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Memorandum

To: Assistant Regional Director, Ecological Services, Portland, Oregon

From: Supervisor, Snake River Fish and Wildlife Office, Boise, Idaho 

Subject: Low-effect Habitat Conservation Plan (HCP) and authorization of incidental take for northern Idaho ground squirrel (NIDGS; *Spermophilus brunneus brunneus*) in Price Valley, Adams County, Idaho
Biological Opinion (Permit Number: TE133608-0)
File # 6020.0010 OALS 07-0080

This document transmits the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) of the effects to all species listed under the Endangered Species Act (ESA) of 1973, as amended, from the approval of a proposed Low-effect Habitat Conservation Plan (HCP) and authorization of incidental take for northern Idaho ground squirrel (NIDGS; *Spermophilus brunneus brunneus*) on a parcel of private property in Price Valley, Adams County, Idaho.

If you have any questions concerning this Opinion please contact Carmen Thomas at 208-378-5654.

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**BIOLOGICAL OPINION FOR
THE ISSUANCE OF AN INCIDENTAL TAKE PERMIT FOR
NORTHERN IDAHO GROUND SQUIRREL
(Spermophilus brunneus brunneus)
ASSOCIATED WITH A LOW-EFFECT
HABITAT CONSERVATION PLAN (HCP)
FOR THE SCHWISOW PROPERTY IN
ADAMS COUNTY, IDAHO
1-4-07-F-80**

**MARCH 2007
FISH AND WILDLIFE SERVICE
SNAKE RIVER FISH AND WILDLIFE OFFICE
BOISE, IDAHO**

TABLE OF CONTENTS

INTRODUCTION.....	3
CONSULTATION HISTORY.....	5
BIOLOGICAL OPINION.....	5
I. DESCRIPTION OF THE PROPOSED ACTION	5
A. Action Area.....	5
B. Proposed Action.....	6
II. STATUS OF THE SPECIES	8
A. Legal Status	8
B. Description of the Species	8
C. Threats	8
D. Life History.....	9
E. Population Dynamics	10
F. Status and Distribution.....	12
G. Previously Consulted-on Effects.....	13
H. Conservation Needs	13
I. Critical Habitat.....	14
III. ENVIRONMENTAL BASELINE	14
A. Status of Species in the Action Area.....	14
B. Factors Affecting the Species in the Action Area	15
IV. EFFECTS OF THE ACTION	16
A. Direct and Indirect Effects	16
B. Effects of Interrelated/Interdependent Actions.....	19
V. CUMULATIVE EFFECTS.....	19
VI. CONCLUSION.....	19
VII. INCIDENTAL TAKE STATEMENT	20
A. Amount and Extent of the take.....	20
B. Effect of the Take	22
C. Reasonable and Prudent Measures	22
D. Terms and Conditions	23
E. Monitoring and Reporting.....	23
VIII. CONSERVATION RECOMMENDATIONS	23
IX. REINITIATION NOTICE	24
REFERENCES.....	25

FIGURES

Figure 1. Schwisow HCP proposed Action area including the Project Area, Protected Area, and RV parking site.Schwisow HCP proposed Action area including the Project Area, Protected Area, and RV parking site.....	4
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INTRODUCTION

This document is the Fish and Wildlife Service's (Service's) Biological Opinion (Opinion) of the effects on northern Idaho ground squirrel (NIDGS; *Spermophilus brunneus brunneus*) from the proposed approval of a Low-effect Habitat Conservation Plan (HCP) and authorization of incidental take for a parcel of private property in Price Valley, Adams County, Idaho (Figure 1).

A private landowner (Duane Schwisow) will clear and level a small area to park a recreational vehicle (RV) and develop utilities for water and electric on a lot in Price Valley (Figure 1). The development plan includes a HCP as required under section 10 of the Endangered Species Act (ESA) to address potential effects of leveling a portion of the site, development of utilities, and recreational use on NIDGS. The HCP follows guidance provided in the Habitat Conservation Planning Handbook (1996) and includes specific management actions (i.e., Site Management Plan) and monitoring. A low-effect HCP differs from a regular HCP in that a low-effect HCP results in relatively minor or negligible impacts (Service 1996).

The Service has determined there would be an adverse effect to northern Idaho ground squirrel as a result of implementation of the proposed action. As such, consultation under section 7 is required. In this Opinion, we have considered the effects of the proposed action, along with cumulative effects, and conclude that the proposed action is not likely to jeopardize the continued existence of the northern Idaho ground squirrel. We also considered effects to all listed species within Adams County, which is where the proposed action would occur. Those species include: gray wolf (*Canis lupus*), Canada lynx (*Lynx canadensis*), northern Idaho ground squirrel (*Spermophilus brunneus brunneus*), steelhead (*Oncorhynchus mykiss*), bald eagle (*Haliaeetus leucocephalus*), spring/summer chinook salmon (*Oncorhynchus tshawytscha*), fall chinook salmon (*Oncorhynchus mykiss*), and bull trout (*Salvelinus confluentus*). A complete administrative record for this Opinion is on file in the Service's Snake River Fish and Wildlife Office, Boise, Idaho.

