDA 1994).

**Lure crops/alternate foods.** When depredations cannot be avoided by careful crop selection or modified planting schedules, lure crops can sometimes be used to mitigate the loss potential. Lure crops are planted or left for consumption by wildlife as an alternative food source. This approach provides relief for critical crops by sacrificing less important or specifically planted fields. Establishing lure crops is sometimes expensive, requires considerable time and planning to implement, and may attract other unwanted species to the area.

**NON-LETHAL METHODS - CHEMICAL**

**Methyl anthranilate** (artificial grape flavoring used in foods and soft drinks for human consumption) could be used or recommended by WS as a bird repellent. Methyl anthranilate is currently registered as a repellent to protect turf from bird grazing and as a spray for airport runways to reduce bird activity/risk on or near airports. It is also being investigated as a livestock feed additive to reduce or prevent feed consumption by birds. Such chemicals undergo rigorous testing and research to prove safety, effectiveness, and low environmental risks before they would be registered by EPA or the Food and Drug Administration (FDA).

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**Avitrol** is a chemical frightening agent (repellent) that is effective in a single dose when mixed with untreated baits, normally in a 1:9 ratio. Avitrol, however, is not completely non-lethal in that a small portion of the birds could be killed (Johnson and Glahn 1994). Prebaiting is usually necessary to achieve effective bait acceptance by the target species. Avitrol treated bait is placed in an area where the targeted birds are feeding and usually a few birds will consume a treated bait and become affected by the chemical. The affected birds then broadcast distress vocalizations and display abnormal flying behavior, thereby, frightening the remaining flock away. Avitrol is a restricted use pesticide that can only be sold to certified applicators and is available in several bait formulations where only a small portion of the individual grains carry the chemical. It can be used during anytime of the year, but is used most often during winter and spring. Any granivorous bird associated with the target species could be affected by Avitrol. Avitrol is water soluble, but laboratory studies demonstrated that Avitrol is strongly absorbed onto soil colloids and has moderately low mobility. Biodegradation is expected to be slow in soil and water, with a half-life ranging from three to 22 months. However, Avitrol may form covalent bonds with humic materials, which may serve to reduce its bioavailability in aqueous media, is non-accumulative in tissues and rapidly metabolized by many species (Schafer 1991). Avitrol is acutely toxic to avian and mammalian species, however, blackbirds are more sensitive to the chemical and there is little evidence of chronic toxicity. Laboratory studies with predator and scavenger species have shown minimal potential for secondary poisoning, and during field use only magpies and crows appear to have been affected (Schafer 1991). However, a laboratory study by Schafer et al. (1974) showed that magpies exposed to two to 3.2 times the published Lethal Dose ($LD_{50}$) in contaminated prey for 20 days were not adversely affected and three American kestrels were fed contaminated blackbirds for seven to 45 days were not adversely affected. Therefore, no probable risk is expected, based on low concentrations and low hazards quotient value for non-target indicator species tested on this compound. No probable risk is expected for pets and the public, based on low concentrations and low hazards quotient value for non-target indicator species tested on this compound.

**Alpha-chloralose** is a central nervous system depressant used as an immobilizing agent to capture and remove nuisance waterfowl and other birds. It is labor intensive and in some cases, may not be cost effective (Wright 1973, Feare et al. 1981), but is typically used in recreational and residential areas, such as swimming pools, shoreline residential areas, golf courses, or resorts. Alpha-chloralose is typically delivered as a well contained bait in small quantities with minimal hazards to pets and humans; single bread or corn baits are fed directly to the target birds. WS personnel are present at the site of application during baiting to retrieve the immobilized birds. Unconsumed baits are removed from the site following each treatment. Alpha-chloralose was eliminated from more detailed analysis in USDA (1994) based on critical element screening, therefore, environmental fate properties of this compound were not rigorously assessed. However, the solubility and mobility are believed to be moderate and environmental persistence is believed to be low. Bioaccumulation in plants and animal tissue is believed to be low. Alpha-chloralose is used in other countries as an avian and mammalian toxicant. The compound is slowly metabolized, with recovery occurring a few hours after administration (Schafer 1991). The dose used for immobilization is designed to be about two to 30 times lower than the $LD_{50}$. Mammalian data indicate higher $LD_{50}$ values than birds. Toxicity to aquatic organisms is unknown (Wornecki et al. 1990) but the compound is not generally soluble in water and therefore should remain unavailable to aquatic organisms. Factors supporting the determination of this low potential included the lack of exposure to pets, non-target species and the public, and the low toxicity of the active ingredient. Other supporting rationale for this determination included relatively low total annual use and a limited number of potential exposure pathways. The agent is currently approved for use by WS as an Investigative New Animal Drug by the FDA rather than a pesticide.

