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Todd Grimm
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Boise, ID 83709

APR 1 3 2016

Subject: Biological Opinion for the Wildlife Damage Management Activities in the State of Idaho, Wildlife Services
In Reply Refer to: 14420-2016-F-0398

Dear Mr. Grimm:

This letter transmits U.S. Fish and Wildlife Service's (Service) Biological Opinion (Opinion) on the Wildlife Services (WS) proposal for Wildlife Damage Management Activities in the State of Idaho (Project) and its effects to threatened grizzly bear (*Ursus arctos horribilis*), and threatened Canada lynx (*Lynx canadensis*). In the enclosed Opinion, the Service finds that the adverse effects from the Project are not likely to jeopardize the grizzly bear or Canada lynx. Wildlife Services also determined that the Project may affect, but is not likely to adversely affect woodland caribou (*Rangifer tarandus caribou*) or its critical habitat, bull trout (*Salvelinus confluentus*) or its critical habitat, Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*), and yellow-billed cuckoo (*Coccyzus americanus*). The Service's concurrence with this determination is found below. The Service's Opinion was prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.; hereafter referred to as the Act), and is enclosed. Wildlife Services' request for consultation was dated January 21, 2016, and received by the Service the on January 22, 2016. Included in the request was a biological assessment describing effects of the subject action on bull trout, grizzly bears, Canada lynx, woodland caribou, Northern Idaho ground squirrel, and yellow-billed cuckoo.

Proposed Action

The proposed action is to continue Wildlife Services statewide wildlife damage management actions and expanded use of existing methods (Assessment, pp. 7-40). The WS Program provides services to protect livestock, property, human health and safety, and natural resources from damage caused by a wide range of animal species (Assessment p. 8). Actions may include aerial operations, traps, snares, registered pesticides, immobilizing and euthanizing agents, firearms, calling, hazing, exclusion, nets, beaver dam removal methods, water-level control devices, repellents, and trained dogs. Also, actions include site use and access in areas with listed species.

Potential Impacts and Effects from the Proposed Action

Proposed actions that will have no effect on listed species will not be discussed. However, an explanation of these activities and how they relate to each species can be found in Table A-1 in Appendix A.

**Quick-kill and Basket-Type Traps**

Quick kill/body gripping traps may be used in streams occupied by bull trout and therefore has the possibility of capture. These traps are typically set in shallow water (<2 feet) near an active beaver scent

mound or beaver crossing (Assessment p. 48). These waters are generally warmer due to the shallow, slow moving water, reducing the likelihood of bull trout being present. The trigger placements of these traps are also adjusted to maximize trap openings and minimize non-target exposure while still capturing target animals (Assessment p. 48). Wildlife Services has never captured a fish in these types of traps. Due to the trap placement and design and the fact that WS has never caught a fish in a quick kill/body gripping trap, the likelihood of a bull trout being caught in a these types of traps is discountable.

Removal of the beavers from an occupied stream may also affect bull trout and their habitat. With the removal of all beavers from an area, the associated beaver dam will fall into disrepair and eventually fail. The failing of the dam would release any sediment caught by the dam sending it downstream. However the amount of sediment released is expected to be minimal and short duration and therefore would have an insignificant effect on bull trout and their critical habitat (Assessment p. 48). Beaver removal activities usually occur where beaver have become active within the last 12 months (Assessment p. 48). The United States Army Corps of Engineers (1996) stated that removal of recently constructed beaver dams (less than 1 year old), does not destroy or degrade waters of the United States because there has not been sufficient time for the dams to accumulate organic matter and soil or develop important and valuable aquatic habitats upstream. In addition, a beaver dam with no maintenance would slowly fall into disrepair. This would allow any sediment caught by the dam to be slowly dispersed over time, further reducing any affect to bull trout to an insignificant level.

**Foothold Traps/Foot Snares**

Foothold traps may be used to capture wolves, coyotes and mountain lions, and foot snares may be used to capture black bears, grizzly bears, mountain lions and wolves in areas occupied by woodland caribou. Caribou may incidentally step onto one of these traps and become trapped. However, only one unintentional capture of a caribou has ever occurred by WS and never in Idaho. This unintentional capture occurred in Alaska on a small barren-ground area with extremely high numbers of caribou. Caribou in Idaho are at a much lower density. Also, WS has not conducted any predator damage management activities in woodland caribou habitat, and if activities were to occur they would be rare. Due to these factors, the likelihood of these actions affecting caribou is discountable.

Foothold traps and snares may be used in areas occupied by Northern Idaho ground squirrels. These traps are implemented to benefit these species by removing predators. When utilizing these devices, pan-tensions are used to preclude capture of ground squirrels (Assessment p. 55). Given that WS uses pan-tension devices when using these devices and no ground squirrels have been captured by WS in Idaho, there is a discountable likelihood that Northern Idaho ground squirrels will be adversely affected by the use of these traps. The use of these devices may result in a beneficial effect to ground squirrels by the localized reduction of predation on their limited populations.

**Neck Snares**

Neck/body snares may be used to capture wolves, mountain lions, coyotes and beavers in areas occupied by woodland caribou. Although WS could use neck/body snares statewide, the use of these snares in woodland caribou occupied habitat has not occurred. Additionally, within occupied caribou habitat, WS will only deploy these devices from December 1 to March 15 at elevations below 4,500 feet. Wildlife Services in Idaho has never killed or captured a caribou in any of its activities. In addition to this, WS will contact the Panhandle Idaho Department of Fish and Game Regional Wildlife Manager to inquire if the area is occupied by woodland caribou. If caribou are in the area, neck snares will not be used. Due to these factors, the likelihood of the use of neck snares affecting caribou is discountable.

**Zinc Phosphide**
The use of zinc phosphide could adversely affect both the Northern Idaho ground squirrels. However, WS has not used zinc phosphide in areas occupied by Northern and Southern Idaho ground squirrels. Given that WS will not use zinc phosphide in areas occupied by Northern Idaho ground squirrels and will conduct a field survey of the area prior to treatment to ensure that Northern Idaho ground squirrels populations are not present, there is a discountable likelihood that this species will be adversely affected by the use of zinc phosphide.

**Gas Cartridges (Rodent and Denning)**
Gas cartridges may be used for the removal of coyotes, red fox and striped skunks in areas occupied by Northern Idaho ground squirrels. The use of gas cartridges in areas occupied by Northern Idaho ground squirrels is typically at the request of the Service for the specific protection of these ground squirrels. No non-target take of Northern Idaho ground squirrels has occurred by WS through the use of gas cartridges.

Gas cartridges, by their use restrictions and design, target only coyotes, red fox and striped skunks at their den/burrow sites. Idaho WS employees are trained in the identification and sign of Northern Idaho ground squirrels; therefore, no Northern Idaho ground squirrels burrows would be targeted. Northern Idaho ground squirrels are also highly unlikely to be using active dens of coyotes and red fox.

Gas cartridges in occupied Northern Idaho ground squirrels habitat are most likely beneficial to the species by removing predators in the area.

Given that WS use of gas cartridges targets coyotes, red fox and striped skunks, and that WS complies with all label restrictions, there is a discountable likelihood that Northern Idaho ground squirrels will be adversely affected by the use of gas cartridges.

**Aluminum Phosphide**
The use of aluminum phosphide could adversely affect the Northern Idaho ground squirrels. Wildlife Services has never used aluminum phosphide in areas occupied by Northern Idaho ground squirrels.

Should WS see the need to apply aluminum phosphide to reduce range or agricultural damage by Columbian ground squirrels, or when those populations are directly competing for limited resources with Northern Idaho ground squirrels, those proposed uses will be thoroughly discussed with the Service and IDFG as appropriate prior to conducting the project to mitigate any negative impacts to Northern Idaho ground squirrels. In either of these cases the effect can be beneficial to Northern Idaho ground squirrels.

Given that WS rarely uses aluminum phosphide in areas occupied by Northern Idaho ground squirrels and WS will implement the aforementioned conservation measures, there is a discountable likelihood that Northern Idaho ground squirrels will be adversely affected by the use of aluminum phosphide.

**M-44 (Sodium Cyanide)**
M-44s may be used for the removal of coyotes and red fox in areas occupied by Northern Idaho ground squirrels. However, M-44s, by design, preclude Northern Idaho ground squirrels from being directly affected. M-44s, when used in Northern Idaho ground squirrels occupied habitat, are likely to be beneficial to the species. By removing predators that prey upon Northern Idaho ground squirrels, the use of M-44s may help limit the effects of predation on localized populations resulting in a beneficial effect.

**Aerial Operations – Shooting, telemetry, hazing**
Aerial shooting is commonly used for the protection of livestock from wolf and coyote depredation which may occur near listed species. Aerial shooting uses shotguns as the primary weapon used to remove

target predators. Aerial shooting is 100 percent target selective, therefore will pose no threat to listed species.

Aerial telemetry/surveillance is generally used by WS to locate wildlife having radio transmitter collars or devices; and in some cases, used to search for coyote dens, feral swine and the location of remote camp sites or livestock. As aerial telemetry/surveillance activities have no physical interactions with the landscape, they will pose no physical threat to listed species.

WS fixed-wing aircraft will be occasionally used to haze elk damaging private hay fields or other property. Aircraft with sirens conduct multiple low-level flights in a manner that moves the elk in a desired direction away from the hay fields/property.

While conducting aerial operations, aircraft may conduct low level flights near yellow-billed cuckoo habitat. The aircraft produces engine noise as a result of flight operations. An expected result of aerial hazing on yellow-billed cuckoo is the temporary disturbance of the birds due to engine noise. It may also invoke an aerial predator response by yellow-billed cuckoo causing individuals to seek protective cover. Both of these responses are expected to have temporary and very minor effects on yellow-billed cuckoo. Due to these factors, any impacts to yellow-billed cuckoo will likely be insignificant.

**Beaver Dam Removal**

The removal of beaver dams with explosives or by hand, as well as the use of water control devices for aquatic mammal damage management activities, may occur in bull trout and yellow-billed cuckoo habitat in Idaho. However, within occupied bull trout habitat and designated critical habitat, WS has stated that implementation of such activities will only occur pursuant to individual, site-specific consultation with the Service (Assessment p. 65). Thus, the effects of the implementation of these activities upon bull trout and its habitat will be considered in future section 7 consultations, and are, therefore, not addressed herein.

Relative to yellow-billed cuckoos, beaver activities may inhibit cottonwood regeneration; seedlings and saplings are stripped of bark for food and larger trees are cut for building material. The use of these water management activities poses no direct physical threat to yellow-billed cuckoos, but the removal of beaver dams in cuckoo habitats may directly benefit yellow-billed cuckoos by maintaining and/or conserving cuckoo habitat.

When explosives are used, a loud sound is produced and a moderate amount of debris may be displaced into the air at the beaver dam removal site. The noise and physical disruption of the area by flying debris may temporarily disturb yellow-billed cuckoos in the immediate area. Although the use of explosives for the removal of beaver dams may temporarily disturb yellow-billed cuckoos, it is not expected to have any long-lasting effects and is therefore insignificant.

**Ground Shooting**

Ground shooting may occur in areas with woodland caribou, Northern Idaho ground squirrel, and yellow-billed cuckoo. Ground shooting will have no direct lethal effect on any listed species because a positive identification is made before any shot is taken, making this 100 percent selective. The noise from the gun shot may temporarily disturb a listed species but this disturbance would be temporary and very minor. Therefore, the effect to woodland caribou, Northern Idaho ground squirrel, and yellow-billed cuckoo from ground shooting will be insignificant.

**Scare Devices – Propane Exploders, Pyrotechnics**
Scare devices, including propane exploders and pyrotechnics, may be used in areas occupied by yellow-billed cuckoo and Northern Idaho ground squirrel for the protection of livestock. Typically, these scare devices are employed throughout the night to help protect domestic sheep flocks. These devices are utilized in extremely localized areas for short durations and are often used in conjunction with other predator deterrents such as livestock guard animals and animal husbandry practices. Propane exploders are rarely used by WS, limiting their exposure to listed species. The sound reports of propane cannons and pyrotechnics may be heard from great distances and localized populations of listed species may be exposed to those sound reports. This may cause a general disturbance to animals in the area; however, the use of propane cannons is not expected to have any long-lasting effects on any listed species. Given that WS use of scare devices poses no direct physical threat to listed species, propane cannons are not expected to have any long-lasting effects on any animal if heard, and the use of scare devices are on a limited basis; the effect of the use of scare devices would be insignificant.

**Trained Dogs**
Trained dogs are often used to track or decoy predators. These dogs are used to either lure predators into shooting range or are used to follow scents left by the target animal where they are eventually removed. When using these dogs there is a possibility that they may disturb, or even track a Northern Idaho ground squirrel. If it is determined that the dogs are following a Northern Idaho ground squirrel, the dogs would be removed from the track as soon as possible making it unlikely that a dog would catch the squirrel (Assessment pp. 75). This would result in a short term and temporary disturbance to the squirrel(s). Once the dogs are retrieved, the squirrels(s) will be able to resume its natural behavior. Because of the facts above, the affect to Northern Idaho ground squirrel from the use of trained dogs is insignificant.

**Site Access**
Wildlife Services may use 4-wheel drive vehicles, ATVs, motorcycles, snow machines, aircraft or riding horseback in occupied grizzly bear, woodland caribou, Northern Idaho ground squirrel, and yellow-billed cuckoo habitat. Although the majority of roads WS travels on are open to the public, there are times when WS personnel request to travel on US Forest Service roads that are closed or request that a particular road be closed to help prevent the public from accessing a site where equipment is set. Wildlife Services may inadvertently disturb listed species while conducting management activities. These disturbances would be temporary and of very low frequency and once personnel has left, the listed species could return to its original space. In addition, all site access activities would be in compliance with all Federal, State and local laws, as well as in compliance with the terms and conditions set forth in WS Memorandums of Understanding with land management agencies (Assessment pp. 76-77). For these reasons, the affect to listed species from site access is insignificant.

Concurrence
Based on the Service review of the Assessment, we concur with the determination that the Project outlined in the Assessment and this letter, may affect but is not likely to adversely affect woodland caribou or its critical habitat, bull trout or its critical habitat, Northern Idaho ground squirrel, and yellow-billed cuckoo.

This concludes informal consultation. However, the following conditions may require reinitiation of this consultation: (1) new information reveals effects of the action that may affect listed species in a manner or to an extent not considered in the assessment, (2) the action is subsequently modified in a manner that causes an effect to listed species that was not considered in the analysis, or (3) a new species is listed or critical habitat is designated that may be affected by the proposed action.

Thank you for your continued interest in the conservation of endangered, threatened, and proposed species. If you have any questions regarding this consultation, please contact Bryon Holt, Special Projects Biologist of the Northern Idaho Field office at (509) 893-8014.

Sincerely,

Dennis Mackey
Acting State Supervisor

Enclosure

## LITERATURE CITED

United States Army Corps of Engineers. 1996. Branch guidance letter 96-01, 16 September 1996, Subject: Regulation of removal of beaver dams. Letter from A. Bradley Daly, Chief, Regulatory Branch, U. S. Army Corps of Engineers, Walla Walla District, Walla Walla, Washington, USA.

# BIOLOGICAL AND CONFERENCE OPINION FOR THE WILDLIFE DAMAGE MANAGEMENT ACTIVITIES IN THE STATE OF IDAHO

## 14420-2016-F-0398

**U.S. FISH AND WILDLIFE SERVICE**
**IDAHO FISH AND WILDLIFE OFFICE**
**BOISE, IDAHO**

Acting Supervisor Dan Mackey

Date 4/13/2016

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# CHAPTER 1: INTRODUCTION

This document represents the U. S. Fish and Wildlife Service's (Service) Biological Opinion (Opinion) on the Wildlife Services' Idaho State Office (WS) proposed wildlife damage management (WDM) activities for the state of Idaho and its effects on Canada lynx (*Lynx canadensis*) and its designated critical habitat, and grizzly bear (*Ursus arctos horribilis*). This Opinion was prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 USC 1531 et seq.). Your request for consultation was received on January 22, 2016.

This Opinion is primarily based on Wildlife Services' *Biological Assessment for Wildlife Damage Management Activities in Idaho* (WS 2016; herein Assessment), dated January 2016, Wildlife Services' letter of supplement to the Assessment, dated March 29, 2016, and the other sources of information cited herein. The Assessment is incorporated by reference in this Opinion.

Other federally listed or candidate species that may be present in the project area include woodland caribou (*Rangifer tarandus caribou*), Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*), bull trout (*Salvelinus confluentus*), Banbury Spring limpet (*Lanx sp.*), Bliss Rapids snail (*Taylorconcha serpenticola*), Snake River physa snail (*Physa natricina*), Bruneau hot springsnail (*Pyrgulopsis bruneauensis*), Kootenai River white sturgeon (*Acipenser transmontanus*), Spalding's catchfly (*Silene spaldingii*), MacFarlane's four-o'clock (*Mirabilis macfarlanei*), water howellia (*Howellia aquatilis*), Ute ladies'-tresses (*Spiranthes diluvialis*), slickspot peppergrass (*Lepidium papilliferum*), whitebark pine (*Pinus albicaulis*), and yellow-billed cuckoo (Coccyzus americanus). Wildlife Services determined that the proposed action is not likely to adversely affect woodland caribou or its critical habitat, bull trout or its critical habitat, Northern Idaho ground squirrel, and yellow-billed cuckoo; for which we provided a separate, attached concurrence letter. For the other species ( Banbury spring limpet, Bliss Rapids snail, Snake River physa snail, Bruneau hot springsnail, Kootenai River white sturgeon, Spalding's catchfly, MacFarlane's four-o'clock, water howellia, Ute ladies'-tresses, slickspot peppergrass, and whitebark pine) WS determined that the proposed action will have no effect on these species; we acknowledge WS's no effect determination.

## A. CONSULTATION HISTORY

In November of 2012, WS reinitiated consultation with the Service on the potential effects its WDM activities upon listed species in Idaho. Wildlife Services was currently operating under a consultation completed for 34 southern Idaho counties (Service 2002) and a nationwide program level consultation completed in 1992 (Service 1992). Due to new species, expanding distributions of some species, the need for new methods, and expanded use of existing methods, WS requested reinitiating consultation. The Service completed consultation on WS proposed WDM actions on July 1, 2014 (Service Reference: 14420-2014-F-0193). Subsequent to completion of that consultation, in November of 2015, WS advised the Service of their intention to amend its WDM actions. On January 21, 2016, WS requested reinitiation of consultation for the effects of its WDM activities upon listed species in Idaho.

In the January 2016 Assessment, WS determined that the proposed action may affect and is likely to adversely affect Canada lynx, and grizzly bear, but will have no effect on Canada lynx critical habitat. We received several emails and a letter of supplement to the Assessment from WS modifying their proposed action to reduce potential effects to listed species. A complete decision record for this consultation is on file at the Service's Northern Idaho Field Office in Spokane Valley, Washington.

## B. PURPOSE AND ORGANIZATION OF THIS BIOLOGICAL OPINION

In accordance with the requirements of section 7(a)(2) of the Act and its implementing regulations, the formal consultation process culminates in the Service's issuance of an Opinion that sets forth the basis for a determination as to whether the proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat, as appropriate. The regulatory definition of jeopardy and adverse modification and a description of the formal consultation process are provided at 50 CFR[1] 402.02 and 402.14, respectively. If the Service finds that a proposed Federal action is not likely to jeopardize a listed species but anticipates that it is likely to cause incidental take of the species, then the Service must identify that take and exempt it from the prohibitions against such take under section 9 of the Act through an Incidental Take Statement.

## C. ANALYTICAL FRAMEWORK FOR THE JEOPARDY

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Opinion relies on four components:

- *Status of the Species*, which evaluates the species range-wide condition, the factors responsible for that condition, and its survival and recovery needs
- *Environmental Baseline*, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species
- *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species
- *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to

[1] CFR represents the Code of Federal Regulations which is a codification of the general and permanent rules published in the Federal Register by Executive departments and agencies of the Federal Government. It is published by the Office of the Federal Register National Archives and Records Administration. More information can be found at http://www.gpoaccess.gov/cfr/index.html

cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this Opinion places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the action area in the survival and recovery of the species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

# CHAPTER 2: DESCRIPTION OF THE PROPOSED ACTION

## A. ACTION AREA

The term "action area" is defined in the regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." In this case, the action area is described as the entire state of Idaho (Assessment, p. 7). All actions will be constrained to the state of Idaho as WS' (Idaho) jurisdiction ends at the state line.