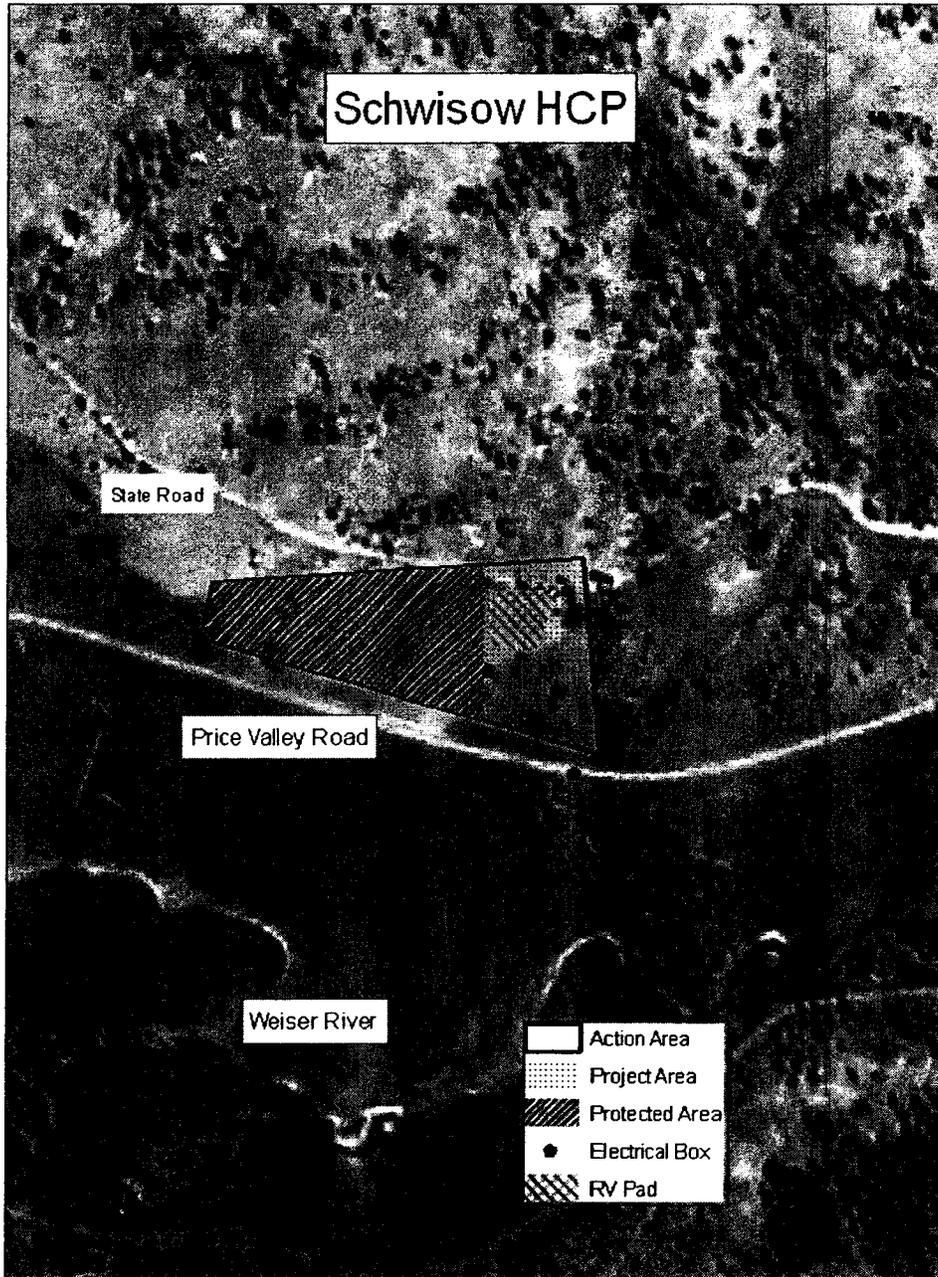


Figure 1. Figure 1. Schwisow HCP proposed Action area including the Project Area, Protected Area, and RV parking site. Schwisow HCP proposed Action area including the Project Area, Protected Area, and RV parking site.

CONSULTATION HISTORY

Following is a summary of meetings and correspondence between the Schwisows (Permittees) and the Service in the course of this consultation. A complete record of this consultation is on file at the Service's Snake River Fish and Wildlife Office in Boise.

- * June 5, 2006 Federal fish and wildlife permit application form for incidental take permits associated with a habitat conservation plan signed and dated by Duane Schwisow, Permittee.
- * June 28, 2006 Initial meeting between the Service and Duane and Darlene Schwisow. Ongoing coordination with Idaho Fish and Game.
- * October 18, 2006 Opening of the 30-day public comment period for the proposed low- effect HCP, incidental take permit application, and draft Environmental Action Statement.
- * November 27, 2006 Final draft of HCP provided to Schwisows for review and comment.

BIOLOGICAL OPINION

I. DESCRIPTION OF THE PROPOSED ACTION

A. Action Area

The action area is defined in regulations implementing section 7 of the Act (50 CFR 402.02) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

The Schwisow property is in Price Valley, 8.9 kilometers (5.5 miles) northwest of New Meadows, Idaho in Adams County. The action area is bordered to the south by the Price Valley Road and wet meadow habitat along the upper Weiser River, and to the north by Idaho Department of Lands property.

The action area consists of the entire 2.0 hectare (5 acre) area owned by the Schwisows and covered by the HCP and is called the "Covered Area" in other HCP related documents. The "Project Area" is the area where all development activities will occur (0.81 hectares (2 acres) on the east end of the property boundary) in habitat not currently known to be occupied at the time surveys were completed in June of 2006 (Service, *in litt.* 2006a). The "Protected Area" is the area where no development activities will occur (1.2 hectares (3 acres) on the west end of the property) and is habitat currently occupied by NIDGS (Figure 1).

The action area is characterized by shallow, rocky soils that support grasses, forbs, and sagebrush (*Artemisia tridentata* and *Purshia tridentata*). The action area is located on a side slope that is generally dry with open areas of unvegetated or sparsely vegetated soils

and areas with less gradient and deeper soils and greater cover of vegetation. The current habitat for northern Idaho ground squirrels on the property is essentially a low sagebrush steppe matrix with a southwest aspect containing scattered coniferous trees (namely *Pinus ponderosa* and *Pseudotsuga menziesii*). Numerous native forbs and grasses including paintbrush (*Castilleja* spp.), buttercup (*Ranunculus* spp.), aster (*Aster* spp.), fleabane (*Erigeron* spp.), mariposa lily (*Calochortus macrocarpus*), and Idaho fescue (*Festuca idahoensis*) are also found on site (Service 2000).

Currently, the action area can be accessed by cattle from the adjacent private and State land and may be lightly grazed. No fencing is planned for the area and the current level of grazing is expected to continue over the term of this permit, 25 years. Based on field observations in June 2006, there was no recent evidence (i.e., manure, salt blocks, etc.) of livestock grazing within the action area (Service, *in litt.* 2006a). Most cattle grazing is likely occurring in the large wet meadow on the south side of Price Valley Road, across from the Schwisow property. There is little to no information available on the effects of grazing on NIDGS. The management strategy for grazing in the meadow on the south side of Price Valley Road is unknown.

Land to the west of the Schwisow property is privately owned and is currently under a Safe Harbor Agreement (SHA). The habitat is similar to the action area and is also occupied by NIDGS.

B. Proposed Action

1. RV site development

The action includes leveling of an area for use as parking for an RV (RV parking site), planting of trees within the RV parking site, development of utilities for use with the RV, recreational use by the family of the property, and the long-term protection of NIDGS occupied habitat for a portion of the property. The Project Area is the area where all development activities will occur (0.81 hectares (2 acres) on the east end of the property boundary) (Figure 1) in habitat not currently known to be occupied at the time surveys were completed in June of 2006 (Service, *in litt.* 2006a).

