

Pygmy Rabbit

Brachylagus idahoensis

Class: Mammalia
Order: Lagomorpha
Family: Leporidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

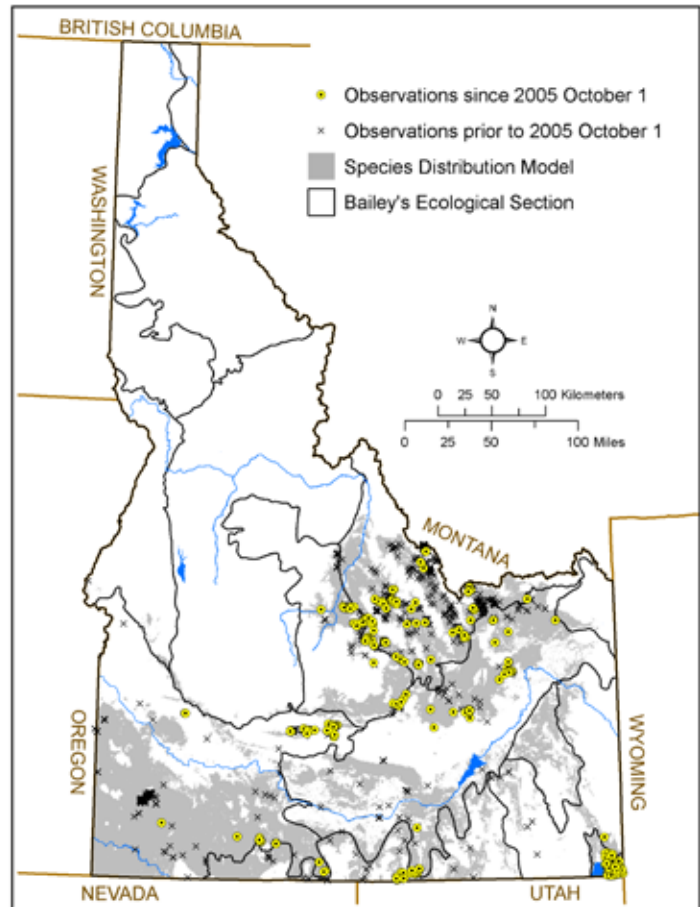
IDAPA: Upland Game Animals

G-rank: G4

S-rank: S3

SGCN TIER: 2

Rationale: Threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 117,100 km² (~45,200 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Challis Volcanics, Northwestern Basin and Range, Overthrust Mountains, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 100,000–1,000,000

Description: This species occurs in the Great Basin and adjoining intermountain regions, including the southern half of Idaho. Populations are widely scattered across the landscape in appropriate habitat. Recent surveys have documented relatively abundant populations in localized areas.

HABITAT & ECOLOGY

Environmental Specificity: Narrow: Specialist—key requirements are common.

Description: The Pygmy Rabbit is a sagebrush obligate occupying sites that typically have the densest and tallest shrubs and deepest soils relative to the surrounding landscape. In the Lost River drainages, Mima mounds (low, flattened, circular to oval, domelike natural mounds composed of loose, unstratified, often gravelly sediment) provide a key resource. Big sagebrush is the primary food item and may represent up to 99% of the winter diet and 50% of the summer diet. In spring and summer, native forbs and grasses make up a larger proportion of the diet. The species is believed to be one of only two rabbit species in North America that digs burrows.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threat to Pygmy Rabbit is the loss and degradation of habitat due to fire and encroachment by woody plants (e.g., juniper) and nonnative grasses (e.g., cheatgrass). Changing climates are exacerbating these issues.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, management priorities include maintaining sagebrush cover and ecological function in sagebrush systems, managing invasive plants that outcompete native plants and serve as fine fuels for range fires, and minimizing habitat destruction from fire.

ADDITIONAL COMMENTS

In 2010, the USFWS determined the Pygmy Rabbit did not warrant protection under the ESA.