## B. PROPOSED ACTION

The term "action" is defined in the implementing regulations for section 7 as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas."

Wildlife Services proposes to continue its current statewide WDM actions, and expanded use of existing methods, with certain modifications to minimize or eliminate potential effects to listed species including bull trout, grizzly bear, woodland caribou, Canada lynx, and Northern Idaho ground squirrel. For, example within occupied bull trout habitat and designated critical habitat, WS has stated that implementation of such activities will only occur pursuant to individual, site-specific consultation with the Service (Assessment p. 65). In addition to the proposed changes to WDM activities detailed in the Assessment, WS further proposed the following modifications to further minimize potential effects to listed species in a supplemental letter dated March 29, 2016:

1. 24-hour trap check intervals will be conducted for any foot-hold traps set for wolves or mountain lions in occupied grizzly bear habitat in Idaho during the non-denning grizzly bear season (March 15 to December 1),

2. Foot-hold traps set for coyotes, bobcats, red foxes, and similar sized animals will be checked daily when these traps are set on public lands in Idaho north of the Clark Fork River, Lake Pend Oreille, and Pend Oreille River between March 15 and December 1,

3. Large neck snares (e.g., set for wolves, mountain lions, feral swine, etc.) or small neck snares (e.g., set for coyotes, bobcats, red fox, and similar sized animals) will not be deployed between March 15 and December 1 in occupied grizzly bear habitat in Idaho. Large and small neck snares could be used in occupied grizzly bear habitat in Idaho between December 1 and March 15 at elevations below 4,500 feet,

4. Zinc phosphide will not be used in areas occupied by Northern Idaho ground squirrels.

These actions include use or application of a full range of WDM methodologies on a variety of species (Assessment pp. 7-8). Site specific management plans are developed using the WS Decision Model which considers a variety of biological and sociological factors including the potential for risks to federally-listed species (Slate et al. 1992). Due to the extensive number of actions and applications used by WS, only a short description of each will be presented. The

following descriptions are excerpts from the Assessment. A full description of methods can be found on pages 9-40 of the Assessment.

## 1. Cage-Live Capture Style Traps

### Small Cage Trap

Small cage traps will continue to be used by WS (up to 200 projects annually) for capturing small mammals. Cage traps vary in size and shape depending on the species being targeted with the largest for small mammals measuring 12"x12"x36". Cage traps are selected for each damaging species by size, which at times helps limit non-target catches by physically excluding them from the trap. Cage traps are primarily utilized near outbuildings in both urban and rural areas and they are set near signs of damage or near known travel areas. Non-target animals are generally released with little or no injury and target animals are euthanized.

### Large Cage Trap

Large cage traps will occasionally be used by WS (up to 20 projects annually) for the capture of coyotes, red foxes, feral dogs and mountain lions. For this purpose, a large cage trap will be considered any cage trap larger than 12" x 12" x 36. These cage traps have a treadle type trigger and a gravity door and can easily be transported by vehicle. Large cage traps are primarily used in urban settings where other traps and control methods (*i.e.,* foothold traps, foot and neck snares, shooting, M-44s, etc.) are restricted, impractical or unsafe to use.

### Culvert Trap

WS will occasionally use this type of trap (zero to 5 projects annually) when dealing with black bear nuisance problems or livestock depredation. Due to the size and weight of most culvert traps, they are primarily restricted for use near roadways, although models exist that may be disassembled and reconstructed in remote areas. Culvert traps are almost always baited with the carcass of livestock that was killed by the target predator. WS will implement a 24 hour trap check for all large cage traps and requires a daily trap check of any culvert traps set for black bears in areas occupied by grizzly bears. Culvert traps are primarily used in rural and remote areas of private and public lands.

### Avian Cage Trap

These types of traps will commonly be used by WS (up to 100 projects annually) to capture waterfowl and nuisance avian species. Swim-in traps will also be discussed in the avian cage trap section. Cage traps are live-capture traps with both target and non-target animals typically remaining alive at trap check. Non-target animals may be released with little or no injury. These traps are used in urban settings around residential homes, business buildings, at airports, urban and rural waterways (*i.e.*, ponds, rivers, creeks, lakes, etc.), and near vegetable and fruit crops.

### Corral Trap

Corral traps will occasionally be used by WS (up to 20 projects annually) to capture feral swine and Canada geese. Corral traps are constructed from 48" commercial livestock panels made of 3/16" galvanized welded rods. The panels are placed in a circular fashion and supported by T-stakes and the entrance is baited for the targeted species (typically soured or whole kernel corn). Non-target animals are able to easily escape corral traps as they do not have an enclosed top, yet feral swine are unable to climb out.

## 2. Quick-Kill/Body Gripping Traps

Quick-kill traps will frequently be used by WS (more than 200 projects annually, but not daily) to capture various avian and mammalian species. Quick-Kill traps come in a variety of styles, including body-gripping, snap, gopher and mole traps. Body-gripping traps set to capture muskrat and beaver are used mostly in shallow water or underwater. Smaller body-gripping traps (jaw spread less than 8 inches) can be used on land in trees and buildings for a variety of animals (*i.e.*, yellow-bellied marmots, skunks and fox squirrels). WS policy prohibits the use of body-gripping traps with a jaw spread exceeding 8 inches for land sets (WS 2004a). Quick-kill traps are lethal to both target and non-target animals alike.

The most commonly used trap is the Conibear® which is set in waterways to lethally take beaver. When applied for this use, the traps are set underwater in the entrances of beaver lodges, in underwater beaver travel corridors, or very near areas where a beaver dam has been purposely breached to encourage the beaver to inspect and repair the breach while coming in contact with the trap.

## 3. Basket-Type Traps

Hancock traps, basket or purse type traps, are designed to live-capture beaver which are translocated and released, or euthanized. However, these traps will rarely be used by WS (zero to five projects annually) for damage management activities. The traps are constructed of a metal frame hinged with springs and covered with chain-link fence. When set, the trap is opened to allow an animal to enter and, when tripped, the metal frame closes like a suitcase around the animal. One advantage of using the Hancock trap is the ease in releasing the beaver or non-target animals. This type of trap would not be a threat to fish species because (1) the trigger mechanism requires a substantial about of "downward" pressure or "pull" to be applied, much more than a fish could exert, in order to spring the trap, (2) traps are set in very shallow water where medium and large fish would not be present, and (3) small fish or fry that potentially might be inside a trap when it closes can easily escape through the chain-link fence covering.

## 4. Foothold Traps

Foothold traps are versatile and will be used extensively by WS (daily) for capturing numerous species. Foothold traps set for coyotes, red foxes, bobcats (*i.e.*, Victor SoftCatch #3 or equivalent) and similar sized animals are either staked to the ground securely, attached to a solid structure (*i.e.*, tree trunk, heavy fence post), or used with a drag that becomes entangled in brush, trees or rocks to prevent trapped animals from escaping. Foothold traps set for wolves or mountain lions (*i.e.*, Livestock Protection Company #7, MB-750 Wolf, or equivalent) are either equipped with drags or attached to a very heavy object (*i.e.*, log) to prevent the wolf from escaping. With all of these anchoring systems, should an adult grizzly bear become trapped there should be enough resistance that the animal can either pull its foot free from the trap or hold the animal to prevent it from escaping with the trap on its foot. WS will require daily trap checks for certain types (sizes) of traps set in occupied grizzly bear or Canada lynx habitat in Idaho (Assessment, p. 14).

The type of set and attractant used significantly influences both capture efficiency and risks of catching non-target animals. Effective trap placement and the use of appropriate lures by trained personnel contribute to the foothold trap's selectivity. Wildlife Services program policy prohibits placement of traps or snares within 30 feet of a draw station[2] to prevent the capture of non-target scavenging birds. The foothold trap is indispensable in resolving many management situations. When trapped target animals are to be lethally removed, they are euthanized. Non-target animals with no or minor injuries are released, but if deemed unlikely to survive on its own, it is usually euthanized.

To further reduce the potential for significant injury to any grizzly bear that is inadvertently captured, WS will conduct 24-hour trap check intervals for any foot-hold traps set for wolves or mountain lions in occupied grizzly bear habitat in Idaho during the non-denning grizzly bear season (March 15 to December 1) (WS letter of supplement to the Assessment, dated March 29, 2016). Additionally, foot-hold traps set for coyotes, bobcats, red foxes, and similar sized animals will be checked daily when these traps are set on public lands in Idaho north of the Clark Fork River, Lake Pend Oreille, and Pend Oreille River (WS letter of supplement to the Assessment, dated March 29, 2016).

### 5. Foot/Leg Snares

The foot or leg snare is a non-lethal device activated when an animal places its foot on the "throwing-arm" trigger. They will continue to be used by WS on 10 to 25 projects annually. When triggered, the spring-activated snare tightens around the leg and holds the animal. Foot snares are used most effectively to capture grizzly bears, black bears and mountain lions. This method is primarily used to take larger predators and the amount of weight required to trigger the throwing arm can be increased by use of a pan-tension device. By increasing the pressure, this type of foot snare can effectively exclude smaller animals from being captured while allowing the capture of the target species. Wildlife Services will require daily checks of any snares set in areas occupied by grizzly bears or Canada lynx (Assessment, p. 14).

Foot/leg snares are typically set on land in rural areas of private and public lands to capture grizzly and black bears and mountain lions. They are placed in or near travel routes of target species or near where depredations have occurred.

### 6. Padded-Jaw Pole Traps

Padded-jaw pole traps will rarely be used by WS (zero to 5 projects annually). Padded-jaw pole traps are modified No. 0 or 1 coil spring leg-hold traps with weakened springs used to capture raptors. The traps are placed on top of poles or roosting spots frequented by targeted birds and the traps are attached to a slide wire so any captured animals can reach and rest on the ground after captured. Pole traps are utilized to protect human health and safety on and near airports and for the protection of backyard poultry flocks. Pole traps are monitored in accordance with Service Depredation Permits.

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2 Also known as lure/attractant station. There are only two exceptions to this policy: (1) when setting foothold traps or snares to capture bears or mountain lions returning to a kill. In these cases, the weight of the target animal allows trap pan-tension adjustments which precludes the capture of lighter scavenging animals, and (2) when modified foothold traps set next to carcasses are used to capture raptors under Service permits.

Pole traps are live-capture traps. Captured raptors are translocated or euthanized. Any non-target animals captured are released.

### 7. Raptor Traps

Raptor traps will rarely be used by WS (zero to 5 projects annually). Raptor Traps come in a variety of styles such as the bal-chatri, Swedish goshawk trap, and purse traps. These traps have been used by WS at airports to remove raptors from the airfield and from areas around nesting T/E shorebirds.

Raptor traps are live-capture traps. Captured raptors are translocated or euthanized. Any non-target animals captured are released.

### 8. Neck/Body Snares

Neck/body snares will be used extensively by WS (daily) to capture a variety of species (*i.e.*, coyotes, red foxes, beavers and wolves). Snares offer several advantages over foothold traps by: l) being lighter to transport or carry, 2) not being as affected by inclement weather, and 3) often being easier to set. Snares can be used effectively wherever a target animal moves through a restricted lane of travel (*i.e.*, "crawls" under fences, trails through vegetation, or "pen" entrances). When an animal moves forward through the snare loop, the noose tightens, and the animal is held.

Neck/body snares are typically set on land in rural areas of private and public lands to capture coyotes, foxes, bobcats, wolves and mountain lions. They are placed in or near travel ways of target species or near where depredations have occurred. These snares can also be used in rural areas in waterways (*i.e.*, streams, creeks, ponds, etc.) for capturing beavers or other aquatic mammals. Neck and body snares can be generalized into 2 categories: snares set for coyotes, bobcats, red fox, and similar-sized animals; and those set for wolves and mountain lions.

WS will implement several restrictions on the use of neck and body snares in areas designated as occupied grizzly bear habitat. These include:

1. Use of neck snares for coyotes, bobcats and red foxes would only occur if livestock depredation is verified by WS personnel. The duration of use will only occur until the damage is effectively resolved.

2. Neck snares set for coyotes, red foxes, bobcats, wolves, mountain lions, black bears or feral swine will be restricted to between December 1 and March 15 and to areas below 4,500 feet in elevation within the Idaho portion of the occupied grizzly bear habitat.

3. Neck snares set for coyotes, red foxes or bobcats will be restricted to between December 1 and March 15, to areas below 4,500 feet in elevation within the Idaho portion of the occupied grizzly bear habitat, and will be equipped with breakaway locks with a breaking-strength rating of 285 lbs. or less. Use of these neck snares will only occur after a confirmed depredation on livestock has occurred. Additionally, prior to any use of neck snares as described above, WS will conduct both site-specific extensive and intensive surveys, and contact the Idaho Fish and

Game (IDFG) Panhandle or Upper Snake Regional Offices, and the Service, as appropriate, to inquire if the area is occupied by grizzly bears. For the purpose of this condition "occupied" is defined as: (1) the presence of grizzly bears from the use of recent telemetry locations, (2) credible reports of grizzly bear activity or observations received by IDFG or the Service, and (3) credible reports of grizzly bear received by WS on and near areas proposed for setting neck/body snares. If the IDFG determines the area is occupied, WS will not use these snares. If the area is determined not to be occupied, WS will have the discretion to use breakaway neck snares.

## 9. Aerial Operations

### Shooting

Aerial shooting from aircraft (both fixed-wing and helicopter) will be extensively (daily) used as a wolf, coyote, red fox and feral swine damage management method and is used on all lands where authorized and deemed appropriate by WS. Aerial shooting consists of visually sighting target animals in the problem area and shooting them with a firearm from an aircraft. Aerial shooting is species-specific and can be used for immediate damage relief, providing weather, topography and ground cover conditions are favorable. Aerial shooting can be effective in removing offending animals which have become "trap-shy" and/or are not susceptible to calling and ground shooting or other methods. This method may also be used to reduce local coyote or fox predations in lambing and calving areas with a history of predation. Wagner (1997) found that aerial shooting may be an especially appropriate tool as it reduces risks to non-target animals and minimizes contact between damage management operations and recreationists.

### Telemetry/Surveillance

Aerial telemetry/surveillance flights with both fixed-wing and helicopters will be used occasionally by WS (up to 20 projects annually). These flights are generally used by WS to locate wildlife having radio transmitter collars or devices; and in some cases, used to search for coyote dens, and the location of remote camp sites or livestock. In Idaho, telemetry/surveillance flights are primarily utilized to locate radio-collared animals that may be implicated in a reported depredation event. These flights are also used to monitor populations to help provide population estimates of known wolf packs.

WS aircraft also assist other agencies with the capture and collaring of wolves by providing a spotter plane. This simply entails spotting and tracking wolves in a known work area and then directing the capture and collaring aircraft to the animals for capture.

### Hazing

WS fixed-wing aircraft will be occasionally used (up to 20 projects annually) to haze elk damaging private hay fields or other property. Aircraft with sirens conduct multiple low-level flights in a manner that moves the elk in a desired direction away from the hay fields/property.

## 10. Ground Shooting

Ground shooting with center and rim fire rifles and shotguns will frequently be used by WS (more than 1000 projects annually, but not daily). It is virtually 100 percent selective for target species and is a useful and effective WDM method. Ground shooting is frequently used in conjunction with the use of spotlights, decoy dogs, predator calling and stalking. Shooting is

sometimes the only WDM option available, if other factors preclude the use of capture equipment or other methods.

Ground shooting is often combined with predator calling. Trap-wise coyotes or fox, while difficult to trap, are often vulnerable to calling. Shooting can be selective for offending individuals and has the advantage that it can be directed at specific damage situations.

Shooting is only applied in situations where it can be exercised safely and where permitted. The majority of shooting occurs in rural areas of both private and public lands and directed towards coyotes, but occasionally used in urban areas (pellet rifles or shotguns) to remove individual birds (*i.e.*, northern flickers, European starlings, feral pigeons, etc.).

### 11. Calling

Calling is used in conjunction with shooting and trapping and will be frequently used by WS (more than 500 projects annually, but not daily) for wildlife damage management. Calling consists of using voice, mouth, handheld or electronic calls to draw predators into an area. Calling is often used to draw predators into firearm range, while call boxes, electronic devices meant for extended stationary use, are utilized to attract predators to trap site locations. Call boxes are simply an additional means of increasing exposure of targeted predators to other trapping devices or control measures.

Calling and shooting is animal-specific, with take only occurring after the target animal has been visually sighted and identified by WS personnel. This virtually eliminates any take of non-target animals.

### 12. Trained Dogs

Hunting/trailing dogs are frequently used by WS (more than 200 projects annually, but not daily) for coyote, mountain lions, feral swine and bear damage management activities. Trained dogs are used to find coyote dens and decoy coyotes, and to pursue problem animals. Dogs trained for coyote denning are also valuable in luring adult coyotes within shooting distance. Tracking dogs are trained to follow the scent of target species. If the track of the target species is not too old, the dogs can follow the trail and "tree" the animal which will usually seek refuge up a tree, in a thicket on the ground, or in a hole. The dogs stay with the animal until the WS employee arrives and dispatches, tranquilizes, or releases the "treed" species, depending on the situation. A possibility exists that dogs will switch to a fresher trail of a non-target species while pursuing the target species. Dogs are essential to the successful tracking and capture of problem mountain lions, feral swine and bear to alleviate livestock depredation, property damage, threats to wildlife resources or public health and safety threats. Trained dogs are especially effective in alerting their owners to sites where equipment may be effective by indicating where coyotes or other predators have traveled, urinated or defecated.

### 13. Glue Boards and Glue Trays

Glue boards or trays will be rarely used by WS (zero to 5 projects annually) to target commensal rodents. Glue boards, however, have been successfully used to capture rattlesnakes in human

dwellings (Knight 1983). Glue boards are constructed with a thin layer of glue, varying from 1 to 2 mm in thickness, mechanically applied to a cardboard or plastic platform, while glue trays are normally constructed of plastic and filled with glue to a thickness of 4 to 6 mm (Corrigan 1998). Glue boards and trays come in various sizes from 3" x 6" (*i.e.*, mouse size intended for household use for single catches) to 12" x 24" (*i.e.*, industrial size intended for multiple catches). Glue boards are set in locations (typically inside structures) to capture rodents damaging property or creating a human health and safety risks. Glue boards/trays are typically used in urban situations indoors of a residence, business building, barn, shed or other structures.

### 14. Cannon and Rocket Nets

WS rarely uses (zero to 5 projects annually) cannon and rocket nets to capture waterfowl, feral pigeons or other wildlife. Cannons use mortar projectiles or compressed air to propel a net up and over animals that have been baited to a particular site. Both target and non-target animals are live-captured. Target animals may be euthanized or translocated, and non-target animals are released unharmed.

Cannon and rocket nets are normally used in rural areas of both private and public lands near where waterfowl or other target birds congregate, loaf, visit or feed; or near areas where damage is occurring (*i.e.*, grain crops).

### 15. Net Gun

Net guns will be rarely used by WS (zero to 5 projects annually) to capture predators, ungulates, waterfowl, and other birds from aircraft and on the ground. The net, with weighted projectiles attached to each corner, is shot from a gun with multiple divergent barrels, allowing the net to spread out and envelope the animal up to approximately 20 yards away. Net guns are an animal-specific, live-capture technique, with both target and non-target animals typically released unharmed.

### 16. Mist Net

Mist nets will be rarely used by WS (zero to five projects annually) for bird capture activities. Mist nets are very fine mesh netting used to capture small to medium sized birds. Net mesh size determines which birds can be caught. The net is nearly invisible when in place and when flown into, overlapping pockets in the net cause birds to entangle themselves (Day et al. 1980). These nets can be used for capturing small-sized birds such as house sparrows and finches (*Carpodacus* spp.) entrapped in warehouses and other structures. They can also be used to capture larger birds such as blackbirds and European starlings when they are going to a roost or feeding area.