Conventional track hoes and/or track dozers will be used to level and prepare the RV parking site. The RV parking site will be covered with rock/gravel. An access road already exists from State land and runs through a portion of the private property. A septic system will treat wastewater from the RV and then discharge the treated waste to a drainage field. The drain field will require excavation for the drain lines. Utility lines (for electric) will be underground and will run uphill from the electrical access (Box #54) across Price Valley Road. A well will provide water for domestic use. All ground disturbing activities, including leveling of the RV parking site (13.9 square meters (150 square feet)), development of a well, and excavation for the septic system and utilities will occur in suitable but currently unoccupied habitat for NIDGS.

The Schwisows would notify the Service prior to ground disturbance (i.e., leveling of the RV parking site) to allow the agency at least 30 days to determine if squirrels are present and if found, relocate them in cooperation with IDFG personnel. They would also restore ground disturbances in the Project Area due to development of utility lines, well, and septic system with native plants, with an emphasis on plants that can provide nutritional value for NIDGS. The Permittees will contact either the Service or IDFG for a list of species to include in the restoration.

2. Protected Area

The most significant conservation measure for NIDGS is the long-term protection (at least 25 years) of 1.2 hectares (three acres) of occupied habitat in the action area (Protected Area). The Protected Area is the area where no development activities will occur (1.2 hectares (3 acres) on the west end of the property) and is habitat currently occupied by NIDGS. The proposed action includes avoiding ground-disturbing activities and human use in the Protected Area. The Schwisows would prevent domestic pets (dogs and cats) from disturbing (chasing and killing) NIDGS and preventing fleas and plague from spreading within the Protected Area by prohibiting access by pets to the Protected Area.

3. Monitoring

The Schwisows would allow access by IDFG and the Service for annual NIDGS monitoring. Agencies will notify the Permittee at least 5 days in advance of conducting surveys. Surveys would entail observing individuals, burrows, and other evidence of NIDGS occupation or use. Animals would not be handled.

4. Predator/Competitor control

The Schwisows would allow agents of Service/IDFG to control badgers (*Taxidea taxus*), coyotes (*Canis latrans*), and/or Columbian ground squirrels (*Spermophilus columbianus*) on site, if necessary. If the Permittee observes badger or coyote activity prior to NIDGS monitoring in July, they would contact Service/IDFG for potential control actions to be taken. Agencies would notify the Permittee at least 5 days in advance of conducting control actions. The Permittee would assist in control of Columbian ground squirrels, when such efforts are deemed necessary by the Service/IDFG, and after receiving sufficient training (as determined by Service/IDFG) in ground squirrel identification. The Permittee may also assist in control of predators, if agency approval is granted or state regulated hunting seasons are open and the Permittee has a license to hunt.

II. STATUS OF THE SPECIES

A. Legal Status

The northern Idaho ground squirrel (NIDGS; *Spermophilus brunneus brunneus*) was federally listed as a threatened species on April 5, 2000. This subspecies is currently known to exist only in Adams and Valley counties of western Idaho. The entire range of the subspecies is about 32 by 108 kilometers (20 by 61 miles). The subspecies declined from an estimated 5,000 individuals in 1985, to less than 1,000 by 1998, when it was proposed for listing under the Act. A Recovery Plan was prepared in July 2003 and outlines recovery of the species including population sizes and establishes criteria for a minimum number of viable metapopulations.

The NIDGS has been classified as an Idaho Department of Fish and Game (IDFG) Species of Special Concern since 1981 and a USDA Forest Service Sensitive Species since 1990.

B. Description of the Species

The first NIDGS specimens were collected in 1913 by L.E. Wyman, and described by A.H. Howell as a subspecies (*Citellus townsendii brunneus*) of the present-day Washington ground squirrel (*Spermophilus washingtoni*) (then confused with the Townsend's ground squirrel, *C. townsendii*) (Howell 1938). Subsequently, Howell (1938) reclassified the Idaho ground squirrel as a full species, *Citellus brunneus*. Hershkovitz (1949) demonstrated that *Spermophilus* is the correct name for the genus. The systematics of *Spermophilus brunneus* were further investigated by Nadler *et al.* (1973) with chromosomal descriptions. Based on cranial morphology, pelage, life history differences, and other characteristics, Yensen (1991) determined that *Spermophilus brunneus* consisted of two subspecies: the NIDGS, *Spermophilus brunneus brunneus*, and the southern Idaho ground squirrel, *Spermophilus brunneus endemicus*.

The NIDGS is a relatively small member of the genus *Spermophilus*; the mean lengths of the male and female are 23.4 centimeters (9.2 inches) and 22.6 centimeters (8.9 inches), respectively (Yensen and Sherman 1997). The pelage (fur) of NIDGS on the dorsal area appears dark reddish-gray as the result of a mixture of black unbanded and yellowish-red banded guard hairs. The subspecies' eye ring is buffy-white in color.

C. Threats

The NIDGS is primarily threatened by habitat loss due to forest encroachment into former suitable meadow habitat. Forest encroachment results in habitat fragmentation, eliminates potential dispersal corridors, and confines the species populations into small isolated habitat islands. The subspecies is also threatened by land use changes, recreational shooting, poisoning, genetic isolation and genetic drift, random naturally occurring events (stochastic events), and competition from the larger Columbian ground

squirrel (Service 2003). It is unknown if proximity of human habitation is a threat to NIDGS populations.

For the past 70 years agricultural conversion and rural housing developments near the communities of Round Valley, New Meadows, and Council, Idaho, have fragmented some suitable habitat formerly occupied by the NIDGS. During this time, extensive use of pesticides may have reduced the range and population size of NIDGS. Various other types of developments continue to threaten remaining occupied sites in Adams and Valley Counties, including road construction, maintenance, recreational facilities such as golf courses, illegal recreational shooting, and domestic pets, such as dogs and cats (FR 65 17779).

During 1986 and 1999, Sherman and Runge (2002) documented the collapse of the largest population of NIDGS. They believed that the collapse of this population could be attributed to fragmentation and shrinking of suitable meadow habitat due to forest encroachment and changes in vegetational composition of the meadows. These changes have eliminated much of the suitable habitat and have fragmented and isolated the remaining populations (Yensen and Sherman 1997). Changes in vegetation have also resulted in poorer quality food plants that lack the nutritional values needed to provide the necessary body fat to survive the seven to eight months of hibernation (Sherman and Runge 2002). As suitable habitat becomes available within the dispersal distance of NIDGS (less than 1 kilometer (0.62 miles)) (Gavin *et al.* 1999), they may move across the landscape to occupy suitable habitat.