Information Sources: Larrucea, E. S. and P. F. Brussard. 2008. Shift in location of pygmy rabbit (*Brachylagus idahoensis*) habitat in response to changing environments. *Journal of Arid Environments* 72:1636-1643; Price, A. J. and J. L. Rachlow. 2011. Development of an index of abundance for pygmy rabbit populations. *Wildlife Management* 75:929-937; Shipley, L. A., T. B. Davila, N. J. Thines, and B. A. Elias. 2006. Nutritional requirements and diet choices of the pygmy rabbit (*Brachylagus idahoensis*): A sagebrush specialist. *Journal of Chemical Ecology* 32:2455-2474.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

DRAFT DO NOT DISTRIBUTE

Townsend's Big-eared Bat

Corynorhinus townsendii

Class: Mammalia

Order: Chiroptera

Family: Vespertilionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

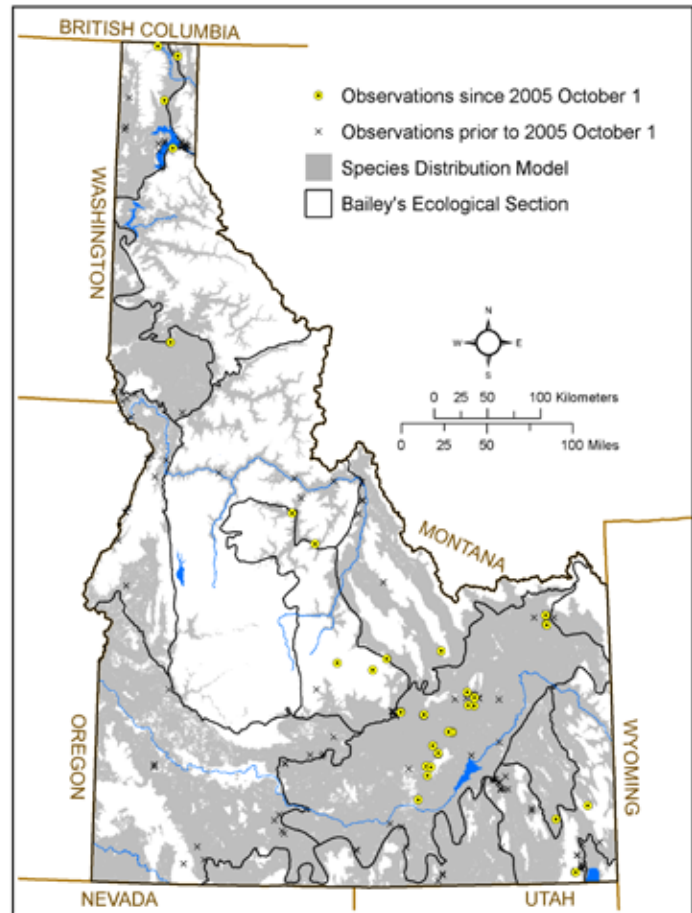
IDAPA: Protected Nongame Species

G-rank: G3G4

S-rank: S3

SGCN TIER: 3

Rationale: Significant concentration of bats in hibernacula, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 216,400 km² (~83,600 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Flathead Valley, Idaho Batholith, Northwestern Basin and Range, Okanogan Highlands, Overthrust Mountains, Owyhee Uplands, Palouse Prairie, Snake River Basalts

Population Size in Idaho: 2,500-10,000

Description: Populations are distributed throughout Idaho but are concentrated on the Snake River Plain in conjunction with a high number of caves in lava formations. The largest reported hibernating colony in the western US occurs in this area. An estimate of the minimum population size in south-central and southeast Idaho is approximately 6,300 bats based on 259 hibernacula surveys and the maximum counts at 57 caves between 1984 and 2014.

HABITAT & ECOLOGY

Environmental Specificity: Narrow: Specialist—key requirements are common.

Description: The Townsend's Big-eared Bat occurs in a variety of cover types, including desert scrub, sagebrush steppe, woodlands, and forests. This species is primarily a cave-dwelling bat, but it also roosts in man-made structures, especially in abandoned mines, as well as buildings and bridges. The largest known populations are associated with lava flows. Individuals typically use exposed roost sites on open surfaces within the roost, making roosting bats vulnerable to vandalism or disturbance. The largest aggregations and most critical roost sites are winter hibernacula and summer maternity roosts comprising aggregations of adult females and their young. Summer day time and night roosts are used to rest and digest food during the night.