**LETHAL METHODS - MECHANICAL**

**Egg addling/destruction** is the practice of destroying the embryo prior to hatching. Egg addling is conducted by vigorously shaking an egg numerous times which causes detachment of the embryo from the egg sac. Egg destruction can be accomplished in several different ways, but the most commonly used methods are manually gathering eggs and breaking them, or by oiling or spraying the eggs with a liquid which covers the entire egg and prevents the egg from obtaining oxygen. Although WS does not commonly use egg addling or destruction, it is a valuable damage management tool and has shown to be effective.

**Shooting** is more effective as a dispersal technique than as a way to reduce bird densities when large number of birds are present. Normally shooting is conducted with shotguns or air rifles. Shooting is a very individual specific method and is normally used to remove a single offending bird. However, at times, a few birds could be shot from a flock to make the remainder of the birds more wary and to help reinforce non-lethal methods. Shooting can be relatively expensive because of the staff hours sometimes required (USDA 1994). It is selective for target species and may be used in conjunction with the use of spotlights, decoys, and calling. Shooting with shotguns, air rifles, or rim and center fire rifles is sometimes used to manage bird damage problems when lethal methods are determined to be appropriate. The birds are killed as quickly and humanely as possible. All firearm safety precautions are followed by WS when conducting BDM activities and all laws and regulations governing the lawful use of firearms are strictly complied with.

Firearm use is very sensitive and a public concern because of safety issues relating to the public and misuse. To ensure safe use and awareness, WS employees who use firearms to conduct official duties are required to attend an approved firearms safety and use training program within 3 months of their appointment and a refresher course every 3 years afterwards (WS Directive 2.615). WS employees who carry firearms as a condition of employment, are required to sign a form certifying that they meet the criteria as stated in the *Lautenberg Amendment* which prohibits firearm possession by anyone who has been convicted of a misdemeanor crime of domestic violence.

**Sport hunting** is sometimes recommended by WS as a viable damage management method when the target species can be legally hunted. A valid hunting license and other licenses or permits may be required by the IDFG and USFWS for certain species. This method provides sport and food for hunters and requires no cost to the landowner. Sport hunting is occasionally recommended if it can be conducted safely for pigeon damage management around feedlots and dairies and for greater sandhill cranes, Canada geese, and other damage causing waterfowl.

**Snap traps** are modified rat snap traps used to remove individual woodpeckers, starlings, and other cavity use birds. The trap treadle is baited with peanut butter or other taste attractants and attached near the damage area caused by the woodpecker. These traps pose no imminent danger to pets or the public.

**LETHAL METHODS - CHEMICAL**

All chemicals used by WS are registered under FIFRA (administered by the EPA and IDA) or by the FDA. WS personnel that use chemical methods are certified as pesticide applicators by IDA and are required to adhere to all certification requirements set forth in FIFRA and Idaho pesticide control laws and regulations. Chemicals are only used on private, public, or tribal property sites with authorization from the property owner/manager.

**$CO_2$** is sometimes used to euthanize birds which are captured in live traps and when relocation is not a feasible option. Live birds are placed in a container such as a plastic 5-gallon bucket or chamber and sealed shut. $CO_2$ gas is released into the bucket or chamber and birds quickly die after inhaling the gas.

**DRC-1339** is the principal chemical method that would be used for starling and pigeon damage management in the proposed action. For more than 30 years, DRC-1339 has proven to be an effective method of starling, blackbird, gull, and pigeon control at feedlots, dairies, airports, and in urban areas (West et al. 1967, Besser et al.