Other threats to NIDGS populations include competition with the larger Columbian ground squirrel, loss of habitat to development, and shooting (Service 2003). Natural predators include badger, red fox (*Vulpes vulpes*), coyote, and diurnal raptors.

Human-related impacts such as vehicular-related mortality, drastic alterations to the existing habitat, loss of dispersal corridors among local populations, predation and harassment by domestic pets, and recreational shooting may create such a constant and irreversible pressure on small local populations that they may never recover. These threats also apply to the other metapopulations where the species is known to occur (Service 2003). Currently, there is no known opportunity for exchange of individuals, or of genetic material, between the Price Valley metapopulation and others that are currently known to exist (Service 2003). The USDA Forest Service is currently taking actions to connect population sites within this metapopulation as well as in other nearby metapopulations (R. Vizgirdas, Service, *in litt.* 2006c).

D. Life History

The northern Idaho ground squirrel emerges in late March or early April and is active above ground until July or early August (Yensen 1991). Emergence during this period begins with adult males, followed by adult females, and then yearlings. The northern Idaho ground squirrel becomes reproductively active within the first two weeks of emergence (Yensen 1991). Females and males are sexually mature the first spring after

birth. Females produce one litter per year of between two and seven pups, depending on fitness. Males and females do not live together or near their mates, and females do not cooperate with close kin to defend burrows or rear young (Sherman and Yensen 1997).

Females that survive the first winter live, on average, nearly twice as long as males (3.2 years for females and 1.7 years for males). Estimates of maximum longevity indicate that males may live up to 5 years and females up to or greater than 7 years (Sherman and Runge 2002). Males normally die at a younger age, typically from mortality associated with reproductive behavior. During the mating period, males move considerable distances in search of receptive females and often fight with other males for copulations, thereby exposing themselves to predation by raptors, such as prairie falcons (*Falco mexicanus*), goshawks (*Accipiter gentilis*), and red-tailed hawks (*Buteo jamaicensis*). Significantly more males die or disappear during the two week mating period than during the rest of the 12 to 14 week period of above-ground activity (Sherman and Yensen 1994). Seasonal torpor or hibernation generally occurs in early to mid-July for adult males and females, and late July to early August for juveniles (Yensen and Sherman 1997).

NIDGS occupy dry (or xeric) meadows surrounded by ponderosa pine or Douglas-fir (*Pseudotsuga menziesii*) forests (Yensen 1991). Xeric meadows have shallow soils (Dyini and Yensen 1996), however NIDGS sites need to be deep enough to accommodate nest burrows greater than 1 meter (3.3 feet) deep (Yensen *et al.* 1991). The northern Idaho ground squirrel often digs burrows under logs, rocks, or other objects. Nesting burrows are found in soil pockets that are greater than 1 meter (3.3 feet) deep (Yensen *et al.* 1991, Yensen and Sherman 1997), but dry vegetation sites with shallow soils of less than 50 centimeters (19.5 inches) depth above bedrock are used for auxiliary burrow systems (Yensen *et al.* 1991). NIDGS sites can have a mixture of shallow (less than 50 centimeters (19.7 inches)) and deeper (greater than 1 meter (3.3 feet)) soils, and some sites contain pockets of mesic soils and vegetation (Yensen *et al.* 1991).

Although Columbian ground squirrels overlap in distribution with the northern Idaho ground squirrel (Dyini and Yensen 1996), Columbian ground squirrels prefer moister areas with deeper soils. Sherman and Yensen (1994) reported that the segregation of the two species is due to competitive exclusion as opposed to differing habitat requirements.

E. Population Dynamics

As a result of the factors described in the Status and Distribution and Life History sections, and due to the small sizes of the remaining population sites, the northern Idaho ground squirrel may have little resilience to naturally occurring events. Small populations are often vulnerable to climatic fluctuations and catastrophic events (Mangel and Tier 1994). In 1993, Gavin *et al.* (1999) developed a population viability simulation computer program using recruitment and death values recorded over eight years from an intensively studied northern Idaho ground squirrel population site. The model included no natural immigration. Researchers conducted the population viability analysis using 50 individuals, a figure that was 30 individuals lower than the actual population size of 80

individuals (Sherman and Yensen 1994). This model determined that all but 1 of 100 population sites could become extinct in less than 20 years. In 1999, the Service contracted with the U.S. Geological Survey-Patuxent Wildlife Research Center to further develop a population model for the northern Idaho ground squirrel (Runge 1999). The model was designed to allow the user to develop population projections for a population site or population complex using data collected about the demographic structure over three or more years. Using the assumptions of a closed population and 100 percent overwinter survival of the female and pups, this model predicted that existing populations could become extinct within seven years using current demographic trends if no conservation measures are taken (Runge 1999).

NIDGS population dynamics are thought to follow metapopulation principles (Service 2003). In a metapopulation system, the extinction and re-colonization of local populations is perceived to be a natural occurrence (Smith 1996). Some local populations may be larger and more robust than others because of the availability of suitable resources such as well drained soils, above-ground structure for cover, and diverse and nutritious food sources. These productive sites are often referred to as "source populations." Areas that harbor less resource value may support small populations during periods of ideal climatic conditions but may not remain viable when climatic conditions further reduce the resource value. These sites are referred to as "sink populations" in that most of the animals that occur there arrive via dispersal from source sites (Meffe and Carroll 1994).

In general, larger populations have a greater ability to persist through intermittent fluctuations in climate and food resources and can serve as source populations, through dispersal, for less viable populations or can re-colonize local populations that have gone extinct (Meffe and Carroll 1994). A necessity for this process to work is connectivity within and among local populations, a characteristic that is now lacking across substantial portions of the NIDGS range. Sink populations, although potentially intermittently occupied, are valuable to the metapopulation as well. They can contribute genetic diversity and can serve as a bridge between other source populations that would otherwise lack connection.

For several years, population sites with the largest numbers of NIDGS have been closely monitored by researchers. These sites occur within the Payette National Forest (Lost Valley and Slaughter Gulch campground) and the privately-owned OX Ranch. The two population sites on the OX Ranch (Squirrel Manor and Squirrel Valley) have been monitored for the longest period of time. Sherman and Gavin (1997, 1999) and Sherman and Runge (2002) documented the decline of the Squirrel Valley population from 120 individuals in 1987 to 10 in 1999. The Squirrel Manor had a population decline from 250 individuals in 1996 to fewer than 50 individuals in 1999. However, Squirrel Manor supported a population of 153 in 2005 (Evans Mack 2006). Each of four other population sites monitored (Cottonwood Corral, Summit Gulch, Cold Spring, and Huckleberry) between 1998 and 1999 declined markedly (Sherman and Gavin 1999). The observed decline of population levels in 1999 may have been largely due to cold, spring conditions resulting in poor reproduction (Sherman and Gavin 1999). It is worth noting that the two

largest populations of the species exist in close proximity to human habitation and a popular campground, and population declines there have not been attributed primarily to human activity (Evans Mack 2006). However, since the late 1990's the number of squirrels observed has increased (twice as many for Summit Gulch, Cold Springs, and likely Huckleberry) or have remained about the same (Cottonwood Corral) (Evans Mack 2006).