Stable, cold temperature is critical to winter hibernacula. Roost temperature, roost dimensions, light quality, and air flow are important factors influencing maternity roost selection. This species is generally recognized for its site fidelity and lack of long-distance migrations. The Townsend's Big-eared Bat is a long-lived species (longevity record of >21 years on the Idaho National Laboratory) with low reproductive potential, giving birth to not more than one pup per year. It is a moth specialist (>90% of its diet).

POPULATION TREND

Short-term Trend: Relatively Stable (<=10% change)

Long-term Trend: Unknown

Description: Trends documented in caves on the Snake River Plain in south-central and southeast Idaho from 1984 to 2014 appear to be stable.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary issues facing this species are disturbance and loss of roost sites through mine closures, renewed mining, recreational caving, and other roost-disturbing activities. Managing human disturbance of maternity colonies is a priority since disturbance may cause roost abandonment and have implications for reproductive success. Bats subjected to excessive disturbance during the winter months can cause them to prematurely expend energy reserves, possibly relocate, and negatively affect productivity. In agricultural production areas, particularly in southern Idaho, the insect prey base may be reduced by pesticides. Insect productivity may be degraded by the conversion to habitat dominated by invasive annual grasses (e.g., cheatgrass). Mortality from wind turbines is a potential concern if developments expand into high-use areas, such as summer foraging areas, near maternity sites, or roost concentrations, but is currently not a documented problem. The fungal pathogen responsible for white-nose syndrome (WNS), *Pseudogymnoascus* (formerly *Geomyces*) *destructans* (*Pd*), has been detected on the species' eastern counterpart, Virginia Big-eared Bat, without diagnostic symptoms of the disease.

CONSERVATION ACTIONS

Conservation issues and management actions are identified in the appropriate section plans. In short, the recommended conservation strategies are to work with land managers to manage abandoned mine closures, work with local cave groups to survey caves, encourage installation of bat gates at mines and caves when appropriate, evaluate habitat restoration needs near important populations, including areas where historical populations occurred, and evaluate cave and mine use patterns by bats to support human access management decisions.

ADDITIONAL COMMENTS

None.

Information Sources: Pierson, ED, MC Wackenhut, JS Altenbach, P Bradley, P Call, DL Genter, CE Harris, BL Keller, B Lengus, L Lewis, B Luce, KW Navo, JM Perkins, S Smith, and L Welch. 1999. Species conservation assessment and strategy for Townsend's big-eared bat (*Corynorhinus townsendii townsendii* and *Corynorhinus townsendii pallascens*). Idaho Conservation Effort. Boise (ID): Idaho Department of Fish and Game; INL (SM Stoller), IDFG, and BLM unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Silver-haired Bat

Lasionycteris noctivagans

Class: Mammalia

Order: Chiroptera

Family: Vespertilionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

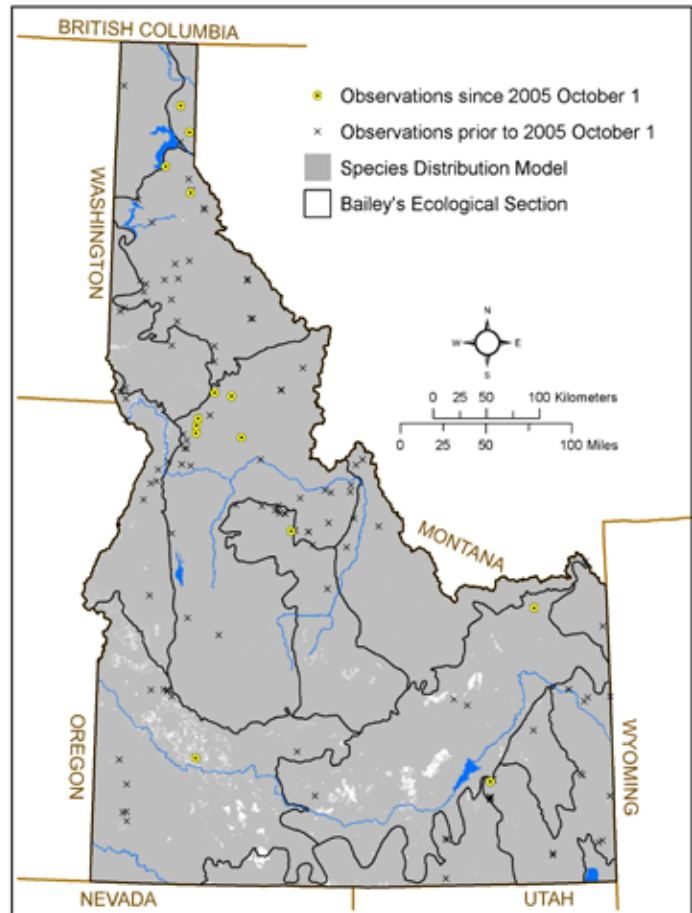
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S3