1967, Decino et al. 1966). Studies continue to document the effectiveness of DRC-1339 in resolving starling problems at feedlots (West and Besser 1976, Glahn 1982, Glahn et al. 1987) and Blanton et al. (1992) reports that DRC-1339 appears to be a very effective, selective, and safe means of urban pigeon population reduction. Glahn and Wilson (1992) noted that baiting with DRC-1339 is a cost-effective method of reducing damage by blackbirds to sprouting rice.

DRC-1339 is a slow acting avicide that is registered with the EPA for reducing damage from several species of birds, including blackbirds, starlings, pigeons, crows, ravens, magpies, and gulls. DRC-1339 was developed as an avicide because of its differential toxicity to mammals. DRC-1339 is highly toxic to sensitive species but only slightly toxic to non-sensitive birds, predatory birds, and mammals. For example, starlings, a highly sensitive species, require a dose of only 0.3 mg/bird to cause death (Royall et al. 1967). Most bird species that are responsible for damage, including starlings, blackbirds, pigeons, crows, magpies, and ravens are highly sensitive to DRC-1339. Many other bird species such as raptors, sparrows, and eagles are classified as non-sensitive. Numerous studies show that DRC-1339 poses minimal risk of primary poisoning to non-target and T&E species (USDA 1994). Secondary poisoning has not been observed with DRC-1339 treated baits. During research studies, carcasses of birds which died from DRC-1339 were fed to raptors and scavenger mammals for 30 to 200 days with no symptoms of secondary poisoning observed (Cunningham et al. 1981). This can be attributed to relatively low toxicity to species that might scavenge on blackbirds and starlings killed by DRC-1339 and its tendency to be almost completely metabolized in the target birds which leaves little residue to be ingested by scavengers. Secondary hazards of DRC-1339 are almost non-existent. DRC-1339 acts in a humane manner producing a quiet and apparently painless death.

DRC-1339 is unstable in the environment and degrades rapidly when exposed to sunlight, heat, or ultra violet radiation. DRC-1339 is highly soluble in water but does not hydrolyze and degradation occurs rapidly in water. DRC-1339 tightly binds to soil and has low mobility. The half life is about 25 hours, which means it is nearly 100% broken down within a week, and identified metabolites (i.e., degradation chemicals) have low toxicity. Aquatic and invertebrate toxicity is low (USDA 1994). Appendix P of USDA (1994) contains a thorough risk assessment of DRC-1339 and the reader is referred to that source for a more complete discussion. That assessment concluded that no adverse effects are expected from use of DRC-1339.

DRC 1339 has several EPA Registration Labels (56228-10, 56228-17, 56228-28, 56228-29, and 56228-30) depending on the application or species involved in the damage reduction project. Idaho WS used or supervised the use of an average of 2824 grams (6.2 pounds) of DRC-1339 per year for the past 3 years (Table C-1). All were applied on private lands for reduction of damage by starlings (98.5%) and pigeons (1.5%) (MIS 1995, 1996, 1997), with the exception of 24 common ravens which were removed after causing depredations to nesting waterfowl. This use of DRC-1339 was addressed in WS' Predator EA for Northern and Central Idaho.

**Table C-1. DRC-1339 Used by Idaho WS.**

| FY | EPA Reg. | Species | Quantity Used (Grams) | |
|---|---|---|---|---|
| | | | Private | Public |
| 1997 | 56228-10 | Starlings | 1,669 | 0 |
| | 56228-28 | Pigeons | 46 | 0 |
| 1996 | 56228-10 | Starlings | 3,702 | 0 |
| | 56228-29 | Common ravens | 0 | *24 |
| 1995 | 56228-10 | Starlings | 2,970 | 0 |
| | 56228-28 | Pigeons | 84 | 0 |

* During FY 96, DRC-1339 was used to reduce raven damage to nesting waterfowl. This action is covered by the Predator Damage Management in Northern and Central Idaho, September 1996 EA.