In addition, the Round Valley site had an estimated three to five individuals from 2002 to 2003, and 70-plus from 2004 to present (R. Vizgirdas, Service, *in litt.* 2006c).

F. Status and Distribution

The NIDGS has the most restricted geographic range of any *Spermophilus* species, and one of the smallest ranges of any North American mammal (Gill and Yensen 1992). The northern Idaho ground squirrel (*Spermophilus brunneus brunneus*) is a rare, endemic mammal that occurs only in Adams and Valley counties in west-central Idaho, from northwest of Council northeast to Lost Valley, Price Valley, and New Meadows, with one location in Round Valley (Yensen 1991, Service 2003). Within this extent NIDGS are known to occur at 43 isolated sites within an elevation range of 400 to 2,300 meters (1,312 to 7,565 feet) (Evans Mack 2006). In 2006, the overall NIDGS adult/yearling population was conservatively estimated to 1,395, a 50 percent increase from the 940 estimated in 2005 (Evans Mack 2006). While the increase is in part due to finding new locations of NIDGS occupation, 39 percent of the increase was detected at known sites with similar levels of survey effort expended as in previous years. Of the 43 known occupied sites in 2006, five sites supported greater than 100 individuals (Squirrel Manor, Lost Valley, Price Valley, Price Valley South, and Round Valley), 22 of 43 sites supported less than 20 individuals, and three metapopulation areas supported greater than 200 individuals with two nearing 300 (Evans Mack 2006).

The distribution of the NIDGS has become fragmented into what are now very small, isolated populations in Adams and Valley counties of west-central Idaho. Between about 1980 and 1997, seven populations were known to have become extirpated (Yensen and Sherman 1997). For example, the Mill Creek population located on Payette National Forest lands was determined to be extirpated in 1997, and the Lick Creek population on private land apparently was extirpated in 1999. The Summit Gulch population consisted of one individual when it was supplemented in 1997. Thirty-five of 43 identified population sites are intact, though the species has been extirpated from eight of them. The occupancy or habitat suitability of six other sites is unknown, because they have not been surveyed recently. Of the 34 extant sites in 2003, 16 are on National Forest lands (Council and New Meadows Ranger Districts), 13 are on private lands, one is on municipal property, and four are on a combination of State of Idaho, National Forest, or private lands (Service 2003). A new population of NIDGS was discovered on the Payette National Forest in August 2005, and had a preliminary population size of at least 100 animals (R. Vizgirdas, Service, *in litt.* 2006b).

The fragmented distribution of the NIDGS is a remnant of what may once have been a more continuous distribution from Round Valley, Valley County, north to New Meadows, west to Bear, and south to Indian Valley in Adams County, Idaho (Service 2003). All remaining habitat sites for this ground squirrel are small in relation to those of other species of ground squirrels, ranging from greater than 1 to 44 hectares (greater than 1 to 110 acres), and are threatened by forest encroachment into grassland meadows (Service 2003).

Long-term habitat fragmentation and population declines have resulted in small, isolated ground squirrel populations that appear to be prone to extinction due to naturally occurring factors (FR 65 17779).

G. Previously Consulted-on Effects

There has been one previous consultation under section 7 of the Act on ground squirrels in the project area evaluated in this Opinion. The previous consultation (Service 2000) addressed issuance of a section 10(a)(1)(A) enhancement of survival permit for NIDGS to Bob and Peggy Mack near New Meadows, Idaho (Mack permit). The Mack permit and resulting Opinion covered activities conducted on 14 acres (5.7 hectares), including the five acres (2.0 hectares) considered in this Opinion. The new landowners, the Schwisows, desired take coverage similar to that provided through the Mack permit from the Service and were interested in implementing actions to conserve NIDGS on their property, which resulted in the development of the HCP.

The conservation goal of the previous action, the Mack permit, was for NIDGS populations on the Permittees' property to expand as a result of conservation efforts associated with the Agreement through protection of 5 acres of occupied, suitable NIDGS habitat.

Actions permitted under the previous consultation included: 1) construction and use of the Permittees' house, garage, and other associated out buildings; 2) installation of a well, underground power and telephone lines, septic system/drainfield, and other required utilities; and 3) operation of all terrain vehicles outside protected areas. All construction planned and allowed for under the Mack permit was completed by September 2006.

The overall result of the previous consultation was a reduction of threats to NIDGS on the Permittees' property and an expansion of this population's occupied habitat. Specifically, conservation measures under the Mack permit provided for: maintenance of high-quality NIDGS habitat, reduction in competition with Columbian ground squirrels, and minimization of recreational shooting.

H. Conservation Needs

A final Recovery Plan (Plan) for NIDGS was developed and released by the Service on July 28, 2003 (Service 2003). The goal of this Plan is to increase the population size and establish a sufficient number of viable metapopulations of the NIDGS, so the subspecies

can be delisted. According to the Plan, due to the restricted geographic range and low numbers, the populations of NIDGS must be increased and stabilized. The only historical population level recorded was in 1985 when it was estimated to be approximately 5,000 individuals (Yensen 1985). This estimate was made for populations judged to be in decline; hence, it is thought that the recovery target needs to be higher than this historical estimate (Service 2003). The plan states that the recovery target for the species is based on an effective population size (N_e) of 5,000 among a minimum of 10 metapopulations. Delisting may be considered when four recovery criteria identified in the recovery plan have been met.

Over the last few years, state and federal employees, as well as private landowners have cooperated in demographic research, rehabilitation of local populations and potential corridors between local populations, and translocation efforts. In addition, a captive breeding program has been implemented at the Zoo Boise in Boise, Idaho, using southern Idaho ground squirrel (*Spermophilus brunneus endemicus*) and with the intention of also having a breeding population of NIDGS once the techniques are refined. The objectives of these efforts are focused on increasing the population size of the NIDGS and re-establishing the connectivity among local populations so delisting of this species can occur.

I. Critical Habitat

Critical habitat has not been designated for NIDGS.