### 17. Bow Nets

Bow nets will be rarely used by WS (zero to 5 projects annually). They are small circular net traps used for capturing birds and small mammals. The nets are hinged and spring loaded so that when the trap is set it resembles a half moon. The net is set over a food source and is triggered by an observer using a pull cord or a remote controlled trigger. These nets are an animal-

specific, live-capture technique. Target animals may be euthanized or released and non-target species are released unharmed.

## 18. Hand Net

Hand nets are used to catch birds and small mammals in confined areas such as homes and businesses. WS will occasionally use (up to 20 projects annually) hand nets for various wildlife damage management activities. These nets resemble fishing dip nets but are larger in diameter and have longer handles. Hand nets are an animal-specific, live-capture technique.

## 19. Egg, Nest and Hatchling Removal and Destruction

Egg, nest and hatchling removal and euthanasia will be occasionally used by WS (up to 20 projects annually) for bird damage management activities. Egg addling (vigorous shaking of an egg numerous times causing detachment of the embryo from the egg sac), puncturing (inserting a small probe or large pin into the egg and interior membrane), or oiling with corn or vegetable oil or similar substance (restriction of oxygen to an egg prohibiting embryo development through the use of food grade oil) is the practice of killing the embryo prior to hatching. Eggs are oiled and addled to prevent birds from re-nesting for an extended period of time (*i.e.*, Canada geese will set on eggs an average of 14.2 days beyond the expected hatch date for addled eggs). Egg destruction can be accomplished in several different ways, but the most commonly used methods are manually gathering and breaking eggs. Egg, nest and hatchling removal and euthanasia are species specific.

## 20. Chemical Damage Management Methods (Pesticides)

According to the Assessment (p. 20), WS Directive 2.401 (Pesticide Use) states: "Wildlife Services (WS) activities will be in compliance with applicable Federal, State, Tribal, and local laws and regulations pertaining to pesticides, including application, certification, storage, transportation, shipment, disposal, and supervision, or when recommending the use of restricted-use pesticides. Restricted use pesticides used or recommended by WS personnel must be registered by the U.S. Environmental Protection Agency (EPA) and the appropriate State regulatory agency.... Pesticide use, storage, and disposal will conform to label instructions and other applicable regulations and laws." Idaho WS will comply with this Directive, label restrictions and all other applicable regulations and laws pertaining to the use of pesticides.

### DRC-1339

DRC-1339 will be commonly used by WS (up to 100 applications annually) for management of various avian species. DRC-1339, 3-chloro-4-methylbenenamine hydrochloride, is an avian pesticide registered with the EPA and by the Idaho State Department of Agriculture (ISDA). It is a slow acting avicide that is rapidly metabolized and excreted after ingestion. Because of its rapid metabolism, DRC-1339 poses a discountable risk of secondary poisoning to non-target animals, including avian scavengers (Cunningham et al. 1979, Schafer 1984, Knittle et al. 1990). Prior to the application of DRC-1339, prebaiting is required to monitor for non-target species that may potentially consume treated baits, reducing potential exposure to non-target species. DRC-1339 is commonly used on private property cattle feedlots or dairies during the winter months when European starlings and blackbirds form large flocks and feed at these locations.

**Zinc Phosphide**

Zinc phosphide is a metallic pesticide commonly used by WS (up to 100 applications annually) to reduce rodent damage. Zinc phosphide, if ingested in enough quantity, is toxic to most forms of life. It has a strong, pungent, garlic-like odor that actually is attractive to rodents such as rats, but may be unattractive to other animals. Zinc phosphide comes in prepared baits on wheat and oats, or comes as a concentrate that can be applied to apples, carrots or other baits attractive to the target animal. Use of zinc phosphide on various types of fruit, vegetable or cereal baits has proven to be effective at suppressing local populations of target animals. Specific bait applications are designed to minimize non-target hazards. Prebaiting with the same bait carrier is used prior to bait application to make the treatment more effective. When zinc phosphide is ingested and comes into contact with dilute acids, phosphine gas is released and causes death.

Secondary poisoning to predators and scavengers is uncommon, though bait can remain toxic in the gut of primary consumers. When consumed in sufficient quantities, zinc phosphide has an emetic effect; therefore, meat-eating animals such as mink, canids, felids and raptors regurgitate animals that are killed with zinc phosphide with little or no effect.

WS has not applied zinc phosphide in Canada lynx habitat and is unlikely to do so in the future. However, if WS did receive requests in the future to conduct WDM activities in habitats of Canada lynx, it would likely be carried out using other methods such as burrow fumigants, snap or cage traps, or shooting which would not pose risks to the species. Additionally, WS has not applied this product in areas occupied by grizzly bears and will not do so in the future (Assessment, p. 23).

**Avitrol®**

Avitrol® will be rarely used by WS (zero to 5 applications annually) as a management tool for problem birds. 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. Avitrol® is distributed as grain bait and is placed in areas where the targeted birds are feeding.

Avitrol® is relatively selective for targeted birds, but exposure to non-target species is possible. As per the application restrictions, prebaiting is used to determine that no non-target birds are consuming bait prior to the application of Avitrol®. If non-target species are observed feeding on prebait, then the use of Avitrol® would be postponed, not applied, produce a change in bait types to reduce its attractiveness to non-targets or an alternative site is selected.

**Livestock Protection Collar (Compound 1080)**

Sodium fluoroacetate or Compound 1080, is the active ingredient in the Livestock Protection Collar (LPC). It is currently registered by the EPA and ISDA for use in Idaho only by WS to reduce coyote damage to sheep and goats and is restricted for use in fenced pastures. The LPC will be rarely used by WS (zero to 5 projects annually) because it can only be used in very limited situations, as specified on the registration label.

The LPC consists of two rubber reservoirs, each of which contains about one-half ounce of a 1 percent solution of sodium fluoroacetate and is attached to the neck of a goat or sheep. The

toxicant is dispensed when punctured from a bite of an attacking predator and is selective not only for the target species, but also for target individuals. It specifically targets coyotes because they characteristically attack sheep and goats by grabbing the throat, whereas other predators and dogs generally attack the animal elsewhere on the body (*e.g.*, dogs attack the flanks and mountain lions the skull). As a result, fewer predators and non-target animals are taken to resolve depredations on pastured sheep and goats.

**Gas Cartridges (Rodent and Denning)**
Gas cartridges are 2-ingredient fumigants commonly used by WS (up to 100 applications annually) to kill burrowing wildlife and reduce damage associated with them. In the WS program, fumigants are only used in rodent burrows and predator dens (commonly known as denning). The cartridges are placed in the active burrows of target animals, the fuse is lit, and the entrance is then tightly sealed with soil. The burning cartridge causes death by oxygen depletion and carbon monoxide poisoning.

**Aluminum Phosphide**
Aluminum phosphide is occasionally used by WS (up to 20 applications annually) as a below-ground fumigant for burrowing rodents (*i.e.*, ground squirrel, voles, yellow-bellied marmots, etc.). It is sold under several trade names such as Phostoxin® and Fumitoxin® and is prepared in a pellet and tablet form. The pellets/tablets are dropped into the burrow of the target species and the entrance is sealed with a shovel-full of soil. When aluminum phosphide pellets or tablets are placed in burrows, the active ingredient reacts with soil moisture and the animal's respiration, and lethal amounts of Phosphine ($PH_3$) gas are released, killing the animal underground. Death normally occurs within several minutes after treatment. $PH_3$ gas that remains in the burrow after the rodents have died, disperses, and then decomposes quickly, reducing the possibility that a predator would receive a lethal dose in the event a fumigated burrow is excavated. WS (1994, Appendix P) cites that T/E species would be adversely affected by aluminum phosphide if applied directly into burrows occupied by these species, however, there is no risk to large carnivores because they do not occupy small burrows inhabited by the target species.

Aluminum phosphide is primarily used on private property to control ground squirrels damaging turf or rangelands, but occasionally WS is requested by public land agencies to assist with ground squirrel control on campgrounds or on office lawns.

**M-44 (Sodium Cyanide)**
Sodium cyanide, the active ingredient in the M-44, will be frequently used by WS (more than 200 applications annually, but not daily) to target and kill coyotes and red fox in reducing livestock depredations. The M-44 device contains four parts and is set with a special tool. The M-44 device consists of: (1) a capsule holder wrapped with fur, cloth, wool, or other material subject to state/local restrictions; (2) a capsule containing 0.8 gram of powdered sodium cyanide; (3) an ejector mechanism; and (4) a 5-7 inch hollow stake. The hollow stake is driven into the ground, the ejector unit is cocked and placed in the stake, and the capsule holder containing the cyanide capsule is screwed onto the ejector unit. A fetid meat or other suitable bait is applied to the capsule holder. An animal attracted by the bait will try to pick up or pull the baited capsule holder. When the M-44 device is pulled, a spring-activated plunger propels sodium cyanide into the animal's mouth. Generally, death is immediate and results from respiratory arrest. The M-44 is selective for canids because of the attractants used and their feeding behavior. When

properly used, the M-44 presents little risk to humans and the environment and provides an effective tool to reduce predator damage.

The majority of M-44 use is on private property in rural settings. WS will not use M-44 devices between March 1 and November 30 in areas occupied by grizzly bears (Assessment, p. 58).

**Anticoagulant Rodenticides**

Anticoagulant rodenticides will be rarely used by WS (up to 5 projects annually) for rodent damage management. Anticoagulants come in a variety of formulations and many are available as rodenticides from commercial vendors. Anticoagulants come in single dose and multiple dose formulations. The active ingredients in anticoagulants potentially used by WS include: bromadiolone, brodifacoum, chloraphacinone, difethialone and diphacinone. These baits, following single or multiple feedings (depending upon type), reduce the clotting ability of blood and damage capillaries. Over time, the rate of blood clotting slowly decreases and blood loss from the damaged capillaries leads to death.

Anticoagulants are toxic to other species, especially mammals, at low concentrations, so primary toxicity hazards must be guarded against by placing baits in containers or areas inaccessible to pets, children, livestock, and non-target species. Anticoagulants, especially brodifacoum, difethialone, and bromadiolone, have a high potential for secondary poisoning, and numerous mortality incidents have been associated with these pesticides, even when EPA label use restrictions are followed. As required by law, WS will follow the EPA label use restrictions (WS 2004b).

Anticoagulant rodenticides are typically used to control commensal rodents in barns, poultry houses, sheds and farm/ranch buildings. Anticoagulants will not be used in areas occupied by grizzly bears or Canada lynx (Assessment, p. 29).

**Strychnine**

Strychninewill be rarely used by WS (zero to 5 applications annually) for WDM activities. Strychnine is used mostly to protect alfalfa in Idaho, but has been used to protect other agricultural resources and forests. Strychnine is a white, bitter-tasting pesticide that is highly toxic to most species of mammals and birds, with the exception of gallinaceous birds. It is only available for below-ground use and only on pocket gophers to reduce damage. Strychnine is available on milo or oats for use with mechanical burrow builders or hand placement. Burrow builders create underground burrows and drop in baits. Gophers intersect these burrows, consume the baits, and die underground. Baits can also be placed in active burrow systems by hand. Gophers that consume these baits mostly die underground. Non-target species that potentially use gopher burrow systems such as field mice and other small rodents can be killed if bait is consumed. Strychnine kills animals relatively quickly and unassimilated baits can be found in the animals gut contents. Primary non-targets, and target gophers may potentially die above ground and pose a potential risk of secondary hazards to scavengers; this hazard has been shown to be quite low (Hegdal and Gatz 1976, Fagerstone et al. 1980, Evans et al. 1990). Since strychnine poses a potential for secondary poisoning, it is conceivable that a predatory or scavenger species could be affected by consuming targeted gophers. This chemical is subject to registration review by EPA on a 15-year cycle, or when new information reveals a change in its known effects to human health or the environment.

Strychnine grain baits are primarily used in rangelands and hay crops such as alfalfa with the "hand-placement" label being utilized. This particular label restricts the application to hand-baiting only and is placed directly into the burrow system of pocket gophers with the use of a metal probe. The probe creates an opening from the soil surface which connects with the burrow. Strychnine baits are then placed in the opening and grain falls in the burrow. The opening is then plugged by stomping the heel of the applicator's boot over the hole.

## 21. Chemical Damage Management Methods (Animal Handling)

Handling of live-captured wildlife could be conducted by using several immobilizing agents approved and authorized for this purpose. Selected WS personnel have received training in the safe use of authorized immobilization/euthanasia chemicals. This training involves hands-on application of state-of-the-art techniques and chemicals. WS will comply with all state and federal regulations regarding marking animals that have received immobilization drugs prior to and during hunting seasons. Immobilization agents approved for use by WS include:

### Alpha-Choralose

Alpha-chloralose is rarely used by WS (zero to 5 applications annually). Alpha-chloralose is an immobilizing agent used to capture and remove problem/nuisance birds (primarily waterfowl) and is currently approved for use by WS as a Food and Drug Administration (FDA) Investigational New Animal Drug and not a pesticide. The use or application of alpha-chloralose is monitored at the capture site and baits are fed directly to target species and uneaten baits are retrieved and properly disposed, avoiding consumption of treated baits by non-target species. Pursuant to FDA restrictions, pigeons, waterfowl or other game birds captured during the hunting season with alpha-chloralose must be euthanized, buried, incinerated or held in captivity for at least 30 days, at which time the birds may be killed and processed for human consumption or released.

### Injectable Immobilizing Drugs

**Ketamine, Xylazine and Telazol®** are immobilizing agents occasionally used by WS (up to 20 applications annually) to aid in the humane handling of predators such as, wolves, coyotes, red fox, raccoons and skunks.

### Tranquilizer Trap Devices

Tranquilizer Trap Devices (TTDs) are rarely used by WS (zero to 5 applications annually). TTDs are small rubber containers filled with the tranquilizer propiopromazine HCL that can be used in conjunction with foothold traps to sedate an animal upon its capture. The drug is administered via a rubber nipple (trap tab) fastened to the trap jaw. When captured, predators instinctively bite the trap tab and ingest the immobilizing drug, whereby sedating them, reducing possible damage to their foot caused by struggling while being held by the trap. Used properly it does not render the animal unconscious.

WS' use of TTDs are limited to use on foothold traps set to capture wolves. Traps with TTDs are placed in or near travel ways of wolves or with some type of olfactory attractant (see Foothold Traps section for more information).

**Euthanasia (Chemical and Physical)**
Euthanasia methods include the use of registered drugs such as Beuthanasia-D® and Fatal Plus®, cervical dislocation, decapitation, gunshot to the brain or asphyxiation with carbon monoxide [CO] or carbon dioxide [$CO_2$]. These methods are species-specific. Animals are rarely (zero to 5 applications annually) euthanized by WS with registered drugs. The carcasses of animals chemically euthanized with registered drugs are buried or incinerated.

## 22. Beaver Dam Breaching and Water-Level Control Devices

**Binary Explosives**[3]
Beaver (*Castor canadensis*) dam breaching/removal is generally conducted to maintain existing stream channels and drainage patterns, drainage structures such as culverts and irrigation canals, and reduce flood waters behind the dams that have affected established silviculture, agriculture (*i.e.*, ranching and farming activities), roads, bridges, and residential and commercial property. WS occasionally uses explosives (up to 20 applications annually) for beaver dam breaching/removal projects.

Binary explosives are placed within the beaver dam to create a vortex of energy within the dam itself. Shock waves associated with the explosion are directed away from the water to maximize the impact. The intent of removal/breaching by explosives is to loosen the dam material and allow the force of impounded water to wash away the debris[4]. When a dam is removed/breached, debris that is discharged into the water is considered "incidental fall back" or discharge fill. The amount of explosives used depends on many factors including size of dam and surrounding substrate. From 2007 to 2011, an average of 5.3 pounds of explosives was used to breach 60 dams (Assessment p. 79, personal communication Scott Stopak).

Beaver dams breached by WS are typically the result of very recent or current beaver activity. Typically, WS receives most requests soon after affected resource owners discover damage or becomes aware of this service. Beaver-related flooding complaints addressed by WS involve clearing obstruction of irrigation ditches and structures, culverts or bridges, and reducing damage to other man-made structures (*i.e.*, houses, utilities and landscaping) where true wetland habitats are not involved. Only the portion of the dam blocking the drainage is breached and the natural course of the stream is undisturbed.

Beaver dam breaching with binary explosives is primarily conducted on private property and in rural settings.

**Hand Tools**
Unwanted beaver dams can be breached by hand with a rake, shovel, power tools or heavy machinery. Hand breaching is more often used on smaller dams, but larger dams may also be breached by hand, but requires substantially more labor. As with explosives, hand removal/breaching utilizes the impounded water to wash away the dam debris. When a dam is

3 The WS program uses a binary (*i.e.*, 2-part) explosive composed of ammonium nitrate and nitro-methane. Mixed together, these chemicals become a Division 1.1 explosive (U.S. Bureau of Alcohol, Tobacco and Firearms classification).

4 The binary explosives are used such that the energy from the blast creates an energy vortex in the center of the dam which then causes the dam material to go up and out (the path of least resistance). When the charges explode, the dam's material is lifted in the air 50 to 100 feet.

breached, excess debris is discharged into the water and is considered "incidental fall back" or discharge fill. WS occasionally (up to 20 applications annually) removes/breaches beaver dams by hand.

Beaver dam breaching with hand tools is primarily conducted on private property and in rural settings.

**Water-Level Control Device**
Water-level control devices are rarely implemented by WS (zero to 5 projects annually) and are generally of two designs. One design consists of a perforated pipe passing through the beaver dam and the second consists of an exclosure 15 - 90 feet in front of a culvert, preventing the beaver from blocking the culvert with debris (Lisle 1996). The second design may include a perforated pipe extending from the exclosure to the culvert to allow water to continue to flow if the exclosure face becomes clogged with debris. These devices are used to manage water levels for vegetation management or lessen the impacts of beaver dams on areas or structures of value (*i.e.*, flooded road due to dammed culvert).

Water-level control devices can be implemented on either private property or public lands and in urban or rural settings.

**23. Hazing and Exclusionary Methods**

**Propane Exploders**
Propane gas exploders are occasionally (up to 20 projects annually) used by WS to haze waterfowl and blackbirds from depredating field crops. Propane exploders operate on propane gas and are designed to produce loud explosions at controllable intervals. They are strategically located (*i.e.*, elevated above the vegetation) in areas of high wildlife use to frighten them from the problem site. Because animals are known to habituate to sounds, exploders must be frequently moved and used in conjunction with other scare devices. Exploders can be left in an area after dispersal is complete to discourage returning animals.

Due to noise restrictions in urban environments, propane exploders are rarely used in these areas with the exception of airports and landfills. The vast majority of propane exploder use is in rural areas around alfalfa, grain crops and fruit tree orchards to discourage bird damage, and lambing and calving pastures to help minimize predation from coyotes, wolves and other predators.

**Pyrotechnics**
Pyrotechnics, including shell-crackers and scare cartridges, are commonly used by WS (up to 50 projects annually) to repel Canada geese, California gulls, ring-billed gulls, black-crowned night herons, European starlings, predators and elk. Shell-crackers are a 12-gauge shotgun shell containing a firecracker that is projected up to 75 yards in the air before exploding. They can be used to frighten mammals but are most often used for scaring birds to prevent crop depredations or discourage birds from undesirable roosting or loafing sites such as structures and airport runways. WS personnel are trained in the safe and effective use of pyrotechnics and must comply with WS Directive 2.625 directing the safe use, storage and transportation of pyrotechnics (WS 2006).

Due to noise restrictions in urban environments and potential fire hazard, pyrotechnics are rarely used in these areas with the exception of airports and landfills. The vast majority of pyrotechnic use is in rural areas around alfalfa, grain crops and fruit tree orchards to discourage bird damage.