SGCN TIER: 2

Rationale: Multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 216,400 km² (~83,600 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Flathead Valley, Idaho Batholith, Northwestern Basin and Range, Okanogan Highlands, Overthrust Mountains, Owyhee Uplands, Palouse Prairie, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: Unknown

Description: Silver-haired Bats occur from south-eastern Alaska and the southern half of Canada throughout much of the contiguous US and into northeastern Mexico. In Idaho, it is one of the most common bat species and has been detected across much of the state, including all 6 of the NWRs.

HABITAT & ECOLOGY

Environmental Specificity: Broad: Generalist—all key requirements are common.

Description: Silver-haired Bats are primarily associated with coniferous forests and mixed conifer/hardwood forests with adequate large-diameter trees at a wide range of elevations. Non-reproductive Silver-haired Bats typically roost alone, but they will occasionally form groups of 3-6. Females form small maternity colonies of up to 70 individuals almost exclusively in trees, including inside natural hollows, bird-excavated cavities, and under loose bark of large snags. Individuals change roosts frequently, and use multiple roosts within a limited area throughout the summer; therefore, clusters of large trees are a necessary habitat component. Emerging late in the evening (3-8 hours after sunset), this bat forages primarily for moths, but will eat a wide variety of insects found along water courses, impoundments, ponds, above the forest canopy,

and over open meadows. In northern Idaho, hibernating single individuals have been found in mine adits. Silver-haired Bats may congregated in large numbers and migrate several hundred miles to warmer climates for the winter. During the migration seasons, Silver-haired Bats are routinely observed roosting in unusual locations in Idaho, including lava-tube caves, on the outside of buildings, and telephone poles. Silver-haired Bats hibernate in hollow trees, under sloughing bark, in rock crevices, and occasionally under wood piles, in leaf litter, under foundations, and in buildings, mines, and caves.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat for this species is direct mortality at wind energy facilities. Fatality monitoring studies indicate large numbers of Silver-haired Bats are killed at wind-energy facilities across Idaho, especially during fall migration. Additional threats include loss of roosting habitat (e.g., clusters of snags) due to timber management and persecution by humans. The fungal pathogen responsible for white-nose syndrome (WNS), *Pseudogymnoascus* (formerly *Geomyces*) *destructans* (*Pd*), has been detected on this species in eastern states, however no diagnostic sign of WNS has been documented. It is unknown whether Silver-haired Bats could facilitate the spread of *Pd*.

CONSERVATION ACTIONS

Conservation issues and management actions are identified in the appropriate section plans. In short, the recommended conservation strategies are to establish a wind energy working group in Idaho consisting of agencies, wind energy companies, and other stakeholders, develop and disseminate educational materials on bats to partners, stakeholders, media, and interested public, and participate in educational presentations on bats and wind energy.

ADDITIONAL COMMENTS

None.

Information Sources: Barnett, J. K. 2014. Region 1 acoustic bat inventory: National Wildlife Refuges in Eastern Oregon, Eastern Washington, and Idaho. USFWS, Portland, OR; Western Bat Working Group. 2015. Western Species Accounts: *Lasiurus noctivagans*. Accessed at: <http://wbwg.org/western-bat-species/>. 9 December 2015; IDFG unpublished data

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted summer and year-round distribution model.