III. ENVIRONMENTAL BASELINE

The environmental baseline is defined as the current condition for the species in the action area considered in this Opinion, including: past and present impacts on northern Idaho ground squirrels from all Federal, State, and private actions; other human activities in the action area; the anticipated effects of proposed Federal activities in the action area that have already undergone consultation under section 7 of the ESA; and the impacts of non-Federal actions that are contemporaneous with the action considered in this Opinion.

A. Status of Species in the Action Area

Price Valley supports one of the most robust populations of NIDGS, along with Lost Valley and the OX Ranch (Evans Mack and Yensen, *in litt.* 2004). The estimate for the Price Valley complex, which includes the Permittee's property and adjacent State and private lands, is upwards of 150 squirrels (Evans Mack and Yensen, *in litt.* 2004; Evans Mack 2006). Small, disjunct colonies of NIDGS occur along the Price Valley Road, beginning at the junction of Highway 95 and Price Valley Road and extending to the north of the Price Valley Guard Station on Payette National Forest lands (Evans Mack and Yensen, *in litt.* 2004). Much of the area is also occupied by Columbian ground squirrels, especially in areas of deeper soils, including the meadows along the Weiser River and the side hills along the Price Valley Road (Service, *in litt.* 2006a, b).

B. Factors Affecting the Species in the Action Area

Factors currently affecting NIDGS in the Price Valley include predation, competition, habitat condition, human disturbance, and illegal shooting.

Predation

Badgers, and to a lesser extent coyotes, are known to prey on ground squirrels, including NIDGS. Similarly, pets may prey on or chase NIDGS. For populations not at risk of extinction, mortality associated with predation is generally not significant in determining whether a population is able to persist (Meffe and Carroll 1994). However, with endangered species, populations are at risk of extinction, and predators, while mostly opportunistic, could help tip the balance of population toward extinction.

Competition

Columbian ground squirrels appear to compete with northern Idaho ground squirrels where they co-occur, displacing northern Idaho ground squirrels out of deep-soil areas into shallow soil, rocky habitat (Service 2000). Columbian ground squirrels occupy much of the area occupied by the Price Valley complex of NIDGS, especially in areas of deeper soils, including the meadows along the Weiser River and the side hills along the Price Valley Road (Service, *in litt.* 2006a, b). Competition is a concern for the NIDGS population in the action area because Columbian ground squirrels are known to occupy habitats in close proximity, which in turn could force NIDGS into shallower, less suitable habitat further reducing their overwinter survival.

Habitat Condition

The amount of development of land into farms or subdivisions is increasing throughout the New Meadows area, including Price Valley. As natural habitats are lost or fragmented due to cultivation or development, the NIDGS carrying capacity is reduced as well as their long-term population viability.

Currently, the action area can be accessed by cattle from the adjacent private and State land and may be lightly grazed. No fencing is planned for the area and the current level of grazing is expected to continue over the term of this permit, 25 years. Based on field observations in June 2006, there was no recent evidence (i.e., manure, salt blocks, etc.) of livestock grazing within the action area (Service, *in litt.* 2006a). Cattle grazing is occurring in the large wet meadow on the south side of Price Valley Road, across from the Schwisow property. There is little to no information available on the effects of grazing on NIDGS. The management strategy for grazing in the meadow on the south side of Price Valley Road is unknown.

Human Disturbance

The effect of disturbance to squirrels as a result of human presence or use of an area is uncertain. The property adjacent to the action area (covered under the Mack permit) provides an example of NIDGS successfully reproducing in close proximity to human disturbance. While the data from this property is short-term (three years of monitoring data with development disturbance and recent human occupation), there does not appear to be any indication that the site has experienced a significant decline in the number of squirrels observed (Service, *in litt.* 2006b, Service, *in litt.* 2005, Service, *in litt.* 2004).

Illegal shooting

Recreational shooting has contributed to the decline of northern Idaho ground squirrels at a number of monitoring sites (E. Yensen, Albertson College, pers. comm., 1999). Sites adjacent to roads in particular are subject to a high rate of recreational shootings, and several incidents of shooting northern Idaho ground squirrels have been documented (Yensen, Albertson College, pers. comm., 1999).

IV. EFFECTS OF THE ACTION

Regulations implementing section 7 of the Act define effects of the action as the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action.

A. Direct and Indirect Effects

1. RV Site Development

Leveling an area for use as RV parking would result in the permanent loss of 13.9 square meters (150 square feet) of suitable, but currently unoccupied NIDGS habitat. During construction of the RV pad, NIDGS individuals nearby may be disturbed in the short-term (construction period only, which would be approximately two weeks to one month) resulting in temporary site abandonment. The planting of trees around the RV pad may provide additional perches for predators, potentially resulting in increased rates of NIDGS mortality from predation.

Installation of a septic system, utility line, and well associated with the RV pad would result in the temporary loss of an unquantifiable area within a 0.81 hectare (2 acre) area that is suitable, but not currently occupied by NIDGS. Any area disturbed for the installation of the septic system, utility line, and well will be backfilled where appropriate and planted with native grass and forb species (Service 2006). The loss of habitat is expected to be not longer than three to five years, depending on the success rate of restoration measures. Restoration of the disturbed area would reduce the length of time the disturbed area is unsuitable habitat and would likely result in similar, if not greater,

habitat quality than was present prior to disturbance due to the NIDGS nutritional value of the plants to be used.

Increased use of motor vehicles in the action area as a result of the development may increase mortality of pups, and to a lesser extent, adults. Pups may be killed by being impacted by vehicles over after they emerge in late May and throughout June, as they are less wary than adults. Adults are not as vulnerable to being impacted because they are more aware of their surroundings and generally use more caution (R. Vizgirdas, Service, *in litt.* 2006a).

Disturbance of NIDGS may occur in the short-term as a result of the Permittee constructing the RV pad, installation of associated utilities, and planting trees. Disturbance would also occur throughout the life of the permit (25 years) as a result of recreational use in the action area by the Permittees and guests. The presence of pets in the project area may result in adverse effects to NIDGS within the protected area as a result of disturbance and increased potential for spread of plague. As a result of increased human presence and pet activity, there is a possibility that productivity could be reduced (via fewer pups produced or reproductive failure) for future NIDGS offspring in the protected area, a possibility that NIDGS migration or colonization may be adversely affected, a possibility that NIDGS may abandon the protected area, and a remote possibility that all NIDGS may be killed at the site as a result of plague. Plague has never been documented in the subspecies; however, the potential for it to occur still exists. Pets may additionally adversely affect squirrels in the project area by chasing, digging up burrows, and/or killing NIDGS. The risk of pets causing more than an insignificant effect to NIDGS is not likely since the action includes measures restricting pets to areas outside the protected area, and the likelihood of plague infecting the population is remote.