**Lasers**

Lasers (Light Amplification by Simulated Emission of Radiation) are a relatively new technique used to frighten and disperse birds from their roosts or loafing areas. Although the use of a laser to alter bird behavior was first introduced nearly 30 years ago (Lustick 1973), it received very little attention until recently when it was tested by the National Wildlife Research Center (NWRC). WS rarely utilizes lasers (zero to 5 projects annually) but they can be used to haze waterfowl, blackbirds, crows and gulls. The repellent or dispersal effects of lasers are due to the intense and coherent mono-wavelength light that, when targeted at birds, can have substantial effects on behavior and can produce illicit changes in physiological processes (APHIS 2001). Best results are achieved under low-light conditions (*i.e.*, sunset through dawn) and by targeting structures or trees in proximity to roosting birds, thereby reflecting the beam (APHIS 2001). Lasers potentially used by WS include the Class-III B, 5-mW, He-Ne, 633-nm Desman laser, and the Class II, battery-powered, 68-mW, 650-nm, diode Laser Dissuader. Because of the risk of eye damage, safety guidelines and specifications have been developed and are strictly followed by the user (OSHA 1991, Glahn and Blackwell 2000).

**Physical Harassment by Radio-Controlled Vehicles**

Physical harassment by radio-controlled vehicles is rarely utilized by WS (zero to 5 projects annually). The use of remote control devices for the purpose of disturbing the activity or behavior of birds is a relatively new concept and can be effective for dispersing damage-causing waterfowl. This tool is effective in removing waterfowl from areas that are not easily accessible or when other means of harassment are not permissible or allowed (pyrotechnics in urban areas). Radio-controlled vehicles allow for close and personal harassment of birds, while combining visual (*e.g.*, eyespots on boat) and auditory (*e.g.*, engine noise) scare tactics. Radio-controlled vehicles are available in numerous forms such as: speed boats, helicopters, airplanes, sail boats and race cars.

Radio-controlled vehicles are primarily used in urban settings to help disperse waterfowl from small bodies of water where they may be creating nuisances or human health issues associated with accumulation of fecal material.

**Other Scaring Methods/Devices**

Other scaring devices are rarely used by WS (zero to 10 combined projects annually). These include electronic guards, scarecrows, and surface coverings for ponds.

**Predator Exclusionary Fences**

Predator exclusionary fencing can be applied in both urban and rural areas and is rarely utilized by WS (zero to 5 projects annually). Predator-resistant fences can be woven wire, electric fence, or large chain-link fence. Predator exclusionary fence can be either permanent or temporary.

**Sheathing and Tree Protectors**

Sheathing is rarely used by WS (zero to 5 projects annually). Sheathing consists of using hardware cloth, solid metal flashing or other materials to protect trees from wildlife or prevent

wildlife from climbing trees to gain access to areas where they are unwanted (*e.g.*, a building). Tree protectors are most often used to prevent damage to trees by beaver, rodents, deer, tree squirrels and porcupines. Sheathing may be impractical where there are numerous plants to protect and because of this, they are mostly used in urban settings where only a few trees or objects need protection.

**Barriers, Netting, Wire Grids and other Exclusion Methods**

Barriers, netting, wire grids and other exclusion methods are occasionally used by WS (up to 20 projects annually). Barriers are mostly used to prevent access to areas such as gardens, fish ponds, nest sites[5], dwellings and livestock and poultry pens. Selection of a barrier system depends on the wildlife species being excluded, expected duration of damage, size of the area or facility to be excluded, compatibility of the barrier with other operations (*e.g.*, feeding, cleaning, harvesting, etc.), possible damage from severe weather, and effect on site aesthetics. The barrier system also depends on the resource being protected and its value. Barrier systems can initially be very costly to erect and expensive to maintain. These methods can be used in both urban and rural settings.

## 24. Abrasives

Abrasives are rarely used by WS (zero to 5 projects annually). Materials that are abrasive can discourage, reduce or prevent gnawing behavior of rodents. Abrasives produce an unpalatable surface which irritates the teeth and mouth of rodents when they attempt to gnaw or chew on the surface. Flexible materials, such as sandpaper, grinder pads and fine-mesh stainless steel screening can be placed on or over objects (*e.g.*, electrical wiring, plastic piping, fruit trees, etc.) that are susceptible to gnawing rodents. Fine sand can be added and mixed with paint, glue or other suitable liquid adherents to formulate a paste or heavy mixture that can be brushed-on or applied to a surface to discourage rodent gnawing. This method has had limited success when applied or painted on tree trunks to discourage beaver from cutting down trees.

Abrasives can be used in both urban and rural settings, but most practical where only a few trees or areas need protection.

## 25. Site Access

WS use 4-wheel drive vehicles, all-terrain vehicles, snow machines, aircraft or riding horseback when conducting WDM activities. All WS site access activities would be in compliance with Federal, State and local laws, as well as in compliance with the terms and conditions set forth in WS Memorandum of Understanding (MOU) with land management agencies. On occasion, WS will access areas using motorized vehicles that are otherwise closed to the public. This may occur daily during summer months but rarely (up to once per week) during other parts of the year.

WS is a cooperatively funded, service-oriented program. Before any direct control WDM activities are conducted, a request must be received and an *Agreement for Control* must be signed by the landowner/ administrator or other comparable documents must be in place. As requested, WS cooperates with land and wildlife management agencies to effectively and

5 For example, using a barrier consisting of a physical exclosure to protect a ground nesting species of bird from predators.

efficiently reduce wildlife damage according to applicable federal, state and local laws (WS 2004b). WS has the responsibility for responding to and attempting to reduce damage caused by wildlife, when funding allows, as specified in MOUs with the cooperating agencies. To mitigate and avoid potential adverse effects to listed species, WS will:

1) Train personnel on the identification and sign of T/E species found in Idaho.
2) Adhere to road restrictions/closures.
3) Provide Service maps to each employee of areas where T/E species are found in Idaho.
4) Adhere to WS Directives.
5) Adhere to Terms and Conditions, Reasonable and Prudent Measures, and Conservation Measures outlined in the Opinion.

## C. TERM OF ACTION

WS intends to continue to implement WDM actions in the state of Idaho indefinitely. If there are no changes that trigger re-initiation of this consultation (see Reinitiation below), the Service considers this consultation to extend indefinitely. WS will meet with the Service at the end of every 5 years to make sure the Assessment and Opinion are up to date and all conservation measures are working properly and within the year of a grizzly bear or lynx take occurrence to review the incident.

## D. MEASURES TO REDUCE IMPACTS

WS has identified specific management actions to reduce the degree of impact from WDM actions to listed species and their designated critical habitat. These measures are identified on pages 41-44 of the Assessment. For example, WS will give preference to shooting, as it is 100 percent selective, cage traps and foot snares in grizzly bear habitat will be checked daily, and WS personnel will be trained in identifying all threatened, endangered, and candidate species.

# CHAPTER 4: GRIZZLY BEAR

## A. STATUS OF THE SPECIES

The grizzly bear is one of two subspecies of the brown bear (*Ursus arctos*) which occupy North America. Coloration varies from light brown to almost black, with guard hairs often paled at the tips. Grizzly bears are generally larger than black bears (*Ursus americanus*) and can be distinguished from them by longer, curved claws, humped shoulders, and a more concave face. In the lower 48 States, male grizzlies average 400 to 600 pounds and female grizzlies average 250 to 350 pounds. Adult grizzlies stand 3.5 to 4.5 feet at the hump when on all fours, and can exceed 8 feet in height when standing on their hind legs. Grizzly bears are a wide-ranging species with individualistic behavior, although there is little evidence that they are territorial. Home range sizes vary, and the home ranges of adult bears frequently overlap. Most areas currently inhabited by the species are represented by contiguous, relatively undisturbed mountainous habitat exhibiting high topographic and vegetative diversity. Availability of springtime habitat is a concern throughout the current range of the species. A more complete discussion of the biology and ecology of this species may be found in the 1993 Grizzly Bear Recovery Plan (Recovery Plan) (Service 1993).

### 1. Regulatory Status

**Listed under the Act**

On July 28, 1975, the grizzly bear was listed as threatened in the conterminous U.S. (40 FR 31734-31736). In 1991, the Service received petitions to reclassify the five existing grizzly bear ecosystems: 1) the Greater Yellowstone Ecosystem (GYE); 2) the Northern Continental Divide Ecosystem (NCDE); 3) the Cabinet-Yaak Ecosystem (CYE); 4) the Selkirk Ecosystem (SE); 5) the North Cascades Ecosystem (NCE), from threatened to endangered. On April 20, 1992, the Service issued a "not warranted for reclassification" finding for the Yellowstone Recovery Zone and Northern Continental Divide Recovery Zone populations (57 FR 14372). On February 12, 1993, the Service found that reclassification of grizzly bears in the CYE from threatened to endangered was warranted but precluded by work on higher priority species, but determined that such reclassification was not warranted for the grizzly bear population in the SE (58 FR 8250). On May 17, 1999, the Service found that reclassification of grizzly bears in the Selkirk recovery zone (SRZ) from threatened to endangered was warranted but precluded by work on higher priority species (57 FR 14372). Also, in its May 17, 1999 finding, the Service determined that preliminary information suggests that the CYE and SE grizzly bear populations may be connected through Canada. Therefore, the Service will consider formally recognizing a distinct population segment that would encompass both of these ecosystems. Until a final determination is made on a distinct population segment, the Service still considers the ecosystems to be separate.

On March 29, 2007, the Service designated the Greater Yellowstone Area (GYA) population of grizzly bears, which includes the GYE, as a distinct population segment (DPS), and removed the GYA DPS from the List of Threatened and Endangered Wildlife under the Act. The delisting became effective on April 30, 2007 (50 FR 14865). On September 21, 2009, the Federal District Court in Missoula issued an order enjoining and vacating the delisting of the GYA DPS grizzly population. In compliance with this order, the grizzly bear population in the GYA is once again

threatened under the Act. On March 11, 2016, the Service published a proposal to remove the GYE population of grizzly bears from the Federal List of Endangered and Threatened Wildlife (81 FR 13174).

**Threats**

Primary threats to grizzly bears are associated with motorized and dispersed recreational use and forest management activities, including timber harvest. Recreational uses include hunting, fishing, camping, horseback riding, hiking, biking, off-road vehicle (ORV) use, and snowmobiling. Direct human-caused mortality is the most obvious threat to the grizzly bear. This kind of mortality can occur in several ways: (1) mistaken identification by big game hunters, (2) malicious killing, (3) defense of human life or property, or (4) management removals. Bears are removed to defend human life or property, usually because bears have become dangerously bold as a result of food conditioning and habituation at campsites, lodges, resorts and private residences or they become habituated predators of livestock.

Human-grizzly bear interactions have been increasing in the ecosystem due, in part, to increasing human use and development, increasing bear numbers, and bears and people both expanding their range of occupancy, increasing the chances of adverse encounters. The frequency of grizzly bear-human conflicts is inversely associated with the abundance of natural bear foods (Gunther et al. 2004). That is, most grizzly bear mortalities are directly related to grizzly bear-human conflicts. The Interagency Conservation Strategy Team reported known human caused mortalities from 1992-98. Of 58 human-caused mortalities, 43 percent were hunting-related, 10 percent were poaching, 28 percent were food conditioned bears, 7 percent were related to livestock and 12 percent were accidental deaths. The greatest increase in recent years is self-defense in fall by big game hunters. According to U.S. Forest Service (2004), for the years of 1975 to 2002, 59 percent of grizzly bear deaths (136 out of 230) occurred on Forest System lands. Of these, 67 percent (91 of the 136) are not directly related to forest management actions. The remaining 33 percent (45 of the 136), can be at least indirectly attributed to Forest Management activities, for example mortalities related to domestic sheep, cattle and horses and backcountry recreation use. According to the U.S. Forest Service (2004), from 1992 to 2003, 741 grizzly bear/human conflicts occurred on Forest System lands.

Grizzly bears have also experienced displacement from available habitat (loss of habitat effectiveness due to human disturbance) due to increased human uses from (1) increased amount of roading, (2) ORV use and (3) recreation use. They have also experienced loss of existing available habitat due to (1) increased development on private land related primarily to residential housing, and (2) potential for increased development on public land related primarily to oil/gas and recreation development. The grizzly bear also faces a decrease in value of available habitat due to (1) a loss of biodiversity (especially early succession related vegetative types), and (2) sub-optimal composition, structure, and juxtaposition of vegetation as a result of fire suppression, management strategies, and advancing succession. Finally, the bear faces isolation due to fragmentation of available habitat due to (1) major development of private land, (2) construction of major highways that produce blockage or restrict movement, (3) inadequate provision for linkage on minor roads and highways, and (4) large blocks of clearcuts.

**Designated Critical Habitat**

No critical habitat for the grizzly bear has been designated.

## 2. Survival and Recovery Needs

In an effort to facilitate consistency in the management of grizzly bear habitat within and across ecosystems, the Interagency Grizzly Bear Guidelines were developed by the Interagency Grizzly Bear Committee (IGBC); 51 FR 42863, November 26, 1986) for use by land managers. The IGBC developed specific land management guidelines for use in each of the five ecosystems.

Recovery zones also have been established for the grizzly bear and include areas large enough and of sufficient habitat quality to support a recovered bear population (Figure 4-1). According to the Grizzly Bear Recovery Plan (Service 1993), a recovery zone is defined as that area in each grizzly bear ecosystem within which the population and habitat criteria for achievement of recovery will be measured. Areas outside of recovery zones may provide habitat that grizzly bears will use, but are not considered necessary for the survival and recovery of this species. The area outside the recovery zone but within the 10-mile buffer area is managed to consider and protect grizzlies and their habitat whenever possible, recognizing that population and mortality data within this zone are collected and pertinent to recovery criteria (Service 1993). Beyond the 10-mile buffer, grizzly bear mortalities or populations are not considered when determining whether recovery goals have been met; however, protection is still accorded to the grizzly bear under the Act.

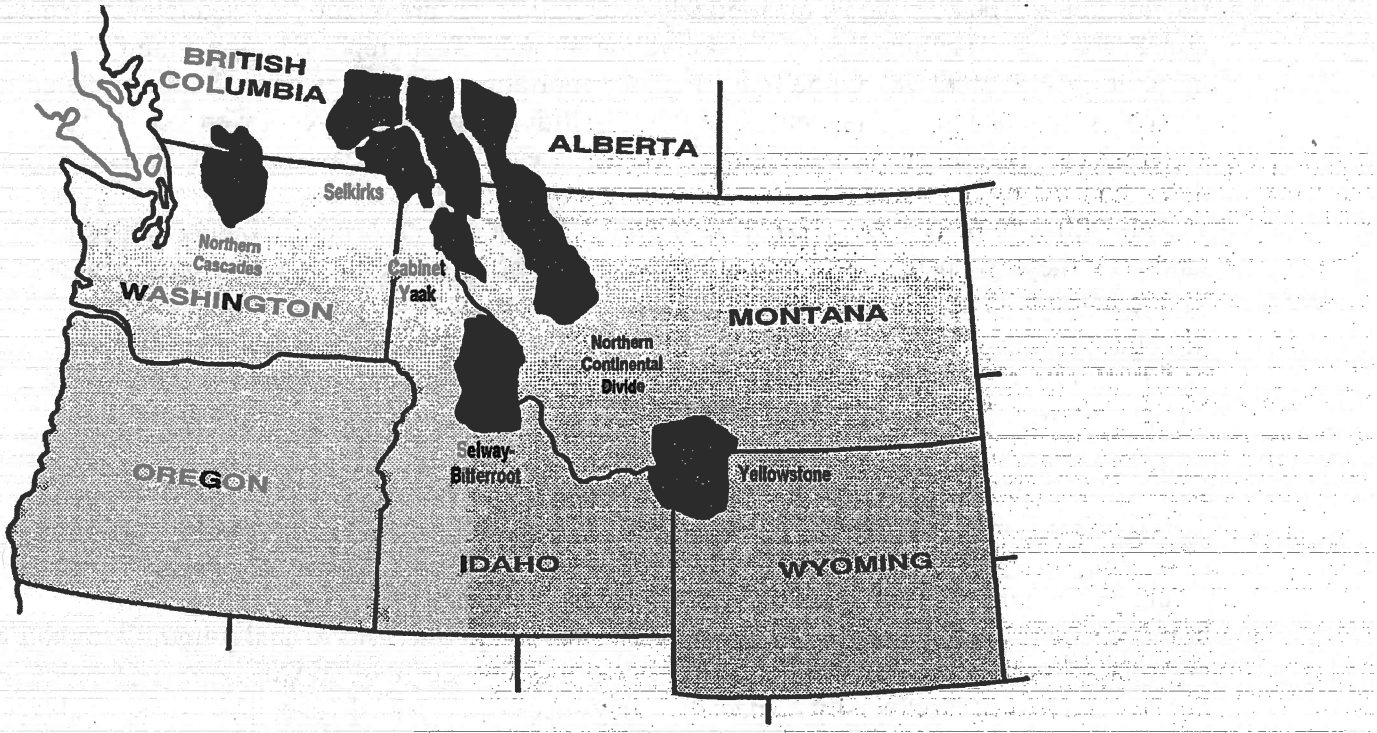


**Figure 4-1. Present grizzly bear ecosystems (Recovery Zones) in the conterminous 48 States (Service 1993)**

The current Grizzly Bear Recovery Plan (Service 1993) outlines recovery strategies for the various grizzly bear ecosystems. The Plan defines a recovered population as one that can sustain the existing level of known and unknown human-caused mortality that exists in the ecosystem and is well-distributed throughout the recovery zone.

Demographic recovery criteria outlined for the GYE include: (1) observation of 15 females with cubs of the year annually (unduplicated sightings) over a 6-year running average, (2) occupation of 16 of the 18 Bear Management Units (BMUs) by females with young from a running 6-year sum of verified observations, and no 2 adjacent BMUs unoccupied with a study to be initiated in the Plateau and Henry's Lake BMUs to determine the capability of these units to support females with cubs, (3) known, human-caused mortality not to exceed 4 percent of the current population estimate (based on most recent 3-year sum of females with young); with no more than 30 percent of this total mortality limit of 4 percent by females, (4) these mortality limits cannot be exceeded during any 2 consecutive years. All demographic criteria for the GYE have been met.

For the SE, the 1993 demographic recovery criteria are: (1) six females with cubs over a running 6-year average both inside the recovery zone and within a 10 mile area immediately surrounding the recovery zone, *including* Canada; (2) 7 of 10 BMUs on the U.S. side occupied by females with young from a running 6-year sum of verified sightings and evidence; and (3) known human-caused mortality not to exceed 4 percent of the population estimate based on the most recent 3-year sum of females with cubs. Furthermore, no more than 30 percent of this 4 percent mortality limit shall be females. These mortality limits cannot be exceeded during any 2 consecutive years for recovery to be achieved. Presently, grizzly bear numbers are so small in this ecosystem that the mortality goal is zero human-caused mortality.

The 1993 CYE demographic criteria are: (1) six females with cubs over a running 6-year average both inside the recovery zone and within a 10 mile area immediately surrounding the recovery zone, excluding Canada; (2) 18 of 22 BMUs occupied by females with young from a running 6-year sum of verified sightings and evidence; and (3) known human-caused mortality not to exceed 4 percent of the population estimate based on the most recent 3-year sum of females with cubs. Furthermore, no more than 1.2 percent of total human-caused mortality shall be females. These mortality limits cannot be exceeded during any two consecutive years for recovery to be achieved. Presently, grizzly bear numbers are low in this ecosystem therefore the goal for human-caused mortality is zero.

In both the CYE and the SE, none of the demographic recovery criteria have been met (Kasworm et al. 2015a,b).

In addition, the existence of adequate regulatory mechanisms for population and habitat management through the development of a conservation strategy must be demonstrated.

## 3. Rangewide Status and Distribution

The grizzly bear was listed as a threatened species on July 28, 1975. Historically, the grizzly bear ranged from the Great Plains to the Pacific Ocean and from the northern United States border with Canada to the southern border with Mexico. Currently in the contiguous United States, the grizzly population has been reduced to roughly two percent of its former range, presently occupying only parts Montana, Idaho, Wyoming, and Washington. Table 4-1 shows the current population estimates for each ecosystem shown in Figure 4-1.