## Appendix D

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**Appendix E**

**INFORMAL CONSULTATION WITH THE USFWS AND CONCURRENCE OF FINDINGS OF WS BIOLOGICAL ASSESSMENT**

## Appendix F

## LIST OF TABLES AND FIGURES

**Table** **Page**

**Figure**

**Appendix G**

**Breeding Bird Survey (BBS) and Christmas Bird Count (CBC) Population Trend Data**

**Figure 7. Starling Population Trend.**

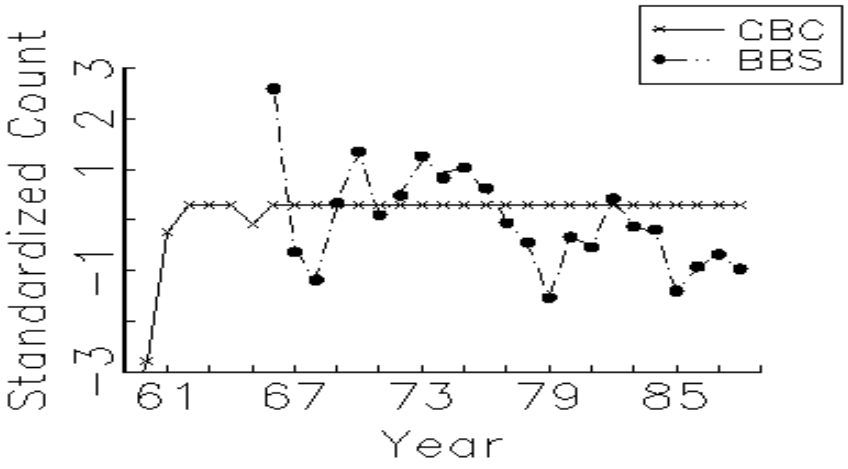


**Figure 8. Western Region CBC Pigeon Population Trend.**

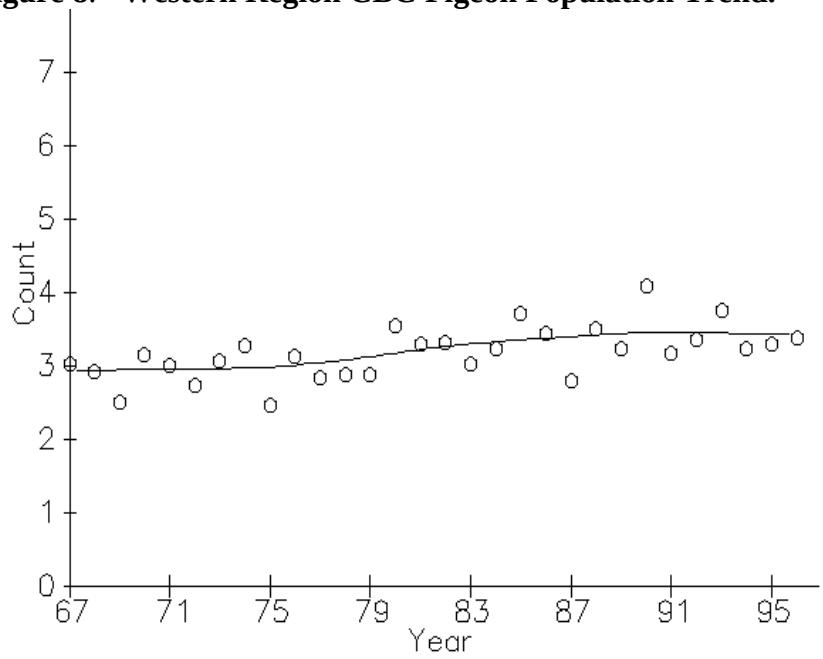

**Figure 9**. **Idaho CBC Pigeon Population Trend.**

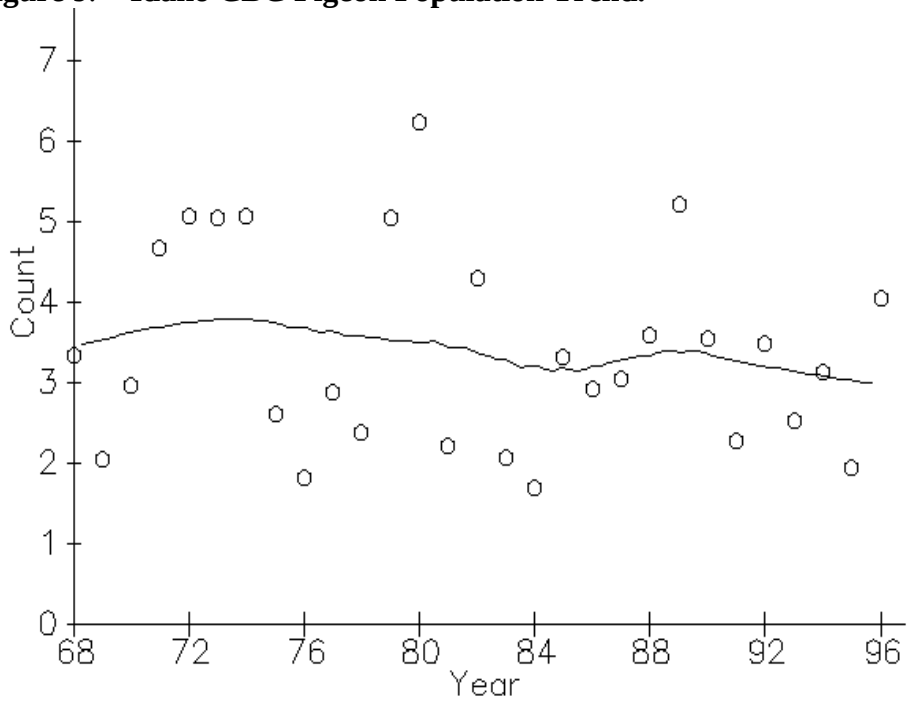