Breeding behaviors (copulation and gestation) are not likely to be affected, because they occur underground. In addition, the site is difficult to access because of snow covered roads until the beginning of May, and breeding behaviors occur in March and April. However, Ray Vizgirdas (*in litt.* 2006c) observed this behavior above ground at a nearby site (Lost Valley Reservoir) in May 2006.

The proposed disturbance and development may result in reduced probability of NIDGS moving through or colonizing the two acres (0.8 hectares) of suitable but currently unoccupied habitat in the project area. The ability for NIDGS to migrate through or to the project area may be reduced as a result of the development proposed and increased disturbance levels. Vegetative restoration measures are designed to reduce the magnitude of this potential effect.

NIDGS may acclimate to some levels of human disturbance, providing the human activity does not directly endanger the physical integrity of the habitat or directly disturb or kill squirrels. Adults as well as young squirrels have been documented on the site along with active burrows. The risk of NIDGS abandonment of the protected area is considered minor because the site is currently experiencing human disturbance from a

nearby residence and a gravel roadway. Due to the squirrels' potential ability to adjust to new disturbances, a monitoring and adaptive management approach associated with the action would be implemented to determine whether an adverse effect actually occurs, and if it does, actions would be implemented that mitigate or reduce those effects. Adaptive management actions could include actions such as removing or reducing the quality of avian perches in planted trees, excluding pets from the entire action area, limiting vehicle use of project area roads to periods when squirrels are less active, etc.

Increased presence of humans within the action area, familiar with and aware of the status of NIDGS, would likely result in greater awareness of specific factors affecting the population and would likely result in a quicker response by the Permittees or government agencies (Service and/or IDFG) if the population was being adversely affected. Situations in which human presence would be beneficial could include notification of agencies in a timely manner when badger or coyote predation of NIDGS, illegal shooting of NIDGS, etc. occur, so actions to reduce the adverse affect could be taken much sooner than without human presence.

2. Protected Area

Long-term (at least 25 years) protection from development of 60 percent (1.2 hectares (3 acres)) of the action area, which is also the currently occupied NIDGS habitat, could result in an increased likelihood of the existing NIDGS population persisting into the future. The Protected Area is adjacent to another parcel (under separate ownership) currently enrolled in a Safe Harbor Agreement (SHA) for NIDGS and currently occupied by NIDGS. The Protected Area in this HCP also would be adjacent to State land currently occupied by NIDGS. The juxtaposition of the Protected Area in this HCP to lands adjacent to those enrolled in a SHA and State land would maintain a large block of contiguous suitable habitat, allowing for continued NIDGS movements among the three parcels.

3. Monitoring

Monitoring activities associated with the proposed action would affect many individuals of the extant population. The effect of monitoring would likely be minor due to the fact that no individuals would be captured or handled, the amount of time individual squirrels would be disturbed (less than three hours), and the number of times the population would be monitored (approximately five times per year).

4. Predator/Competitor control

Control of predators (badgers and/or coyotes) and/or potential competing species (Columbia ground squirrels), if necessary, would likely result in the short-term reduction in predation of and/or competition with NIDGS. This short-term reduction in predation and/or competition could result in a greater likelihood of long-term persistence of the NIDGS population in the action area. Control actions would likely affect NIDGS individuals through disturbance via humans placing traps and/or shooting predators. The

effect of this disturbance would likely be minor because it is expected to be short-term (up to three hours per control action).

5. Summary

Management actions identified as part of the proposed action are intended to decrease the impact of these potential adverse effects to NIDGS. Collectively these actions reduce the likelihood of an adverse effect due to human disturbance; preserve occupied habitat; and restore ground disturbance associated with installation of utility lines, a septic system, and a well with native plants. Potential adverse effects from the proposed action are believed to be outweighed by the benefits of preserving existing occupied habitat in the protected area from development for at least 25 years.

B. Effects of Interrelated/Interdependent Actions

Since there are no interrelated or interdependent actions, there would no effect.

V. CUMULATIVE EFFECTS

Cumulative effects 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 pursuant to section 7 of the Act. The Service is not aware of any non-Federal actions that are proposed in the action area at this time; therefore, no cumulative effects relative to the analysis in this biological opinion have been identified.

VI. CONCLUSION

The Service has evaluated the current status of the NIDGS, the environmental baseline in the action area, effects of the proposed action, and cumulative effects. Based on this analysis, the Service concludes the proposed action is not likely to jeopardize the continued existence of the species. Direct modifications to NIDGS habitat are limited and impacts to the extant population would likely be minor. Indirect effects would be managed by implementation of the mitigation and minimization actions stated above. Long-term protection of occupied habitat would improve the likelihood of persistence of NIDGS at the site. This project would not reduce the reproduction, status, distribution, or genetics of NIDGS to a point where the likelihood of its survival and recovery is appreciably reduced.

No critical habitat has been designated for NIDGS, therefore none will be affected.

VII. INCIDENTAL TAKE STATEMENT

Section 9 Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, unless special exemption is granted. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Harm is further defined by the Service to include significant habitat modifications 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 intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out 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 this Incidental take Statement.

A. Amount and Extent of the take

In general, take resulting from the proposed action will be in the form of potential death to individual ground squirrels, harm due to permanent and temporary loss of some potential habitat as a result of development, and harassment resulting from construction of the RV pad and subsequent occasional occupation and associated activities of the Permittees.

1. RV Site Development

Leveling, by the Permittee, an area for use as RV parking would result take in the form of harm to NIDGS as a result of the permanent loss of 13.9 square meters (150 square feet) of suitable, but currently unoccupied NIDGS habitat.

During construction of the RV pad NIDGS may be taken in the form of harassment and disturbance as a result of use of heavy equipment and the presence of personnel. The construction period will last approximately one month. While being disturbed, squirrels will increase the amount of time spent sheltering and decrease the amount of time spent feeding. There is the potential for take in the form of harm (death) to NIDGS during construction. However, this is unlikely. The site will be surveyed by agency staff (Service and/or IDFG) prior to excavation and development of the site, and if any NIDGS are present, they will be captured and removed from the construction zone (see paragraph below). The disturbance from construction (noise, vibration) will likely affect all NIDGS on the property.