**Table 4-1. Estimated grizzly bear population size and population growth rate by Recovery Zone.**

| Recovery Zone | Estimated Population Size | Trend (% change annually |
|---|---|---|
| Greater Yellowstone | 582[a] | +4-7%[a] |
| Northern Continental Divide | 765[b] | +3%[c] |
| Cabinet-Yaak | 48-50[d] | +1.4%[e] |
| Selkirk | 83[f] | +1.9%[g] |
| North Cascades | <20 | Unknown |
| Bitterroot | 0 | n/a |

[a]Service 2011
[b]Kendall et al. 2009
[c]Mace et al. 2012
[d]Kendall et al. 2016
[e]Kasworm et al. 2015a
[f]Proctor et al. 2012
[g]Wakkinen and Kasworm 2004

**Greater Yellowstone Ecosystem**

The 9,209-square mile GYE recovery zone includes portions of Wyoming, Montana, and Idaho and portions of six National Forests (Beaverhead, Bridger-Teton, Custer, Gallatin, Shoshone, and Targhee), Yellowstone and Grand Teton National Parks, John D. Rockefeller Memorial Parkway, portions of adjacent private and State lands, and lands managed by the Bureau of Land Management. In 2011, the Service completed a 5-year review that included an assessment of the grizzly bear population in the GYE stating the population was comprised of approximately 582 grizzly bears and growing at a range of 4 to 7 percent annually (Service 2011)

The best available information suggests the GYE grizzly bear population is stable and increasing. However, the long term conservation of the population continues to depend largely on managing bear-human conflicts, which often results in human-caused mortality of grizzly bears. Years in which natural grizzly bear food production and availability are high can result in younger age classes of grizzly bears accustomed to fairly good food availability. A year of drought and poor food production can compel grizzly bears to search widely for food. Such wide ranging movements can bring grizzly bears into closer contact with humans, increasing bear-human conflicts and resultant control/management actions.

As the habitat area most remote from the other remaining grizzly bear habitat, the Yellowstone ecosystem has been the primary focus of grizzly recovery efforts to date. This work has been very successful; the grizzly population numbers and distribution here have exceeded target recovery levels for the last several years. The population of adult female grizzly bears, for example, has grown from a low point in 1983 of less than 30 to more than 100 today. Recovery work continues to reduce grizzly bear mortalities and ensure habitat standards for maintaining a recovered population.

**Northern Continental Divide Ecosystem**

The NCDE extends from the Rocky Mountains of northern Montana into contiguous areas in Alberta and British Columbia, Canada. Kendall et al. (2009), using non-invasive sampling

methods and capture-mark-recapture models, estimated the population at approximately 765 grizzly bears in 2004, and Mace et al. (2012) estimated an annual population growth rate of approximately 3 percent.

In the NCDE, results from monitoring grizzly bears during 1987 through 1996 indicate the Recovery Plan criteria for several population recovery parameters were met, including numbers of females with cubs; numbers of Bear Management Units (BMUs) with family groups; occupancy requirements for BMUs; and total human-caused grizzly bear mortality. However, between 1997 and 2003, annual female mortality exceeded recovery goals, and annual total mortality thresholds were also exceeded from 2001 to 2003. In 2003, three of the six population parameters did not meet demographic recovery criteria: females with cubs inside Glacier National Park, annual mortality, and annual female mortality. The number of females with cubs, the number of females with cubs outside Glacier National Park, and the distribution of females with young all met recovery targets (Service, unpublished data, 2004). However, due to the forested nature of much of the NCDE rendering grizzly bear observation difficult, the 1993 Recovery Plan's minimum population estimate, which is based on observations of females with cubs, is often underestimated. Therefore, since 2004, these data (sightings of females with cubs) have not been consistently collected. Rather, according to the 2013 draft NCDE Grizzly Bear Conservation Strategy, radio-telemetry, DNA samples, and grizzly bear mortalities, in conjunction with Kendall et al.'s (2009) population estimate are used to estimate the NCDE grizzly bear population (USFS et al. 2013). As stated above, Mace et al. (2012), using information on vital rates of the grizzly bear population in the NCDE, projected an annual population growth rate of 3 percent.

The greatest threat facing grizzly bears in the NCDE is mortality from human causes, including management removal of nuisance bears following grizzly bear/human conflicts, illegal kills, and trains. Management removal of nuisance bears often results from conflicts at human site developments such as garbage, human foods, pet/livestock/wildlife foods, livestock carcasses, and wildlife carcasses (Service 2011). Management removal of grizzly bears is the leading cause of human-caused grizzly bear mortality in the NCDE, comprising 27 percent of the human-caused grizzly bear mortality (Service 2011). Grizzly bears attracted to human-generated food sources become habituated and food conditioned. Such bears often become a threat to human safety and property and are killed illegally or removed through agency nuisance grizzly bear control actions (i.e., management removals). Grizzly bear removal related to site developments and attractants accounts for 67 percent of the 27 percent of management removals (Service 2011). The remaining management removals are related to livestock (27 percent), and unnaturally aggressive bears or human injuries and fatalities (5 percent). Illegal killing of grizzly bears (27 percent) and trains 12 percent), respectively, accounts for the remaining human-caused grizzly bear mortality in the NCDE (Service 2011).

**Cabinet-Yaak Ecosystem**

The CYE in northwestern Montana and northeastern Idaho has more than 1,900 square miles of forested and mountainous habitat occupied by grizzly bears. Kendall et al. (2016) estimated the CYE grizzly bear population at between 48 and 50 bears, split almost evenly between the Cabinet and Yaak portions of the recovery area. However, the two populations (*i.e.*, Yaak population and Cabinet population) are demographically and reproductively isolated from each other (Kendall et al. 2016). These populations are connected to populations of grizzly bears to

the north of the United States border with Canada and other grizzly bear populations in the U.S. (*i.e.*, Selkirk Ecosystem (SE) and Northern Continental Divide Ecosystem (NCDE)), as interchanges of radio-collared bears across the border have been documented (Service 1993) and Kendall et al. (2016) detected genetic signatures in CYE bears that were of bears born in the SE and NCDE. The most recent data indicate that the population is slowly increasing at about 1.4 percent annually, but the status is below recovery goals in the CYE for the distribution of females with young in BMUs and exceeds the 6-year average of female mortality in the recovery zone (Kasworm, et al. 2015a).

Threats to grizzlies in this recovery zone include incomplete habitat protection measures (motorized access management), unsustainable levels of human-caused mortality, small population size and associated risks (including stochastic or detrimental environmental effects), and population fragmentation that resulted in genetic isolation.

**Selkirk Ecosystem**

The SE of northwestern Idaho, northeastern Washington, and southeastern British Columbia includes about 1,080 square miles in the U.S. portion and about 875 square miles in the Canadian portion of the recovery zone. The Selkirk recovery zone is the only defined grizzly bear recovery zone that includes part of Canada because the habitat in the United States portion is not of sufficient size to support a minimum population. The habitat is contiguous across the border and radio-collared bears are known to move back and forth across the border. Therefore, the grizzly bears north and south of the border are considered one population (Service 1993). Proctor et al. (2012, p.31) compiled data from multiple sources and conducted DNA-based population surveys) to estimate a population size of 83 grizzly bears in the SE, with 25 in the U.S. The Service's 2011 5-year status review (Service 2011) stated the grizzly bear population in the SE was growing at about 1.9 percent annually.

Threats to grizzlies in this recovery zone include incomplete habitat protection measures (motorized access management), inadequate regulatory mechanisms including a lack of food storage orders on some jurisdictions, human-caused mortality, small population size, and population fragmentation that resulted in genetic isolation. Although this population may be slowly increasing (Wakkinen and Kasworm 2004) and reconnecting with adjacent populations, high levels of human caused mortality and a lack of regulatory mechanisms, in British Columbia and the U.S., still threaten this population.

**North Cascades Ecosystem**

While study of this very rugged and remote habitat indicates that this ecosystem is capable of supporting a self-sustaining population of grizzlies, only a remnant population may remain, incapable of enduring without active recovery efforts, including possible augmentation with bears from other areas. A confirmed sighting of a grizzly bear in 2011 was the only report of a grizzly bear in the North Cascades ecosystem since 1996. A recovery plan for North Cascades was approved in 1997, but few measures from the plan have been implemented.

**Bitterroot Ecosystem**

Despite numerous studies of this area, there have been no verifiable sightings of grizzly bears for more than 50 years. Grizzly bear recovery in this ecosystem would require the reintroduction of bears from other areas. An environmental impact statement and decision notice addressing the

impacts of reintroducing grizzly bears into the Bitterroot Ecosystem in east central Idaho was released in 2000. However, the Service has not moved forward with this plan.

## 4. Life History

Much of the following information is summarized from the grizzly bear recovery plan (Service 1993); more specific information can be obtained in that document.

Grizzly bears are large (averaging 400-600 lbs for males, and 250-350 lbs for females) and long-lived (up to 40 years old) (Storer and Tevis 1955), but usually no more than 15-25 years in the wild. Grizzly bears are omnivorous, opportunistic feeders that require caloric intake in excess of maintenance requirements, particularly in later summer and fall, in order build fat levels to survive denning.

Generally solitary, grizzly bears avoid one another, except during the mating season when male and female bears tolerate one another. Grizzly bears do not defend territories, but instead have home ranges they share with other grizzly bears, although social systems influence movements and interactions among resident bears. Home range sizes for adult female grizzlies vary from 50 to 150 square miles; an adult male can have a home range size as large as 600 square miles (Schwartz et al. 2003).

Grizzly bears in the contiguous United States spend 4 to 6 months in dens, typically beginning in October or November (Hellgren 1998). The bears hibernate for as long as 7 months. During this period, they do not eat, drink, urinate, or defecate. Over the course of the denning season, a bear may lose 30 percent of its body weight. All of this weight is stored as fat, which is acquired during the 2 to 4 months prior to entering dens. During the pre-denning period, bears increase their food intake dramatically and may gain as much as 3.64 pounds per day (Schwartz et al. 2003).

Mating occurs from May through July, and cubs are born inside the den in late January or early February. Cubs remain with their mother for 2 to 3 years (Foresman 2001). The age at which females produce their first litter varies from 3 to 8 years, with litter size varying from one to four cubs. Grizzly bears have one of the lowest reproductive rates among terrestrial mammals. Grizzly bear females cease breeding successfully some time in their mid to late 20s (Schwartz et al. 2003).

Grizzly bears are opportunistic omnivores and will eat fish, berries, grasses, leaves, insects, roots, carrion, small mammals, fungi, nuts, and ungulates. The bears are selective in their seasonal use of various kinds of forage and, therefore, move across the landscape as they follow the growth and abundance of preferred forage items (Mace et al. 1996; Waller and Mace 1997; McLellan and Hovey 2001).

Grizzly bears are habitat generalists. Basic habitat requirements include the availability of food, security (from humans and other bears), and den sites (Archibald et al. 1987; Heinrich et al. 1995; Mace et al. 1996, 1999; Linnell et al. 2000) (Table 4-2). While biologists agree that preferred habitats of grizzly bears are early seral, fire-successional types, the proximity of security cover is also an important variable that has been shown to influence the use of foraging

habitat. Given equal foraging opportunities, under cover and in the open, bears prefer to feed under cover.

Grizzly bears are selective in their seasonal use of various kinds of forage and, therefore, move across the landscape as they follow the phenological development and abundance of their preferred forage items. As a result, the productivity of grizzly bear populations is likely more strongly influenced by the availability of high quality food resources than by density-dependent regulating factors (IGBC 1987). It has also been observed that grizzly bears of all ages will congregate readily at plentiful food sources and form a social hierarchy unique to that grouping of bears (Service 1993).

**Table 4-2. Grizzly Bear habitat requirements and key habitats**

| Habitat requirement | Key Habitat |
|---|---|
| Spring foraging | Low-elevation mesic vegetation |
| Summer, autumn foraging | Moderate- to high-elevation vegetation |
| Security cover and isolation from humans | Cover provided by vegetation and topographic breaks; absence or low density of roads and trails |
| Denning habitat | Remote, high-elevation areas with slopes greater than 30 degrees friable, sepp soils, and snow accumulations |

With the exception of a few forest vegetation types, such as horsetail associations, the majority of vegetative food items preferred by grizzly bears occur in early seral communities where forest cover is absent or relatively sparse (Hamer and Herrero 1983). Foraging areas that are consistently described in the literature as favored by bears include avalanche chutes (Zager and Jonkel 1983, Mace et al. 1996), fire-mediated shrub fields (McLellan and Hovey 2001), and riparian areas (McLellan and Hovey 2001). Avalanche chutes may be used at any time of year, but seem to attract bears particularly in the spring. These areas are usually quite wet (due to deep snows that melt later than in other areas), and they contain both valuable forage species and a tangle of vegetation that provides visual screening. Fire-mediated shrub fields often contain soft-mast (e.g., berry) producing shrub species, an important food source for foraging bears in mid-summer and early fall. Riparian areas are primarily used in spring and early summer when habitats at higher elevations are still covered with snow or plant growth is otherwise delayed. Grizzly bear foraging habitat associated with riparian areas and shrub fields is scattered throughout the action area.

When bears emerge from their dens in the spring, their fat stores have been severely depleted; therefore, foraging to rebuild energy reserves is their primary focus. It is important that bears have adequate spring foraging opportunities close to their dens, especially when cubs have been born, to build up fat stores quickly. In their study of radio-collared female grizzly bears, Mace et al. (1999) found that the upper elevation limit observed for habitat use in spring was 4,900 feet.

Waller and Mace (1997) defined the spring period as the period from den exit to July 15 based on apparent changes in food habitats and behavior. However, the NCDE Technical Group (an interagency group, composed of representatives from the U. S. Forest Service, the Bureau of Land Management (for the eastside of the NCDE), the Montana Department of Natural

Resources and Conservation, the Montana Department of Fish, Wildlife, and Parks, and the Fish and Wildlife Service) recommended June 30 as cutoff for the spring grizzly bear season (USFS 2001, *in litt.*). The NCDE Technical Group acknowledged that the recommended June 30 date was an attempt to accommodate social concerns, but they felt justified in modifying the date to June 30 for two reasons. First, the most urgent concerns related to displacement from good habitat due to snow, mortality risk during black bear season, and vulnerability during the grizzly bear breeding season were all reduced or gone by the end of June. Second, the team acknowledged that there is no dramatic shift in elevation by bears after mid-June (USFS 2001, *in. litt.*).

In addition to foraging habitat, security cover and isolation from humans and human-associated activities are necessary habitat components for grizzly bears (Kasworm and Manley 1990; Mace et al. 1999).

Human activities can result in direct mortality of bears, as well as indirect negative effects by displacing bears to less suitable habitats (Wakkinen and Kasworm 2004; Schwartz et al. 2006). The most effective way to minimize the risk of adverse interactions between humans and bears is to provide spatial separation between areas of human activity and areas of bear activity. In areas where such separation is not possible, providing large areas of secure habitat that include seasonal habitats may reduce the potential for contact and minimize risk of disturbance and illegal mortality (Mace and Waller 1998). Managing public motorized access to grizzly bear habitat is one of the most common and effective ways to maintain a level of separation between grizzly bears and humans. The sections of this opinion on "risk factors" and "effects" describe in more detail the scientific evidence about grizzly bear response to roads, and the strategies used in this proposal to manage motorized access.

While security cover allows grizzly bears to avoid contact with humans, the cover is sometimes necessary for bears to avoid contact with other bears. Strict territoriality among grizzly bears is not known, and intraspecific defense behavior generally tends to be limited to defense of limited food concentrations, defense of young, and surprise encounters (Service 1993). Adult male bears are known to kill juveniles, and adults also occasionally kill other adults. Females with cubs require spatial separation from aggressive males. This is particularly true in spring, when cubs-of-the-year are most prone to attack. Data are insufficient to fully assess the effects of predation on younger bears by adult bears (Service 1993), particularly when considering potential indirect effects of various human activities that may displace a subadult bear into the home range of an aggressive adult bear. Sows with cubs often select rugged and isolated habitats for this reason (Banci 1991). Shrub and tree cover, as well as topographic landscape features, are commonly used as security from humans or other bears (McLellan and Hovey 2001), and dispersing subadult bears may be forced to choose poor home ranges that may be equally dangerous to their survival (Service 1993). There are no broadly accepted Service or IGBC standards related to grizzly bear cover. Cover is a habitat consideration addressed through a variety of standards and guidelines based on land management objectives of the landowner and location of their lands on the landscape.

Another key habitat requirement for grizzly bears is the presence of suitable denning habitat. Den site characteristics are variable, but several researchers have described dens located at high elevations in remote areas with slopes greater than 30 degrees, soils that are deep, and aspects

where snow accumulates (Servheen 1981). Sloped sites are often selected because they facilitate easier digging and are generally stabilized by trees, boulders, or root systems of herbaceous vegetation. In addition to excavating dens, grizzly bears den in natural caves and hollows under the roots of trees. While individual den sites are rarely reported to be used for more than one winter, numerous researchers have observed that dens rarely occur singly, but are concentrated in areas that apparently possess appropriate environmental conditions.

The literature on disturbance and impacts to grizzly bears during denning (or immediately before or after denning) suggests that the greatest risk involves females with young cubs that have recently emerged from den sites (Mace and Waller 1997). Cubs are still vulnerable at this age, and it has often been noted that these family groups will remain near dens for some time before heading for lower-elevation areas with better forage. Bears generally appear to tolerate motorized activities occurring more than 1 kilometer (0.6 mile) from the den (Linnell et al. 2000). There is some indication that close encounters with dens can cause physiological stress (Reynolds et al. 1986) or, in some cases, den abandonment (Swenson et al. 1997). Den abandonment, in turn, increases the likelihood of cub mortality.

## B. ENVIRONMENTAL BASELINE OF THE ACTION AREA

This section assesses the effects of past and ongoing human and natural factors that have led to the current status of the species, its habitat and ecosystem in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have already undergone section 7 consultations, and the impacts of state and private actions which are contemporaneous with the consultations in progress.

### 1. Status of the Grizzly Bear in the Action Area

Because the action area does not encompass the entire range of the grizzly bear, this analysis is a subset of the preceding range-wide status discussion. Grizzly bears within the action area (State of Idaho) are found within portions of the SE, CYE, and GYE. As stated in the Status of the Species above, the grizzly bear population trend in the GYE and SE are increasing with trends in the CYE declining.

### 2. Status of Grizzly Bear Designated Critical Habitat in the Action Area

No critical habitat has been designated for grizzly bear

### 3. Factors Affecting Grizzly Bear in the Action Area

Factors affecting grizzly bears in the action area are associated with motorized and dispersed recreational use and forest management activities, including timber harvest. These actions reduce the amount of secure habitat available to grizzly bears, reducing their reproductive health and lead to mortality. Direct human-caused mortality is also a large threat to the grizzly bear. This kind of mortality can occur in several ways: (1) mistaken identification by big game hunters, (2) malicious killing, (3) defense of human life or property, or (4) management-related removals. Bears are removed to defend human life or property, usually because bears have

become dangerously bold as a result of food conditioning and habituation at campsites, lodges, resorts and private residences, or they become habituated predators of livestock.

## C. EFFECTS OF THE PROPOSED ACTION

### 1. Direct and Indirect Effects of the Proposed Action

The implementing regulations for section 7 define "effects of the action" as "the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, which will be added to the environmental baseline" (Service 1986). "Indirect effects" are those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. Indirect effects may occur outside of the immediate footprint of the project area, but would occur within the action area as defined (Service 1986). The effects of the action are added to the environmental baseline to determine the future baseline and to form the basis for the determination in this opinion. Should the Federal action result in a jeopardy situation, the Service may propose reasonable and prudent alternatives that the federal agency can take to avoid violation of section 7(a)(2).