**Figure 10**. **Ring-billed Gull Population Trend.**

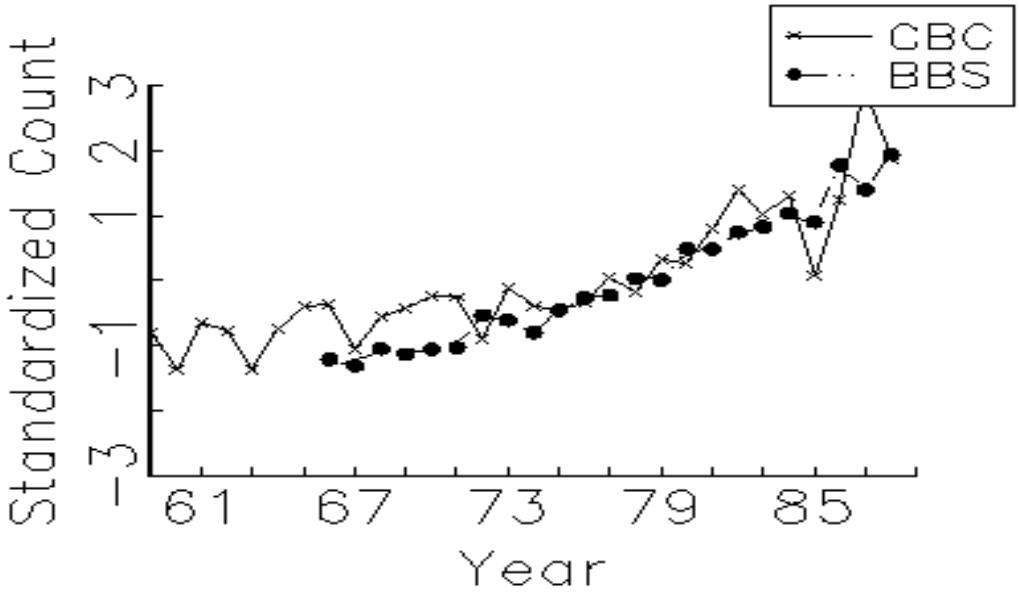

**Figure 11. Herring Gull Population Trend.**

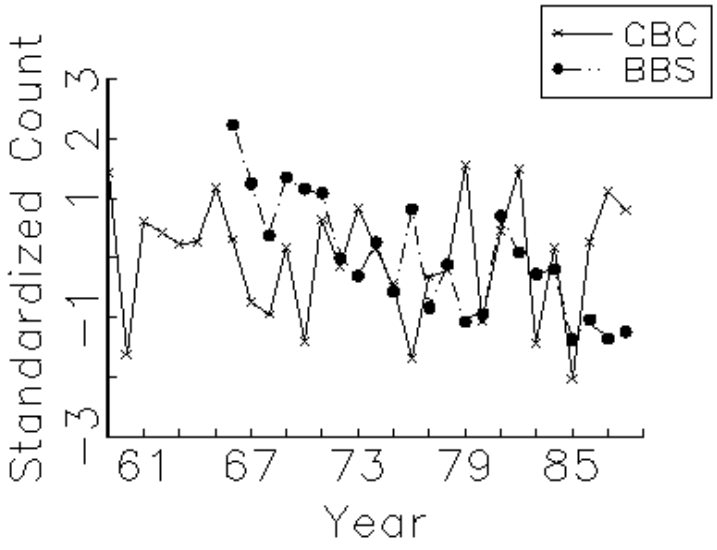


**Figure 12. California Gull Population Trend.**

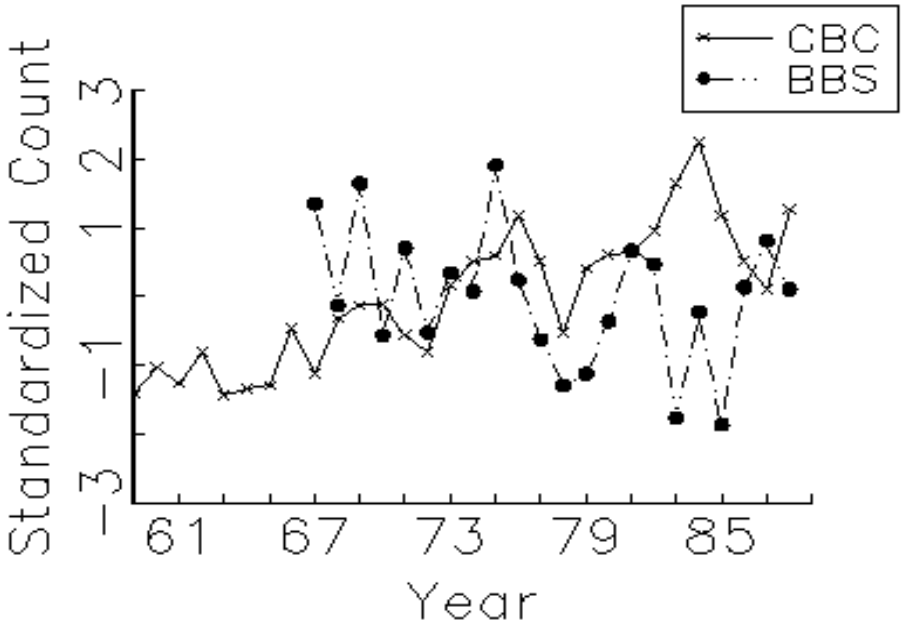