The area to be developed will be surveyed for NIDGS presence by agency staff prior to initiation of work, and if any NIDGS are present, they will be captured and translocated to reduce potential mortality. Squirrels, if present, will be trapped, handled, moved, and

then released (all these activities result in harassment) in the protected area. Although none are expected, any NIDGS present in the footprint of construction may be harassed during the translocation effort. The Service and/or IDFG will conduct the surveying and potential trapping activities to relocate any NIDGS detected within the area proposed for development.

Use of motorized vehicles by the Permittee, agency personnel, and others within and going to and from the action area may result in harm (mortality) to NIDGS individuals. The number of squirrels harmed (killed or injured) is unquantifiable, but will likely be seasonal and minor for the duration of the permit. The relative amount of take occurring will be assessed through agency monitoring and/or Permittee reporting.

Planting trees around the RV pad by the Permittees may provide perches for avian predators of NIDGS. Increased take of squirrels may occur as a result of the increased presence of avian predators in the form of harassment or mortality. Trees, if they survive, would be permanent in the action area and take associated with them will likely occur for the duration of the permit (25 years). The number of squirrels harassed or harmed is unquantifiable, but will likely be seasonal and minimal. The relative amount of take occurring will be assessed through agency monitoring and/or Permittee observations.

Installation of the septic system, utility line, and well associated with the RV pad would result in take via harm through the temporary loss of an unquantifiable area within a 0.81 hectare (2 acre) area that is suitable, but not currently occupied by NIDGS. Similar to construction of the RV pad described above, take in the form of harassment (disturbance) would occur during installation of utilities which is expected to take one week. The loss of suitable, but unoccupied habitat is expected to last not longer than three to five years, depending on the success rate of restoration measures. Existing habitat quality will be maintained or improved by backfilling and planting with native species. Vegetative restoration measures are designed to reduce the magnitude of this potential take.

2. Protected Area

Recreational use of the RV pad and project area by the Permittees and guests may result in take in the form of disturbance to NIDGS in the adjacent protected area. Similarly, the presence of pets may result in take in the form of disturbance (harassment) of NIDGS in the protected area. Harassment by humans and pets would result in an increase in the amount of time squirrels are sheltering and a decrease in the amount of time they are feeding while the disturbance is occurring. The amount of take resulting from these sources of harassment is unquantifiable; the duration of the form of take would be 25 years (duration of the permit).

The presence of pets may also result in take (injury or mortality) of NIDGS individuals within the project area. Mortality of squirrels in the protected area as a result of pets should not occur due to requirements of the Permittee identified in the site management plan, including keeping pets out of the protected area. However, mortality of squirrels within the project area may occur as individuals migrate through or colonize the project

area. We anticipate the amount of take resulting from pets in the project area will be low and not exceed two NIDGS per year for the duration of the permit. Take related to monitoring is authorized by the Service's 10(a)(1)(A) scientific collecting permit for actions taken by Service personnel and through the Service's section 6 Agreement with IDFG and is not authorized here.

3. Monitoring

Monitoring the NIDGS population and habitat within the action area will result in take via disturbance (harassment) of individual squirrels up to three times per year for the duration of the permit (25 years). Each survey may require up to four hours and an unquantifiable number of NIDGS will be harassed. Squirrels will be harassed while surveyors are present; resulting in an increase in the amount of time they are sheltering and a decrease in the amount of time they are feeding. IDFG and the Service will be conducting monitoring activities. Take will be minimized by the use of experienced personnel and by thoroughly training and/or directly supervising those without much experience surveying NIDGS.

4. Predator/Competitor Control

Potential actions used to control predators (badgers and coyotes) and/or competing species (Columbian ground squirrels) will result in take in the form of harassment (disturbance) of NIDGS. Humans placing traps and shooting predators and/or competitors would increase the amount of time squirrels are sheltering and decrease in the amount of time they are feeding while control activities are occurring. Control actions will be conducted by the IDFG, Service, or Permittees and will occur up to three times a year and up to three hours at a time for the duration of the permit (25 years). The number of NIDGS harassed during control actions depends on a number of factors including population size at the time control actions occur, time of day, and time of year, and is therefore unquantifiable. Due to the short length of time (less than three hours) humans would be conducting control actions and the probable periodic nature of the need for control actions, the amount of take resulting from this action is likely to be minor and insignificant.

B. Effect of the Take

The project will not reduce the reproduction, status, or distribution of the species, in the action area and range-wide, to a point where the likelihood of its survival and recovery will be measurably reduced. The proposed action has been designed to minimize the amount of take.

C. Reasonable and Prudent Measures

The Service has concluded that the following reasonable and prudent measures are necessary and appropriate to minimize the take anticipated to result from implementation of the proposed action.

The proposed HCP and its associated documents clearly identify anticipated impacts to affected species likely to result from the proposed taking and the measures that are necessary and appropriate to minimize those impacts. All conservation measures described in the proposed HCP, together with the terms and conditions described in any section 10(a)(1)(B) permit issued with respect to the proposed HCP, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions (see below) pursuant to 50 CFR 402.14(I).

D. Terms and Conditions

The Service through negotiations with the Applicant has incorporated measures to mitigate and minimize effects in the HCP to the maximum extent practical. To be exempt from the prohibitions of section 9 of the Act, the Applicant must comply with the conservation and mitigation actions as outlined in the HCP. These terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(B) and section 7(o)(2) of the Act to apply. If the Applicant fails to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(B) permit and section 7(o)(2) may lapse.

E. Monitoring and Reporting

The Service, IDFG, and Permittees must carry out the following monitoring and reporting of incidental take resulting from project implementation. This monitoring and reporting is non-discretionary.

1. The Permittees, IDFG, and/or Service shall inform the Service of take of NIDGS associated with the proper implementation of the permit conditions for the proposed project, including implementation of the proposed minimization and mitigation measures.
2. Any NIDGS found dead due to take incidental to or as a result of this action shall be placed in an appropriate container (e.g., a clean plastic bag) and frozen as soon as possible. The exact location shall be noted along with any other evidence pertaining to the cause of death. As soon as possible, this information and the location of the carcass shall be provided to the Service (Snake River Fish and Wildlife Office) at (208) 378-5243 or Ray Vizgirdas at (208) 378-5249. Carcasses will eventually be deposited at the Albertson College Museum. The incidence and location of injured NIDGS should also be reported to this office.

VIII. 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 plans, or to develop information.

No conservation recommendations are provided here because the HCP has included conservation measures to promote the conservation of NIDGS within the action area; additional recommendations are not necessary.

IX. REINITIATION NOTICE

This concludes formal consultation on the Schwisow low-effect HCP. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where there 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 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 reinitiation.

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