The effects discussed below are the result of direct and indirect impacts of proposed WS activities that may effects grizzly bear. Proposed actions by WS that may affect grizzly bears include use of (1) culvert and large cage traps, (2) foothold traps, (3) foot snares, (4) neck/body snares, (5) compound 1080, (6) M-44 sodium cyanide, (7) aerial shooting, (8) aerial telemetry, (9) ground shooting, (10) propane exploders, (11) pyrotechnics, (12) other scaring devices, (13) electric/temporary fences, (14) trained dogs, and (15) site access. Each action and its associated effects on grizzly bear will be explained separately below. Proposed actions that will have no effect on grizzly bear will not be discussed. However, an explanation of these activities and how they relate to grizzly bear can be found in Table A-1 in Appendix A.

**Intentional Capture and Removal of Grizzly Bears**
WS may use live-capture traps and snares (*i.e.*, Culvert traps, foothold traps, foot snares) or lethal methods (*i.e.*, aerial/ground shooting) to capture or kill grizzly bears confirmed as nuisance animals under a sub-permit issued by the Service Grizzly Bear Recovery Coordinator. Effects of this action have already been analyzed and will not be discussed further.

**Culvert and Large Cage traps**
Culvert and large cage traps are sometimes used to capture black bears, coyotes, feral dogs, red fox and mountain lions and may be placed in areas occupied by grizzly bears (Assessment p. 46). Young adult grizzly bears or cubs drawn in by the bait may trigger large cage traps becoming caught. Large adult bears will likely not be caught in these traps due to size constraints. Several measures will be implemented when using these types of traps in occupied grizzly bear habitat reducing the likelihood of capture and injury to young bears. Culvert traps will be checked daily when used in areas occupied by grizzly bears. If grizzly bears are not the target, but there is sign of grizzly bears in the area, these traps are not set for black bears (Assessment p. 46). Only 1 project has used culvert traps for black bear in grizzly bear habitat in the past 7 years (Assessment p. 46). Large cage traps have not been used in occupied grizzly bear habitat; although, these traps may be used in occupied habitat in the future (Assessment p. 46). No

grizzly bears have been captured by WS in culvert or large cage traps; however, with the continued population increase in all three grizzly bear ecosystems, the likelihood of capture is not discountable. Because of the low probability of capture due to the avoidance measures, we would not expect to trap more than 1 grizzly bear using culvert traps during any 20 year period . If a grizzly bear or other non-target animal is accidently captured, it can be released on site with little or no injury (Assessment p. 46), but this would still result in an adverse effect.

**Foothold Traps**

Most use of foothold traps for damage management is conducted on private lands; however, some trapping may occur on USFS lands where the majority of suitable grizzly bear habitat is located. Thus, there is some risk of capturing a grizzly bear by use of foothold traps in occupied grizzly bear habitat. Foothold traps can be generalized into 2 categories: traps set for coyotes, bobcats, red fox, and similar-sized animals; and those set for wolves and mountain lions.

Traps set for coyotes, bobcats, red fox, and similar-sized animals are typically small enough (inside distance of jaw opening $\leq$ 6 inches) that an adult male grizzly bear is unlikely to be captured. The typical size of an adult male grizzly bear's pad width is 6 inches or more (Wayne Kasworm, pers. comm. 2/12/2016), which would preclude capture by a 6 inch trap. However, an adult female grizzly bear, subadult (both male and female), or a cub could be captured in these size traps. The typical size of an adult female grizzly bear's pad width is approximately 5 to 5 ½ inches and a subadult grizzly bear's pad width is approximately 4 ½ to 6 inches, with cub pad widths even smaller (Wayne Kasworm pers. comm. 2/12/2016). Thus grizzly bear females, subadults (both male and female), and cubs could be caught in these size traps. For example, according to WS's Assessment (p. 49) a private fur trapper caught a grizzly bear cub in 2011 in a trap set for a bobcat, which, according to the Assessment (p. 49) was released unharmed by the Wyoming Game and Fish Department. Wildlife Services states that to the best of their knowledge, operation of their programs in Idaho, Montana, and Wyoming, has never captured, held, or had a grizzly bear escape (pull out) from a foothold trap set for coyotes, bobcats, or red foxes. Nonetheless, the possibility of capturing a grizzly bear in traps set for these species in northern Idaho (*i.e.*, north of the Clark Fork River, Lake Pend Oreille, Pend Oreille River) or the GYA cannot be discounted. Except for the GYA, due to the status of bears south of the Clark Fork River, Lake Pend Oreille, Pend Oreille River in Idaho, where we are unaware of any regular use or occupancy of these areas by grizzly bears, coupled with WS trapping data, we believe the probability of capturing a grizzly bear in traps set for coyotes, bobcats, red foxes, or similar species is discountable.

In northern Idaho (*i.e.*, areas north of the Clark Fork River, Lake Pend Oreille, and Pend Oreille River), to reasonably and appropriately minimize the potential for or the effect of unintentionally capturing a grizzly bear in a trap set for coyotes, bobcats, red foxes, or similar sized animals, WS will perform daily trap checks when these traps are set on public lands between March 15 and December 1 (WS letter of supplement to the Assessment, dated March 29, 2016). In areas of Idaho south of the Clark Fork River, Lake Pend Oreille, and Pend Oreille River, WS will not be required to perform daily trap checks of these size traps when they are deployed between March 15 and December 1, regardless of whether they are placed on public or private land.

Foothold traps used for wolf or mountain lion damage management are larger in size, heavier, have stronger springs and greater jaw diameter (normally <8 inches) than traps used for coyotes

and similar-sized animals. When WS sets these traps for wolves or mountain lions between March 16 and November 30 in occupied grizzly bear habitat, they will be anchored sufficiently to hold an adult grizzly bear should one inadvertently be captured (Assessment p. 49). With all of these anchoring systems, should a grizzly bear become trapped there should be enough resistance that the animal will either pull its foot free from the trap or hold the animal to prevent it from escaping. Idaho WS wolf and lion trapping activities, taking place in occupied grizzly bear habitat (delineated annually on Service provided maps) while bears are not hibernating (*i.e.*, between March 16 to November 30), only occur as part of an active damage management operation in cooperation with the IDFG and foothold traps are only used when other capture methods (*i.e.*, aerial shooting and foot snares) are impractical or ineffective. Idaho WS confers with the Service and IDFG grizzly bear specialists regularly to obtain updated information about these animals, their activity and location. All of these actions reduce the likelihood of non-target trapping of grizzly bears. WS in Idaho has never captured a grizzly bear in a foothold trap when trapping for wolves or mountain lions in grizzly bear habitat (Assessment p. 49). However, based on a 20 year review of capture data, 6 non-target grizzly bears have been captured in the United States by WS (5 in Wyoming, 1 in Montana; Assessment pp. 48-49) and there is no reason to suggest this could not happen in Idaho. If a grizzly bear or other non-target animal is accidently captured, it can be released on site with little or no injury (Assessment p. 53), but such a capture would still result in adverse effects to the individual. To further reduce the potential for significant injury to any grizzly bear that is inadvertently captured, WS will conduct 24-hour trap check intervals for any foot-hold traps set for wolves or mountain lions in occupied grizzly bear habitat in Idaho during the non-denning grizzly bear season (March 15 to December 1) (WS letter of supplement to the Assessment, dated March 29, 2016).

In 20 years of program implementation, WS has never captured a grizzly bear in a trap set for small animals (*i.e.*, coyotes, bobcats, red foxes, etc.) and only 6 grizzly bears have been caught in traps set for large animals (*i.e.*, wolves or mountain lions) in Montana and Wyoming. Therefore, because of the similar densities of grizzly bears in Idaho and Montana, we estimate 1 grizzly bear may be caught in a foothold trap set for a large or small animal in any 20 year period.

**Foot Snares**

Foot snares are used in occupied grizzly bear habitat for the capture of black bears or mountain lions and pose a risk of incidentally capturing a grizzly bear. In occupied grizzly bear habitat, all snares used will be grizzly bear sized snares with ¼ inch steel cables anchored to fixed positions, and equipped with appropriate swivels. This is to ensure that if a grizzly bear is unintentionally captured, the snare will hold the bear rather than the possibility of breaking away from the anchor and the grizzly bear escaping with the snare remaining on the leg, until it can safely be immobilized and released. All foot snares set for black bears, mountain lions, grizzly bears, and wolves between March 16 and November 30 in areas designated by the Service as occupied grizzly bear habitat are checked daily so that any unintentionally captured animal can be safely immobilized and released unharmed. Idaho WS has never captured a grizzly bear in a foot snare set for wolves, mountain lions or black bears. However, in the past 20 years, one grizzly bear was accidentally captured in a foot snare and released unharmed in Wyoming (Assessment p. 50) and there is no reason to suggest this could not happen in Idaho. Based on this historic low probability of capture, we would not expect to adversely affect more than 1 grizzly bear using foot snares in a 20 year period during the life of this consultation. To further reduce the potential for significant injury to any grizzly bear that is inadvertently captured, WS will conduct 24-hour

trap check intervals for any foot snares set for black bears, wolves or mountain lions in occupied grizzly bear habitat in Idaho during the non-denning grizzly bear season (March 15 to December 1) (Assessment, p. 49).

**Neck/Body Snares**

Neck/body snares used to capture mountain lions, coyotes, wolves, beavers, and other animals could pose a risk to grizzly bears. Neck snares are set so that the target species walks through the snare so it is caught around the neck or body. As the animal pulls on the snare, it tightens, holding the animal. In some cases the animal may continue to pull on the snare, restricting airflow and eventually dying. These snares are not species selective and may capture non-target species although loop size and height placement largely determine animals potentially captured. Neck and body snares can be generalized into 2 categories: snares set for coyotes, bobcats, red fox, and similar-sized animals (small); and those set for wolves and mountain lions (large).

Neck/body snares set for coyotes, bobcats, red fox, and similar-sized animals are normally a blind set (no baits or visual attractants) with the loop of the snare 10 to 12 inches in diameter, with the top of the loop set about 20 to 22 inches from the ground. This set design greatly reduces the likelihood of capture of adult grizzly bears because the size of the bears head will not allow it to be caught. Grizzly bear cubs, however, having smaller heads could be caught in these size snares. Grizzly bears, including adults, may be captured in large neck/body snares set for wolves and mountain lions. Grizzly bears that come in contact with these types of snares may become captured, resulting in various outcomes including being released unharmed, sustaining minor injuries, or death. WS, nationwide, has only caught one grizzly bear in a neck snare in the past 20 years. In 2003, a young female grizzly bear in Wyoming was caught in a neck snare and died (Assessment, p. 52). WS will not deploy large neck snares (e.g., set for wolves, mountain lions, feral swine, etc.) or small neck snares (e.g., set for coyotes, bobcats, red fox, and similar sized animals) between March 15 and December 1 in occupied grizzly bear habitat in Idaho. Large and small neck snares could be used in occupied grizzly bear habitat in Idaho between December 1 and March 15 at elevations below 4,500 feet, but grizzly bears are typically in their winter dens during this time and unlikely to encounter deployed snares (Assessment, p. 53; WS letter of supplement to the Assessment, dated March 29, 2016). Therefore, the likelihood of a grizzly bear being adversely affected by use of either large or small neck snares (*i.e.*, caught in a snare) by WS in Idaho is discountable.

**Compound 1080**

A grizzly bear that attacks livestock equipped with a livestock protection collar including compound 1080 (LPC) may puncture the collar and ingest the poison. Also, the possibility exists that a grizzly bear may scavenge on a carcass of a collared animal, ingesting the poison. However, WS rarely uses LPC and when they do must follow restrictions including no use within occupied grizzly bear habitat among others (Assessment p. 56). Also, grizzly bears do not kill their prey by biting the throat, which is the only way to release the poison. Scavenged animals are also not fed upon around the neck. For these reasons, the likelihood of a grizzly bear being adversely affected by the use of LPC is discountable.

**M-44 (sodium cyanide)**

Grizzly bears may come in contact with an M-44 device, bite it, and subsequently ingest the poison and die. However, the probability of this occurring is extremely unlikely. By design,

these implements and the attractants used are highly selective for canids and M-44 will not be used between March 1 and November 30 in areas occupied by grizzly bears. In addition, no grizzly bear has been killed by an M-44. For these reasons, the likelihood of a grizzly bear being adversely affected by the use of M-44 is discountable.

**Aerial Shooting/Telemetry**

Frequent flights made by WS while conducting aerial shooting/telemetry operations may temporarily displace a grizzly bear if a bear was in the area. This disturbance will be temporary and of low intensity (Assessment pp. 60-61). Affected bears will be able to move to a more secure location and return shortly after the aircraft leaves. While conducting the aerial shooting operations, WS will shoot target animals out of the aircraft. A positive identification is always made before an animal is shot. Only one black bear has been shot from an aircraft (Todd Grimm, pers. comm. 2016). This was a unique circumstance as the bear was observed actively depredating on sheep while the air crew was conducting other depredation control activities. To ensure that no grizzly bears are affected by WS aerial shooting operations, WS will implement a "self-restriction" of not utilizing aerial platforms (fixed-wing or helicopters) for the removal of any black bears in occupied grizzly bear habitat as designated by the Service (Todd Grimm, pers. comm. 2016). For these reasons, the affect to grizzly bears from aerial shooting/telemetry is insignificant (disturbance) and/or discountable (direct mortality).

**Ground shooting**

As stated above, a positive identification is always made before an animal is shot. Wildlife Services employees are trained in identification of all listed species including grizzly bears. If a grizzly bear is in the area where ground shooting is conducted, the report of a rifle may cause a temporary disturbance to nearby grizzly bear, invoking an "escape response," causing individuals to seek protective cover. This response will be temporary and very minor. For these reasons, the affects to grizzly bears from ground shooting will be insignificant (disturbance) and discountable (direct mortality).

**Propane exploders, Pyrotechnics, Other Scaring Devices**

These devices use sounds, movement, and lights to deter grizzly bears and other animals from some sort of attractant (*i.e.*, fruit trees, livestock, honey bee hives). The intent of these devices is to keep injurious animals at a safe distance from attractants. Grizzly bears may be displaced due to the operation of these scare devices. These devices do not pose any direct physical threat to grizzly bears and are not expected to have any long lasting effects as the bears can easily move into more secure habitat nearby. In addition, these devises may have a beneficial effect to grizzly bears as they will keep bears out of trouble, reducing the likelihood of management removals. For these reasons, the affect to grizzly bears from these scaring devices is insignificant and may be beneficial.

**Electric/Temporary fences**

Like the scaring devices, electric and temporary fences are used to deter grizzly bears from attractants. The fencing is electrified and issues a mild electric shock to provide negative reinforcement to offending animals. This electric shock is very mild and provides no long lasting effects to the grizzly bear and deters the bear from being in the immediate area. In addition, these fences may have a beneficial effect to grizzly bears as they will keep bears out of

trouble, reducing the likelihood of management removals. For these reasons, the affect to grizzly bears from these fences is insignificant and may be beneficial.

**Trained Dogs**

Trained dogs are often used to track or decoy predators, but the use of these dogs in areas occupied by grizzly bears is rare. These dogs are used to either lure predators into shooting range or are used to follow scents left by the target animal where they are eventually removed. When using these dogs there is a possibility that they may disturb, flush, or even track a grizzly bear. Once it is determined that the dogs are following a grizzly bear, the dogs would be removed from the track as soon as possible (Assessment pp. 74). This would result in a short term, minor, and temporary disturbance to the grizzly bear. Once the dogs are retrieved, the bear may resume its natural behavior. Because of the facts above, the affect to grizzly bear from the use of trained dogs is insignificant.

**Site Access**

WS may use 4-wheel drive vehicles, ATVs, motorcycles, snow machines, aircraft or riding horseback in occupied grizzly bear habitat. Although the majority of roads WS travels on are open to the public, there are times when WS personnel request to travel on USFS roads that are closed or request that a particular road be closed to help prevent the public from accessing a site where equipment is set. WS may inadvertently disturb a grizzly bear while conducting management activities. These disturbances would be temporary and of very low frequency and once personnel has left the grizzly bear could return to its original space. In addition, all site access activities would be in compliance with all Federal, State and local laws, as well as in compliance with the terms and conditions set forth in WS MOUs with land management agencies. For these reasons, the affect to grizzly bears from site access is insignificant.

### 2. Summary of Anticipated Affects to Grizzly Bears

Approximately 3 grizzly bears could be adversely affected by the project within any 20-year period (1 from culvert trap, 1 from foothold trap, and 1 from foot snares). The initial 20-year period will begin on the date of signing of this Opinion.

### 3. Effects of Interrelated or Interdependent Actions

The implementing regulations for section 7 define interrelated actions as those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. No interrelated or interdependent actions have been identified in this consultation.

## D. CUMULATIVE EFFECTS

The implementing regulations for section 7 define cumulative effects to include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation. No cumulative effects have been identified in this consultation.

## E. CONCLUSION

After reviewing the current status of the grizzly bear, the environmental baseline for the action area, the effects of the proposed action, and any cumulative effects, it is the Service's Biological Opinion that WS' proposed action, as modified by WS letter of supplement to the Assessment, dated March 29, 2016, for animal damage control in the state of Idaho is not likely to jeopardize the United States coterminous population of grizzly bear.

The proposed action is likely to have adverse effects to grizzly bear in the action area. These effects will be spread across the state of Idaho. A total of 3 grizzly bear may be adversely affected in a 20 year period by being caught in culvert traps, foot-hold traps, and foot snares. We anticipate that, except for foot-traps set for small animals (*i.e.*, coyotes, bobcats, red foxes, or similar sized animals) in the GYA, the grizzly bears will be released from these devices relatively unharmed. With regard to small foot-traps set in the GYA, because WS will not conduct 24-hour trap checks in occupied grizzly bear habitat in this area, should a grizzly bear subadult or cub be caught in one of these traps, there is the possibility it could sustain significant permanent injury or mortality. The potential permanent injury or mortality of a single grizzly bear subadult or cub in the GYA over a 20-year period will have a relatively minor impact on the overall population of this species. The GYA population has met its recovery goals and is growing between 4 to 7 percent annually (Service 2011). Although there is anticipated incidental take of grizzly bear from trapping and mortality due to use of traps set for small animals in the GYA, it is our opinion that the proposed action, as modified by WS letter of supplement to the Assessment, dated March 29, 2016, will not appreciably reduce the likelihood of the survival and recovery of grizzly bear.

## F. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of an Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by WS so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply.

### 1. Amount or Extent of Take Anticipated

Based on the results presented in the "Effects of the Action" section above, implementation of the proposed action is likely to cause adverse effects to grizzly bear. A maximum of 3 grizzly bears may be incidentally taken in any 20-year period due to the proposed action, as modified by WS letter of supplement to the Assessment, dated March 29, 2016. Of these, only 1 grizzly bear may be fatally taken via a small foot-hold trap in the GYA during any 20-year period. Amount of take will be monitored through the Reporting Requirement below.

### 2. Effect of the Take

In the accompanying Opinion, the Service determined that this level of anticipated take is not likely to jeopardize the continued existence of the grizzly bear.

### 3. Reasonable and Prudent Measures

The Service concludes that WS's proposed action incorporates all practical measures possible to minimize take of grizzly bear, as specified in the Assessment and subsequent communications from WS. As such, the Service has not identified any Reasonable and Prudent Measures necessary to further minimize the incidental take anticipated by this Opinion.

### 4. Terms and Conditions

Since no Reasonable and Prudent Measures have been identified, no Terms and Conditions are necessary.

### 5. Reporting Requirement

WS shall submit an annual report with a 20 year running total of incidental grizzly bear captures to the Supervisor of the Service's Northern Idaho Field Office in Spokane Valley, Washington by March 1 of the year following each year's field work.

## G. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop new information on listed species.

The Service recommends collecting biological samples from any grizzly bears handled to contribute to grizzly bear informational databases.

# CHAPTER 5: CANADA LYNX

## A. STATUS OF THE SPECIES

The Canada lynx is a medium-sized cat with long legs; well-furred feet, long tufts on the ears; and a short, black-tipped tail. Their long legs and large feet make lynx especially adept at hunting in deep snow. The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back and grayish-white or buff white fur on the belly, legs and feet. Summer pelage is more reddish to gray-brown. Adult males average 22 pounds in weight and 33.5 inches in length (head to tail). Females are generally smaller, averaging 19 pounds and 32 inches in length.