**Figure 13. Northern Flicker Population Trend.**

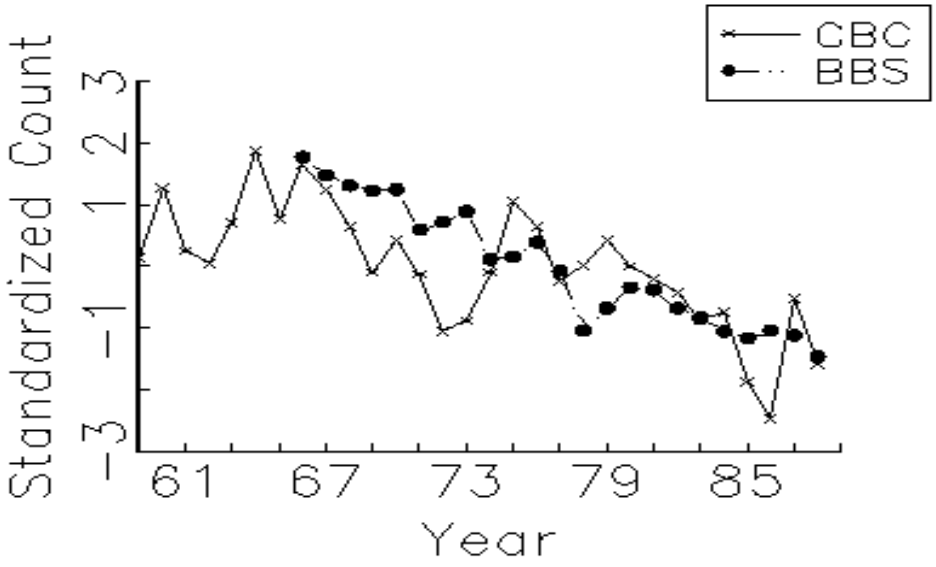


**Figure 14. Northern Flicker BBS Population Trend.**

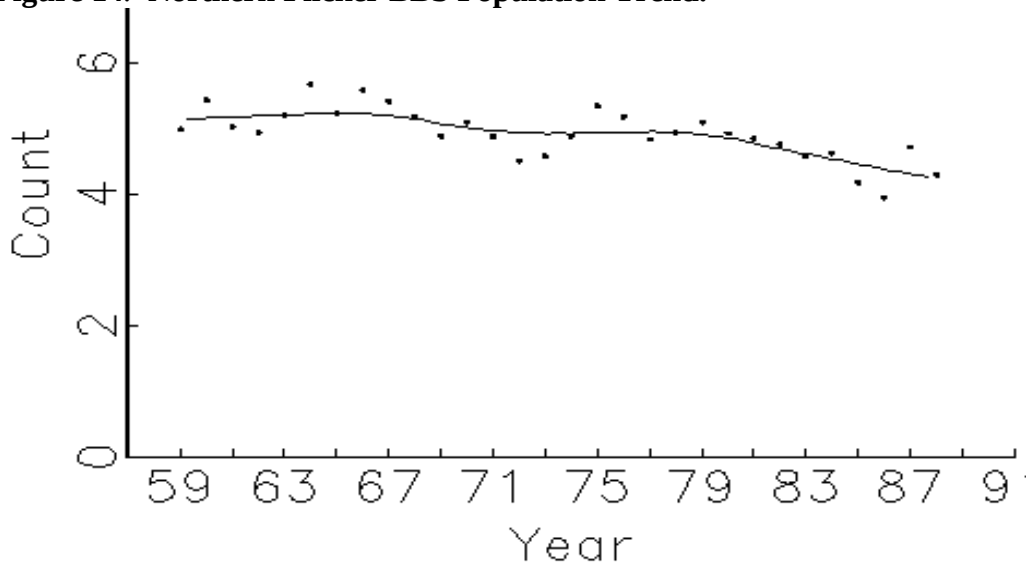

**Figure 15. Great Blue Heron BBS Population Trend.**

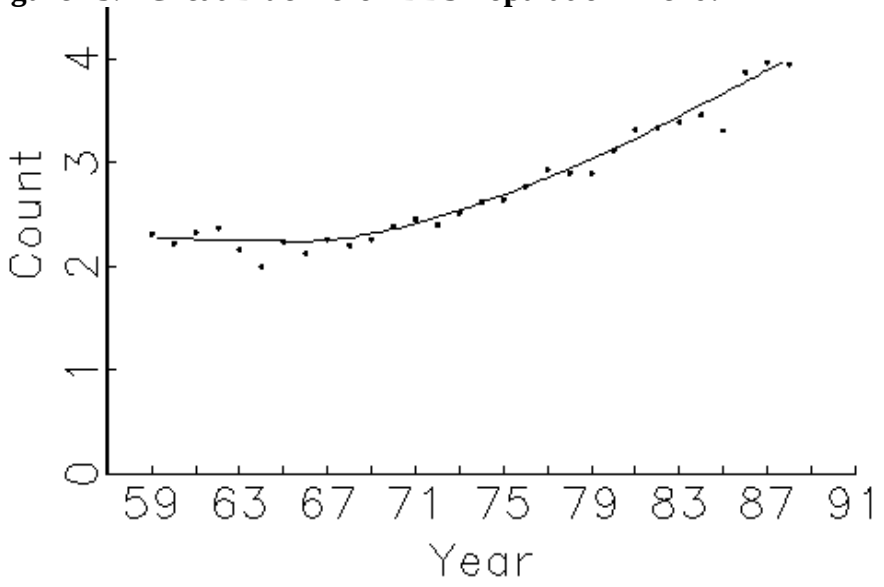


**Figure 16. Black-Crowned Night Heron Trend.**