### 1. Regulatory Status

**Listed under the Act**
On July 8, 1998, the Service published a proposed rule to list the contiguous United States Distinct Population Segment of the Canada lynx as threatened (63 FR 36994). The Service published a final rule listing the lynx as threatened on March 24, 2000, and found that the designation of critical habitat for the lynx was prudent (65 FR 16052). As a result of an order from the U.S. District Court for the District of Columbia, the Service again determined the lynx was threatened in a clarification of findings published on July 3, 2003 (68 FR 40076).

**Designated Critical Habitat**
On November 9, 2006, the Service issued a Federal Register (71 FR 66007) notice entitled Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of Lynx. No National Forest System lands were designated as critical habitat because these lands were found to already provide special management and/or protection for lynx. On July 20, 2007, the Service announced a review of the November 9, 2006 final rule after questions were raised about the integrity of the scientific information used and whether the decision made was consistent with the appropriate legal standards.

On February 25, 2009, the Service revised designated critical habitat for the contiguous United States distinct population of Canada lynx. The total designated critical habitat totaled approximately 39,000 square miles in Idaho, Maine, Minnesota, Montana, Washington and Wyoming (74 FR 8616). In Idaho, approximately 32,000 acres of revised designated critical habitat is located in Boundary County primarily on federal land.

On September 26, 2013, the Service again proposed to revise Canada lynx designated habitat (78 FR 59429). On September 12, 2014, the Service published a final rule designating approximately 38, 954 square miles of critical habitat for lynx in five units in the States of Idaho, Maine, Minnesota, Montana, Washington, and Wyoming (FR 79 54782).

### 2. Survival and Recovery Needs

On September 12, 2005, the Service issued a Recovery Plan Outline for the Contiguous United States Distinct Population Segment of Canada lynx (Service 2005). The outline is to serve as an interim strategy to guide and encourage recovery efforts until a recovery plan is completed. In

the Recovery Outline, the Service categorized lynx habitat as: 1) core areas; 2) secondary areas; and 3) peripheral areas. The areas with the strongest long-term evidence of the persistence of lynx populations in the United States are defined as core areas. Core areas have both persistent verified records of lynx occurrence over time and recent evidence of reproduction. Focusing lynx conservation efforts on these core areas will ensure the continued persistence of lynx in the contiguous United States by addressing fundamental principles of conservation biology for lynx (Service 2005). Areas classified as secondary areas are those with historical records of lynx presence with no record of reproduction; or areas with historical records and no recent surveys that document the presence of lynx and/or reproduction. Much of the secondary habitat is unoccupied, but may contribute to lynx persistence by providing habitat to support lynx during dispersal movements, allowing animals to then return to core areas. In peripheral areas, the majority of historical lynx records are sporadic and generally correspond to periods following cyclic lynx population highs in Canada. While peripheral areas show no evidence of long-term presence or reproduction of lynx, they may enable successful dispersal of lynx between populations or subpopulations.

The recovery outline identifies four preliminary objectives for calculating progress toward the goal of delisting lynx. The objectives are:

a. Retain adequate habitat of sufficient quality to support the long-term persistence of lynx populations within each of the identified core areas.
b. Ensure sufficient habitat is available to accommodate the long-term persistence of immigration and emigration between each core area and adjacent populations in Canada or secondary areas in the United States.
c. Ensure habitat in secondary areas remains available for continued occupancy by lynx.
d. Ensure threats have been addressed so that lynx populations will persist in the contiguous United States for at least the next 100 years.

## 3. Rangewide Status and Distribution

The Canada lynx has a circumboreal distribution. In North America, the Canada lynx ranges across nearly all of Canada and Alaska, and extends south into northern, forested portions of the United States. Within the contiguous United States, the lynx's range coincides with that of the southern margins of the boreal forest along the Appalachian Mountains in the Northeast, the western Great Lakes and the Rocky Mountains and Cascade Mountains in the West. Lynx in the contiguous United States are part of a larger metapopulation whose center is located in the northern boreal forest of central Canada; lynx populations emanate from this area (Buskirk et al. 2000; McKelvey et al. 2000). It appears that hare populations and, as a result, lynx populations in the southern part of their range are cyclic, although amplitude of the fluctuations in this portion of the range is not as extreme as in the center of their range (Aubry et al. 2000; Hodges 2000; McKelvey et al. 2000). When there is a high in the lynx population in central Canada, it acts like a wave radiating out to the margins of the lynx range (McKelvey et al. 2000). Some incorrectly portray the range of the lynx by encompassing peripheral records from areas that are not within the boreal forest or do not have cold winters with deep snow, such as prairie or deciduous forest. Such maps have led to the misperception that the historic range of the lynx was once more extensive than ecologically possible. Records of lynx outside the southern boreal forest in peripheral habitats that are unable to support lynx represent long-distance dispersers that

are lost from the metapopulation unless they return to boreal forest and contribute to the persistence of the population. This includes records from Connecticut, Indiana, Iowa, Massachusetts, Nebraska, Nevada, North Dakota, Ohio, Pennsylvania, South Dakota and Virginia (Burt 1946, McKelvey et al. 2000).

The extent of boreal forest in the United States and thereby the range of Canada lynx extends south through the Rocky Mountains, northern Great Lakes region, and northern New England. Historic and current range consists of Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, Wisconsin and Wyoming because these States support some boreal forest and have more frequent records of lynx. Lynx populations in the northeastern United States and the southeastern Canada are separated from those in north-central Canada by the St. Lawrence River. There is little evidence of regular hare or lynx population cycles in this area, but wide fluctuations in lynx and snowshoe hares do occur. Most records of lynx in the western United States are associated with Rocky Mountain conifer forest and most were within the 4,920-6,560 foot (1,500-2000 meters) elevation zone (McKelvey et al. 2000). There is a gradient in the elevational distribution of lynx habitat from the northern to the southern Rocky Mountains, with lynx habitat occurring at 8,000-11,500 feet in the southern Rockies. The southern Rocky Mountains in Colorado, Utah, and southern Wyoming are disjunct from other lynx habitats in the United States and Canada.

**4. Life History**

The breeding period for Canada lynx occurs through March and April in the north (Quinn and Parker 1987). Kittens are born in May to June in south Yukon (Slough and Mowat 1996). Male lynx do not participate with rearing young and may be incapable of breeding during their first year (McCord and Cardoza 1982). Lynx use large woody debris, such as downed longs, root wads, and windfalls for denning sites with security and thermal cover for kittens (McCord and Cardoza 1982, Koehler 1990, Koehler and Brittell 1990, Mowat et al. 2000, Squires and Laurion 2000, Ruediger, et al. 2000). During the first few months of life, kittens are left alone at these sites when the female lynx hunts. Denning sites provide protection of kittens from predators, such as owls, hawks, and other carnivores during this period. This structure must be available throughout the home range providing multiple quality den sites, because it is likely that these structures are used when the kittens are old enough to travel but not to hunt (Bailey 1974). It is equally important that an abundance of high quality foraging habitat be available in close proximity to all den sites if they are to be functional.

Home range size varies by the animal's gender, abundance of prey, and season and density of lynx populations (Hatler 1988, Koehler 1990, Poole 1994, Slough and Mowat 1996, Mowat et al. 2000, Aubry et al. 2000). Female home ranges are largely governed by food distribution and denning availability and suitability, while male home ranges reflect the distribution of females and food availability. Documented home ranges vary from 8 to 800 square kilometers (3 to 300 square miles) (Saunders 1963, Brand et al. 1976, Mech 1980, Parker et al. 1983, Koehler and Aubry 1994, Mowat et al. 2000, Squires and Laurion 2000, Apps 2000) with males generally maintaining larger home ranges. Distribution of quality feeding, security, and denning habitat patches, and the availability of secure travel corridors between these patches determine the actual size and shape of the home range. Lynx are capable of dispersing extremely long distances,

primarily when snowshoe hare populations decline, though subadult lynx disperse even when prey is abundant, presumably as an innate response to establish homes ranges (Poole 1994).

Both snow conditions and vegetation type are important factors to consider in defining lynx habitat. Across the northern boreal forests of Canada, snow depths are relatively uniform and only moderately deep (total annual snowfall of 39-50 inches). Snow conditions are very cold and dry. In contrast, in the southern portion of the range of the lynx, snow depths generally increase, with deepest snows in the mountains of southern Colorado. Snow in southern lynx habitats may be subjected to more freezing and thawing than in the taiga (Buskirk et al. 2000), although this varies depending on elevation, aspect, and local weather conditions. Crusting or compaction of snow may reduce the competitive advantage that lynx have in soft snow, with their long legs and low foot loadings.

In the west, lynx are associated primarily with upper elevation (4,920-6,560 feet) coniferous forests dominated by one of the following vegetation types: Douglas-fir, spruce-fir, fir-hemlock (Aubry et al. 2000). In extreme northern Idaho, northeastern Washington, and northwestern Montana, cedar-hemlock habitat types may also be considered primary vegetation. In central Idaho, Douglas-fir on moist sites at higher elevations may also be considered primary vegetation. Secondary vegetation that, when interspersed within subalpine forests, may also contribute to lynx habitat; include cool, moist Douglas-fir, grand fir, western larch, and aspen forests. Dry forest types (e.g., ponderosa pine, climax lodgepole pine) do not provide lynx habitat.

Lynx distribution and abundance appear to be closely associated with that of the snowshoe hare (*Lepus americanus*), the primary prey of lynx, comprising 35-97 percent of the diet throughout the range of the lynx (Koehler and Aubry 1994). Primary forest types that support snowshoe hare are subalpine fir, Engelmann spruce, Douglas-fir and lodgepole pine in the western United States (Hodges 2000). Within these habitat types, snowshoe hares prefer stands of conifers with shrub understories that provide forage, cover to escape predators, and protection during extreme weather (Wolfe et al. 1982, Monthey 1986, Koehler and Aubry 1994). Snowshoe hares have evolved to survive in areas that receive deep snow (Bittner and Rongstad 1982). Within these forested communities, vegetation structure that provides for an abundance of snowshoe hares (e.g., dense understory), and lynx denning habitat (e.g., large woody debris) is important for supporting lynx (Aubry et al. 2000). Other prey species include red squirrel, grouse, flying squirrel, and ground squirrels, among others. During cycles when hares become scarce, the proportion and importance of other prey species, especially red squirrel, increases in the diet (Brand et al. 1976, O'Donoghue et al. 1998).

**Population Dynamics**

In Canada and Alaska, lynx undergo extreme fluctuations in response to snowshoe hare population cycles, enlarging or dispersing from their home ranges and ceasing the recruitment of young into the population after hare populations decline (Mowat et al 2000). In northern study areas during the low phase of a hare cycle, few if any live kittens are born, and few yearling females conceive (Brand and Keith 1979, Poole 1994, Slough and Mowat 1996). However, Slough and Mowat (1996) reported yearling females giving birth during periods when hares are abundant. In the southern portion of the range in the contiguous United States, lynx populations appear to be limited by the availability of snowshoe hares, as suggested by large home range size, high kitten mortality due to starvation, and greater reliance on alternate prey. These

characteristics appear to be similar to those exhibited by lynx populations in the taiga during the low phase of the population cycle (Quinn and Parker 1987, Koehler 1990, Aubry et al 2000). This is likely due to the naturally lower densities of hares and the patchy distribution of habitat in the contiguous United States.

Reported causes of mortality vary among studies. The most commonly reported causes include starvation of kittens (Quinn and Parker 1987, Koehler 1990), and human-caused mortality, primarily fur trapping (Ward and Krebs 1985, Bailey et al. 1986). In cyclic populations of the northern taiga, significant mortality due to starvation has been demonstrated during the first 2 years of hare scarcity (Poole 1994, Slough and Mowat 1996). Vehicle collisions on paved roads have been a mortality factor for lynx, most frequently observed in translocated animals (Brocke et al. 1990). Predation on lynx by mountain lion, coyote, wolverine, gray wolf, bobcat, and other lynx has been confirmed (Koehler et al. 1979, Poole 1994, Slough and Mowat 1996, O'Donoghue et al. 1997, Apps 2000, Squires and Laurion 2000). To observe such events are rare, and the significance of predation on lynx populations is unknown.

## B. ENVIRONMENTAL BASELINE OF THE ACTION AREA

This section assesses the effects of past and ongoing human and natural factors that have led to the current status of the species, its habitat and ecosystem in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have already undergone section 7 consultations, and the impacts of state and private actions which are contemporaneous with the consultations in progress.

### 1. Status of the Canada Lynx in the Action Area

According to Rust (1946), lynx were not abundant but were distributed throughout northern Idaho in the early 1940s, occurring in eight of the ten northern and north-central counties. McKelvey et al. (2000) located a number of lynx specimen records, collected from Idaho during the early 1900s. Early trapping and harvest records for Idaho are unreliable because no distinction was made between lynx and bobcats until 1982 when IDFG initiated a mandatory pelt tagging program. Historical records and reports of lynx in Idaho were compiled by Lewis and Wenger (1998) which indicated occurrence of lynx in atypical habitats. Based on the time frames, many of these records correlated with lynx movement out of Canada and may have represented dispersing, transient individuals. For the period for 1960 to 1991, 35 verified records exist for Idaho, with 13 of these from 1982 to 1991 (McKelvey et al. 2000). WS captured and released a lynx in Idaho in 1991. There were no records of lynx from 1991 to 1997 but there were also no surveys for lynx during that period (Anonymous 1999, Unpublished as cited in McKelvey et al. 2000). A radio-collared male lynx captured on the Bridger-Teton Forest in Wyoming, has made excursions into northeastern Idaho near the Island Park area during the summers of 2000 and 2001.

Lynx presence has been well documented, historically and currently, throughout the Panhandle of Idaho. Interviews of Idaho residents documented additional records of lynx in the Salmon, Upper Snake, and Bear River watersheds as well (Lewis and Wenger 1998). Other areas in Idaho that have consistent historical records over time include the Stanley Basin, the Henrys Lake/Island Park area, the Lemhi Range, and the upper Bear River watershed (Ruediger et al.

2000). Based on historical and current documentation of lynx presence, mapped lynx habitat is considered 'occupied' on the following National Forests in Idaho (USFS and Service 2006): Idaho Panhandle, Clearwater, Kootenai, and Targhee.

In 2012, a minimum of two lynx were documented in Idaho. One confirmation occurred in the Salmon-Challis National Forest when a Canada lynx was inadvertently captured in a foothold trap legally set for bobcat. IDFG (2012) responded to the scene and the lynx was released unharmed. The second confirmation occurred in the Purcell Mountains of north Idaho. Trail cameras set within approximately an 11.3 kilometer radius captured lynx at three separate locations during the months of August and September (Michael Lucid, IDFG. pers. comm., 2016). It is not possible to determine if the observations at these three locations were of one or multiple individual animals (Michael Lucid, IDFG. pers. comm., 2016). In northern Idaho, a female lynx was captured in a foothold trap legally set for bobcat 2014. IDFG responded, attached a radio color to the lynx and released it unharmed.

The mapped lynx range within the Idaho-WS proposed action area falls in the Northern Rocky Mountains/Cascades Region (Montana, Idaho, Washington, Oregon, Utah, and Wyoming) (65 FR 16052-16086).

Within the action area, most lynx and lynx habitat occurs on Federal lands. Service has been working to define the boundaries of lynx habitat. Lynx habitat has been delineated by Lynx Analysis Units (LAUs). LAUs do not depict actual lynx home ranges, but their scale is intended to approximate the size of an area used by an individual lynx. Direction for delineating LAUs was provided in the Canada Lynx Conservation and Assessment Strategy (Ruediger et al. 2000). Suitable habitat is present throughout much of Idaho and the presence of lynx outside the mapped areas on occasion is highly possible due to their propensity for cyclical dispersal.

## 2. Status of Canada lynx Designated Critical Habitat in the Action Area

In Idaho, approximately 28,800 acres of designated critical habitat is located in Boundary County, primarily on federal land.

## 3. Factors Affecting Canada lynx in the Action Area

In some areas, timber management and fire suppression have affected lynx habitat. Conversion or alteration of native vegetation communities in and adjacent to lynx habitat would decrease prey populations. Pre-commercial thinning has a direct negative effect on snowshoe hare habitat, at least in the short term. Similarly, some grazing practices can change native plant communities and degrade snowshoe hare habitat. Grazing use levels, by livestock and/or wild ungulates, may increase competition for forage resources with lynx prey. Road and trail access and recreational use that results in snow compaction may allow ingress of coyotes into lynx habitat, and increased competition for prey (Buskirk et al. 2000).

Occasionally, lynx are incidentally trapped by licensed hunters and trappers, especially during the trapping seasons for other carnivores, particularly bobcat (Squires and Laurion 2000). In 2003, to reduce the potential for incidental capture of lynx when conducting trapping activities for other furbearers, the Service, in conjunction with the International Association of Fish and

Wildlife Agencies (IAFWA), produced a pamphlet entitled "How to Avoid Incidental Take of Lynx: While Trapping or Hunting Bobcats and other Furbearers". The IAFWA is comprised of fish and wildlife agencies of the states, provinces, and federal governments of the U.S. and Canada. All 50 states are members. Predator control activities on federal lands are commonly conducted throughout this geographic area, but the level of activity is currently lower than historical levels. Such efforts are aimed specifically at the offending animal or target species and take place outside of lynx habitats, in lower elevation rangelands. Since the ban on poisons such as 1080, predator control activities on federal lands conducted by USDA WS probably have a low potential to impact lynx (Ruediger et al. 2000).

Highways which pass through occupied lynx habitats and potential landscape linkages may affect both resident and dispersing individuals. Private land development, especially along road corridors in mountain valleys, may fragment habitat and impede movement by lynx.

## C. EFFECTS OF THE PROPOSED ACTION

### 1. Direct and Indirect Effects of the Proposed Action

The implementing regulations for section 7 define "effects of the action" as "the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, which will be added to the environmental baseline" (Service 1986). "Indirect effects" are those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. Indirect effects may occur outside of the immediate footprint of the project area, but would occur within the action area as defined (Service 1986). The effects of the action are added to the environmental baseline to determine the future baseline and to form the basis for the determination in this opinion. Should the Federal action result in a jeopardy situation, the Service may propose reasonable and prudent alternatives that the federal agency can take to avoid violation of section 7(a)(2).

The effects discussed below are the result of direct and indirect impacts of proposed WS activities that may effects Canada lynx. Proposed actions by WS that may affect Canada lynx include use of (1) culvert and large cage traps, (2) foothold traps/foot snares, (3) neck/body snares, (4) aerial shooting/telemetry, (5) ground shooting, (6) propane exploders, pyrotechnics, other scaring devices, (7) trained dogs, and (8) site access. Each action and its associated effects on Canada lynx will be explained separately below. Proposed actions that will have no effect on Canada lynx will not be discussed. However, an explanation of these activities and how they relate to Canada lynx can be found in Table A-1 in Appendix A.

**Culvert and Large Cage traps**

Culvert and large cage traps are sometimes used to capture black bears, coyotes, feral/wild dogs, red fox, and mountain lions and may be placed in areas occupied by Canada lynx (Assessment p. 47). When using these traps in known lynx habitat, WS will not use any olfactory attractants containing fish oil, catnip, anise, or castor as ingredients, to reduce the likelihood of attracting lynx or other feline species. This, along with the selection of baits used in the traps, would likely preclude any Canada lynx from becoming captured (Assessment p. 47). In addition, these traps are usually used near populated areas where foothold traps and snares are unavailable, further

reducing the likelihood of capture. Given this information and the fact that WS has never captured a Canada lynx in a culvert or large cage trap, the likelihood of this action adversely affecting lynx is discountable.

**Foothold Traps/Foot Snares**

Foothold traps may be used to capture wolves, coyotes and mountain lions, and foot snares may be used to capture black bears, grizzly bears, mountain lions and wolves in areas occupied by Canada lynx. Although WS use of foothold traps is extensive, use of foothold traps in described lynx habitat is primarily for wolf damage management activities (Assessment p. 51). However, an occasional need may also arise to use foothold traps in lynx habitat for capturing black bears, grizzly bears or mountain lions. In an attempt to reduce the likelihood of unintentionally capturing a Canada lynx, WS will not use any visual or olfactory attractants expected to attract feline species when setting foothold traps for coyotes. Also, for both foot snares and foothold traps, WS will have pan tension adjustments such that it would require 8-10 pounds of pressure to trigger the trap or snare for any device set to capture larger predators, minimizing the likelihood of capturing a lynx (Assessment p. 51).

WS has only had one unintentional capture of a Canada lynx in 40 years which occurred prior to implementation of any restrictive trapping considerations (1991, prior to listing), and no Canada lynx have been captured since lynx conservation measures were put in place (Assessment, p. 51). The captured lynx was released unharmed. Despite the conservation measures and that the Canada lynx population in Idaho is extremely limited; it cannot be discounted that a Canada lynx may be adversely affected by the use of foothold traps. Following historical data, up to 1 lynx may be caught in any 40 year period. If a lynx or other non-target animal is accidently captured, it can be released on site with little or no injury. No deaths have been recorded by the use of these devices.

In an attempt to remove lynx from these traps without harm, WS may use the immobilizing drugs ketamine/xylazine and Telazol®. These drugs can be administered through a dart gun, blow gun or syringe pole. These drugs work to immobilize mammals through a depression of the nervous system or other metabolic pathway (Assessment pp. 30-31). Once the lynx is removed from the trap, it will be allowed to recover safely. The use of immobilizing drugs is not expected to have any long-lasting effects and will only be used on an animal needing to be released. All WS personnel who employ chemical immobilization drugs are trained and certified in accordance with WS Policies.

**Neck/Body Snares**

Neck snares may be used to capture black bears, wolves, coyotes, bobcats and mountain lions in areas occupied by Canada lynx. Neck snares are set so that the target species walks through the snare so it is caught around the neck or body. As the animal pulls on the snare it tightens, holding the animal. In some cases the animal may continue to pull on the snare, restricting airflow and eventually die. These snares are not species selective and may unintentionally capture lynx. During the last 40 years, the national WS program has not captured a Canada lynx with a neck snare. The only non-target lynx incidentally taken in a neck snare in the western region of the lower 48 States in recent years was in Nebraska in 2005 by a private fur trapper (Assessment p. 55). However, in Alaska and Canada where lynx are not a listed species, neck snares are commonly used by fur trappers to target and take lynx.

Although WS uses neck snares throughout Idaho, the use of neck snares in described lynx habitat is primarily for wolf management activities. Additionally, when conducting activities in Canada lynx habitat, WS continues to use the conservation measures including only conducting management actions in lynx habitat where there is a need and not using neck snares for coyotes or bobcats in lynx habitat (Assessment p. 55). WS may use neck snares for wolves in occupied lynx habitat, but the snares will be equipped with cable stops and placed so the loop will be 18 inches or more above ground level. Conservation measures WS uses to reduce potential effects to grizzly bears and woodland caribou also provides additional protections to lynx. For example, within occupied grizzly bear habitat in Idaho, WS will only deploy neck snares between December 1 and March 15 (*i.e.*, the grizzly bear denning season) and to areas below 4,500 feet in elevation. The 4,500 foot elevation limit was primarily developed in consideration of woodland caribou, although, currently they only occur in extreme northwestern Idaho within the Selkirk Mountains. In Idaho, most lynx habitat (*i.e.*, subalpine fir habitat types) occurs above 5,000 feet in elevation. For example, according to Art Zack (USFS pers. comm., 2012), in the Selkirk Ecosystem of Idaho, the lower elevation boundary of subalpine fir vegetation types generally occurs at 5,100 feet. Lynx can and do utilize habitats at lower elevations while traveling between higher elevation subalpine fir habitats during home range foraging and dispersal movements. However, they are closely associated with the subalpine fir habitat types, thus, further limiting their exposure to snares. Despite these conservation measures, the fact that the Canada lynx population in Idaho is extremely limited, and that WS has never caught a lynx in a neck/body snare, it cannot be discounted that Canada lynx may be adversely affected by the use of neck/body snares although the likelihood is very low. Because of this low possibility, the historical record of the lynx being caught in Nebraska, and the expected increase in the lynx population over time, up to 1 lynx may be caught by WS during any 40 year period. Due to the nature of the snare, this capture could result in the death of the lynx.

**Aerial Shooting/Telemetry**

Frequent flights made by WS while conducting aerial shooting/telemetry operations may temporarily displace a Canada lynx if it was in the area. Due to the nature of the flights, this disturbance will be temporary and of low intensity (Assessment pp. 59-60). Affected lynx will be able to move to a more secure location and return shortly after the aircraft leaves. While conducting the aerial shooting operations, WS will shoot target animals out of the aircraft. A positive identification is always made before an animal is shot. For these reasons, the affect to lynx from aerial shooting/telemetry is insignificant.

**Ground shooting**

As stated above, a positive identification is always made before an animal is shot. Wildlife Services employees are trained in identification of all listed species including Canada lynx. If a lynx is in the area where ground shooting is conducted, the report of a rifle may cause a temporary disturbance to nearby lynx, invoking an "escape response," causing individuals to seek protective cover. This response will be temporary and very minor. For these reasons, the affects to Canada lynx from ground shooting will be insignificant.

**Propane exploders, Pyrotechnics, Other Scaring Devices**

These devices use sounds, movement, and lights to deter predators from some sort of attractant (i.e., livestock). The intent of these devices is to keep injurious animals at a safe distance from

attractants. Local or passing Canada lynx may be displaced due to the operation of these scare devices. These devices do not pose any direct physical threat to lynx and are not expected to have any long lasting effects as the lynx can easily move into more secure habitat nearby. For these reasons, the affect to Canada lynx from these scaring devices is insignificant.

**Trained Dogs**

Trained dogs are often used to track or decoy predators. These dogs are used to either lure predators into shooting range or are used to follow scents left by the target animal where they are eventually removed. When using these dogs there is a possibility that they may disturb, flush, or even track a Canada lynx. Once it is determined that the dogs are following a lynx, the dogs would be removed from the track as soon as possible (Assessment pp. 75). In the unlikely event that the tracking dogs do chase a lynx, the lynx are expected to find shelter in trees or other elevated sites where they will be safe from the dogs until the dogs are removed by their handler. This would result in a short term and temporary disturbance to the lynx. Once the dogs are retrieved, the lynx will be able to resume its natural behavior. Because of the facts above, the affect to Canada lynx from the use of trained dogs is insignificant.

**Site Access**

WS may use 4-wheel drive vehicles, ATVs, motorcycles, snow machines, aircraft or riding horseback in occupied Canada lynx habitat. Although the majority of roads WS travels on are open to the public, there are times when WS personnel request to travel on USFS roads that are closed or request that a particular road be closed to help prevent the public from accessing a site where equipment is set. WS may inadvertently disturb a lynx while conducting management activities. These disturbances would be temporary and of very low frequency and once personnel has left the lynx could return to its original space. In addition, all site access activities would be in compliance with all Federal, State and local laws, as well as in compliance with the terms and conditions set forth in WS MOUs with land management agencies (Assessment p. 76). For these reasons, the affect to lynx from site access is insignificant.

## 2. Effects of Interrelated or Interdependent Actions

The implementing regulations for section 7 define interrelated actions as those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. No interrelated or interdependent actions have been identified in this consultation.

## D. CUMULATIVE EFFECTS

The implementing regulations for section 7 define cumulative effects to include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation. IDFG state regulations allow for the legal trapping of furbearers, including coyote and bobcat, throughout the state of Idaho. These actions have been shown to incidentally capture non-target animals such as Canada lynx, are ongoing, and are not expected to change in scope or scale in the foreseeable future. However, as noted previously, in 2003, to reduce the potential for incidental capture of lynx when conducting trapping activities for other furbearers, the Service, in

conjunction with the International Association of Fish and Wildlife Agencies (IAFWA), produced a pamphlet entitled "How to Avoid Incidental Take of Lynx: While Trapping or Hunting Bobcats and other Furbearers". The IAFWA is comprised of fish and wildlife agencies of the states, provinces, and federal governments of the U.S. and Canada. All 50 states are members.

## E. CONCLUSION

After reviewing the current status of the Canada lynx, the environmental baseline for the action area, the effects of the proposed action, and any cumulative effects, it is the Service's Biological Opinion that WS' proposed action for animal damage control in the State of Idaho is not likely to jeopardize the United States coterminous population of Canada lynx.

The proposed action is likely to have adverse effects to Canada lynx in the action area. These effects will be spread across the state of Idaho. A total of 2 lynx may be affected in a 40 year period. Only one of these lynx may die from the proposed action (neck/body snares). The estimated loss of no more than 1 lynx will have a relatively minor impact on the overall population of this species. Although there is anticipated take of lynx from trapping and mortality due to neck snares, it is our opinion that the proposed action will not appreciably reduce the likelihood of both the survival and recovery of lynx.

## F. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of an Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by WS so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply.

### 1. Amount or Extent of Take Anticipated

Based on the results presented in the "Effects of the Action" section above, implementation of the proposed action is likely to cause adverse effects to Canada lynx. A maximum of 2 lynx may be taken due to the proposed action in any 40 year period; of these, a maximum of 1 lynx may be

fatally taken due to these devices during the 40 year time period. Amount of take will be monitored through the Reporting Requirement below.

### 2. Effect of the Take

In the accompanying Opinion, the Service determined that this level of anticipated take is not likely to jeopardize the continued existence of the lynx.

### 3. Reasonable and Prudent Measures

The Service concludes that WS's proposed action incorporates all practical measures possible to minimize take of lynx, as specified in the Assessment and the supplemental WS letter dated March 29, 2016. As such, the Service has not identified any Reasonable and Prudent Measures necessary to further minimize the incidental take anticipated by this Opinion.

### 4. Terms and Conditions

Since no Reasonable and Prudent Measures have been identified, no Terms and Conditions are necessary.

### 5. Reporting Requirement

WS shall submit an annual report with a 40 year running total of any incidental captures of Canada lynx to the Supervisor of the Service's Northern Idaho Field Office in Spokane Valley, Washington by March 1 of the year following each year's field work.

## G. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop new information on listed species.

The Service recommends collecting biological samples from any Canada lynx handled to contribute to or to initiate a Canada lynx informational database.

## REINITIATION-CLOSING STATEMENT

This concludes formal consultation on WS proposed wildlife damage management in the state of Idaho. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be

affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

If, during implementation of the proposed action, changes in circumstances, situation, or information regarding this proposed action changes, WS will assess the changes and any potential impacts to listed species, review the re-initiation triggers above, coordinate with the Service's Northern Idaho Field Office at (509) 891-6839 for advice (if needed) and make a determination as to whether re-initiation is necessary.

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## Appendix A:

Table A-1. Effects determination matrix for all threatened, endangered, proposed, and candidate mammals, fish, and invertebrates species within the proposed action area of the Wildlife Services (WS) consultation

| | | Grizzly Bear | Selkirk Mnts. Woodland Caribou | Canada Lynx | N. Idaho Ground Squirrel | Banbury Spring Limpet | Bliss Rapids Snail | Snake River Physa Snail | Bruneau Hot Springsnail | Bull Trout | White Sturgeon (Kootenai) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capture Devices | Small Cage Trap | NE-1 | NE-1 | NE-1 | NLAA, BE | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-2 | NE-1,2,3 |
| | Culvert and Large Cage Trap | LAA | NE-1 | NLAA | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2,3 |
| | Avian Cage Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-2 | NE-1,2,3 |
| | Corral Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,2,3 |
| | Quick-kill/bodt gripping Trap | NE-1 | NE-1 | NE-2,3 | NE-3 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA, BE | NE-2,3 |
| | Basket-Type Traps | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 | NE-1 | NE-1 | NE-1 | NE-3 | NE-2,3 |
| | Foothold Traps | LAA | NLAA, BE | LAA | NLAA, BE | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2,3 |
| | Foot Snare | LAA | NLAA, BE | LAA | NE-1 | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 |
| | Padded-Jaw Pole Traps | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 |
| | Raptor Traps | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 |
| | Snares (neck and body) | LAA | NLAA, BE | LAA | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2,3 |
| | Glue Boards or Trays | NE-1,2 | NE-2 | NE-2 | NE-2,3 | NE-1 | NE-2 | NE-2 | NE-2 | NE-1 | NE-1 |
| | Cannon and Rocket Nets | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Net guns | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Mist nets | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 |
| | Bow nets | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Hand nets | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| Chemical - Damage Management Methods | DRC-1339 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,5 | NE-1,5 |
| | Zinc Phosphide | NE-3 | NE-1 | NE-3 | NLAA | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,5 | NE-1,5 |
| | Avitrol | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,5 | NE-1,5 |
| | Compound 1080 | NLAA | NE-1 | NE-1,3 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Gas Cartridges (rodent and denning) | NE-1 | NE-1 | NE-1 | NLAA, BE | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Aluminum Phosphide | NE-3 | NE-1 | NE-3 | NLAA, BE | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,5 | NE-1,5 |
| | M-44 Sodium Cyanide | NLAA | NE-1 | NE-1 | NLAA, BE | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,5 | NE-1,5 |
| | Anticoagulants | NE-1,3 | NE-1,3 | NE-1,3 | NE-3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,5 | NE-1,5 |
| | Strychnine | NE-5 | NE-3,5 | NE-3 | NE-5 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,5 | NE-1,5 |
| Chemical Animal Handling | Alpha-chorolose | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,5 | NE-1,5 |
| | Ketamine/Xylazine and Telazol | NE-4 | NE-1 | LAA | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Tranquilizer Trap Devices | NE-3 | NE-1 | NE-3 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Euthanasia | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| Aerial | Aerial Shooting | NLAA | NE-3 | NLAA | NE-2 | NE-3 | NE-3 | NE-3 | NE-3 | NE-3 | NE-3 |
| | Aerial Telemetry-Surveillance | NLAA | NE-1 | NLAA | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Aerial Hazing | NE-3 | NE-3 | NE-3 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| Beaver Dam Removal | Beaver Dam Breaching - Explosives | NE-1 | NE-1 | NE-1 | NE-1 | NE-3 | NE-3 | NE-3 | NE-3 | LAA | NE-1 |
| | Beaver Dam Breaching - Hand Removal | NE-1 | NE-1 | NE-1 | NE-1 | NE-3 | NE-3 | NE-3 | NE-3 | NLAA | NE-1 |
| | Water-level Control Devices | NE-1 | NE-1 | NE-1 | NE-1 | NE-3 | NE-3 | NE-3 | NE-3 | NE-1 | NE-1 |
| | Ground Shooting | NLAA, BE | NLAA, BE | NLAA, BE | NLAA, BE | NE-3 | NE-3 | NE-3 | NE-3 | NE-1 | NE-1 |
| | Calling (mouth and electronic) | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Egg, Nest, and Hatchling Removal and Destruction | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |

Table A-1. Effects determination matrix for all threatened, endangered, proposed, and candidate mammals, fish, and invertebrates species within the proposed action area of the Wildlife Services (WS) consultation

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hazing-Exclusion | Propane Exploders | NLAA, BE | NE-3 | NLAA | NLAA | NE-1,3 | NE-1 | NE-1,3 | NE-1,3 | NE-1 | NE-1 |
| | Pyrotechnics | NLAA, BE | NE-3 | NLAA | NE-3 | NE-1 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1 |
| | Lasers and Strobe Lights | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Physical Harassment by Radio Controlled Boats | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Other Scaring Devices (alarm calls, etc.) | NLAA, BE | NE-3 | NLAA | NE-3 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Electronic/Temporary Fencing | NLAA, BE | NE-3 | NE-3 | NE-3 | NE-1 | NE-1,3 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Sheathing and Tree Protectors | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Barriers, Netting, Wire Grids, other Exclusions | NE-3 | NE-3 | NE-3 | NE-3 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,3 | NE-1 |
| | Abrasives | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Trained Dogs | NLAA | NE-1 | NLAA | NLAA, BE | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1 |
| | Site Access (pick-up trucks, ATV, etc.) | NLAA | NLAA | NLAA | NLAA | NE-3 | NE-3 | NE-3 | NE-3 | NE-1,3 | NE-1,3 |

NE-1 denotes no effect to associated species due to trap design, tool and/or technique
NE-2 denotes no effect to associated species due to location of trap
NE-3 denotes no effect to associated species due to no use in species occupied area.
NE-4 denotes no effect to associated species as WS is not lead Agency
NE-5 denotes no effect to associated species when label disrections are followed

BE – denotes beneficial effect associated with species
NLAA - denotes Not Likely to Adversely Affect

Table A-2 (cont.). Effects determination matrix for all threatened, endangered, proposed, and candidate plants, birds, and amphibians within the proposed action area of the Wildlife Services consultation

| | | Spalding's Catchfly | MacFarlane's Four-o'clock | Water Howellia | Ute Ladies'-tresses | Slickspot Peppergrass | Whitebark Pine | Yellow-billed cuckoo |
|---|---|---|---|---|---|---|---|---|
| Capture Devices | Small Cage Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Culvert and Large Cage Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Avian Cage Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,3 |
| | Corral Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Quick-kill/bodt gripping Trap | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,2 |
| | Basket-Type Traps | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Foothold Traps | NE-3 | NE-3 | NE-3 | NE-3 | NE-3 | NE-1,2 | NE-1,2 |
| | Foot Snare | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 | NE-1,2,3 | NE-1,2 | NE-1,2,3 |
| | Padded-Jaw Pole Traps | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 | NE-1 |
| | Raptor Traps | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 | NE-1 |
| | Snares (neck and body) | NE-3 | NE-3 | NE-3 | NE-3 | NE-3 | NE-3 | NE-1,2 |
| | Glue Boards or Trays | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Cannon and Rocket Nets | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,3 |
| | Net guns | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,3 |
| | Mist nets | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1,2 | NE-1 | NE-1,3 |
| | Bow nets | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,3 |
| | Hand nets | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1,3 |
| Chemical Damage Management | DRC-1339 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1 | NE-1 |

Table A-2 (cont.). Effects determination matrix for all threatened, endangered, proposed, and candidate plants, birds, and amphibians within the proposed action area of the Wildlife Services consultation

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Zinc Phosphide | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-3 |
| | Avitrol | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Compound 1080 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Gas Cartridges (rodent and denning) | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Aluminum Phosphide | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | M-44 Sodium Cyanide | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Anticoagulants | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1 | NE-1 |
| | Strychnine | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| Chemical Animal Handling | Alpha-chorolose | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Ketamine/Xylazine and Telazol | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Tranquilizer Trap Devices | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Euthanasia | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| Aerial | Aerial Shooting | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA |
| | Aerial Telemetry-Surveillance | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA |
| | Aerial Hazing | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA |
| Beaver Dam Removal | Beaver Dam Breaching - Explosives | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA, BE |
| | Beaver Dam Breaching - Hand Removal | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA, BE |
| | Water-level Control Devices | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA, BE |
| | Ground Shooting | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA, BE |
| | Calling (mouth and electronic) | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Egg, Nest, and Hatchling Removal and Destruction | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| Hazing-Exclusion | Propane Exploders | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA |
| | Pyrotechnics | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA |
| | Lasers and Strobe Lights | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Physical Harassment by Radio Controlled Boats | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Other Scaring Devices (alarm calls, effigies, etc.) | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Electronic/Temporary Fencing | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1 | NE-1 |
| | Sheathing and Tree Protectors | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Barriers, Netting, Wire Grids, and other Exclusions | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1,3 | NE-1 |
| | Abrasives | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Trained Dogs | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 |
| | Site Access (pick-up trucks, ATV, etc.) | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NE-1 | NLAA |

NE-1 denotes no effect to associated species due to trap design, tool and/or technique
NE-2 denotes no effect to associated species due to location of trap
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NE-4 denotes no effect to associated species as WS is not lead Agency
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**BE – denotes beneficial effect associated with species**
**NLAA** - denotes Not Likely to Adversely Affect