Hoary Bat

Lasiurus cinereus

Class: Mammalia

Order: Chiroptera

Family: Vespertilionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

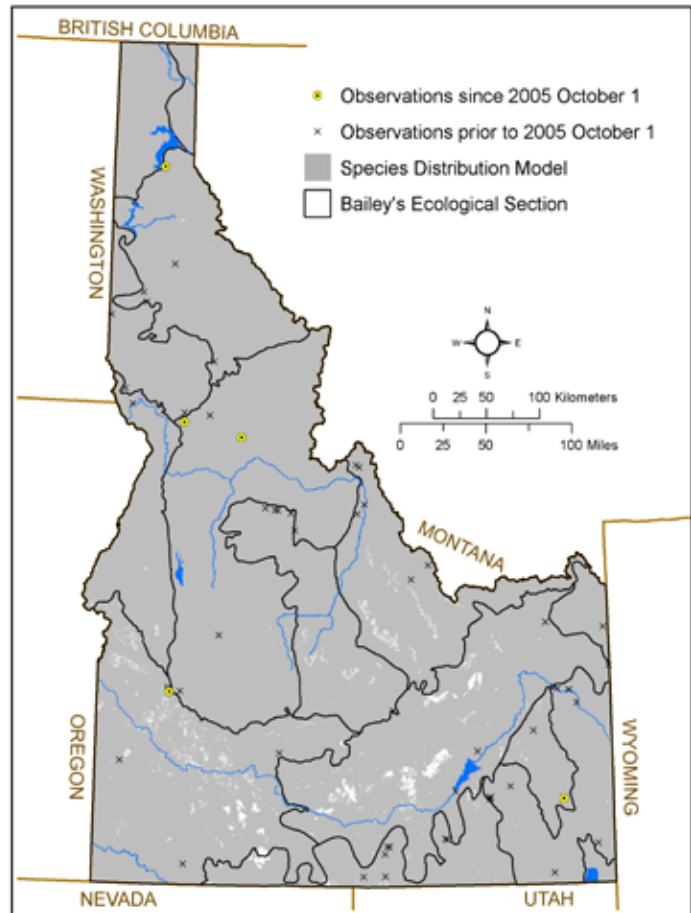
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S3

SGCN TIER: 2

Rationale: Multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 216,400 km² (~83,600 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Idaho Batholith, Northwestern Basin and Range, Overthrust Mountains, Owyhee Uplands, Palouse Prairie, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: Unknown

Description: Hoary Bats are found throughout the US to northern Canada and south through Mexico to Guatemala. In Idaho, it is one of the most common bat species and has been detected across much of the state, including all 6 of the NWRs.

HABITAT & ECOLOGY

Environmental Specificity: Broad: Generalist—all key requirements are common.

Description: Hoary Bats are distinguished from all other Idaho bat species by their relatively large size, frosted fur with a "hoary" appearance, golden coloration around the face, rounded ears, and furred interfemoral membrane. Hoary Bats roost solitarily in foliage of coniferous and deciduous trees, near the ends of branches, 3-12 m above the ground, and usually at the edge of a clearing. The swift, direct flight of this species makes it easy to distinguish on the wing from most US bats. This bat usually emerges well after dark to forage around clearings or lights in rural areas for large moths and other insects. Hoary Bats may also roost in rock crevices and, rarely, in lava-tube caves in southern Idaho. Females usually give birth to twins, but may produce as many as 4 pups annually. Pups are born between May and June and able to fly at 4 weeks of age. Hoary Bats are migratory and some individuals migrate >2,000 km (1,243 mi).

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat for this species is direct mortality at wind energy facilities. Fatality monitoring studies indicate large numbers of Hoary Bats are killed at wind-energy facilities across Idaho, especially during fall migration. Additional threats include loss of roosting habitat due to timber harvest and pesticide use.

CONSERVATION ACTIONS

Conservation issues and management actions are identified in the appropriate section plans. In short, the recommended conservation strategies are to establish a wind energy working group in Idaho consisting of agencies, wind energy companies, and other stakeholders, develop and disseminate educational materials on bats to partners, stakeholders, media, and interested public, and participate in educational presentations on bats and wind energy.

ADDITIONAL COMMENTS

None.

Information Sources: Barnett, J. K. 2014. Region 1 acoustic bat inventory: National Wildlife Refuges in Eastern Oregon, Eastern Washington, and Idaho. USFWS, Portland, OR; Western Bat Working Group. 2015. Western Species Accounts: *Lasiurus cinereus*. Accessed at: <http://wbwg.org/western-bat-species/>. 9 December 2015; (Cryan et al. 2004).; IDFG, INL, unpublished data

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted summer distribution model.

Western Small-footed Myotis

Myotis ciliolabrum

Class: Mammalia

Order: Chiroptera

Family: Vespertilionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

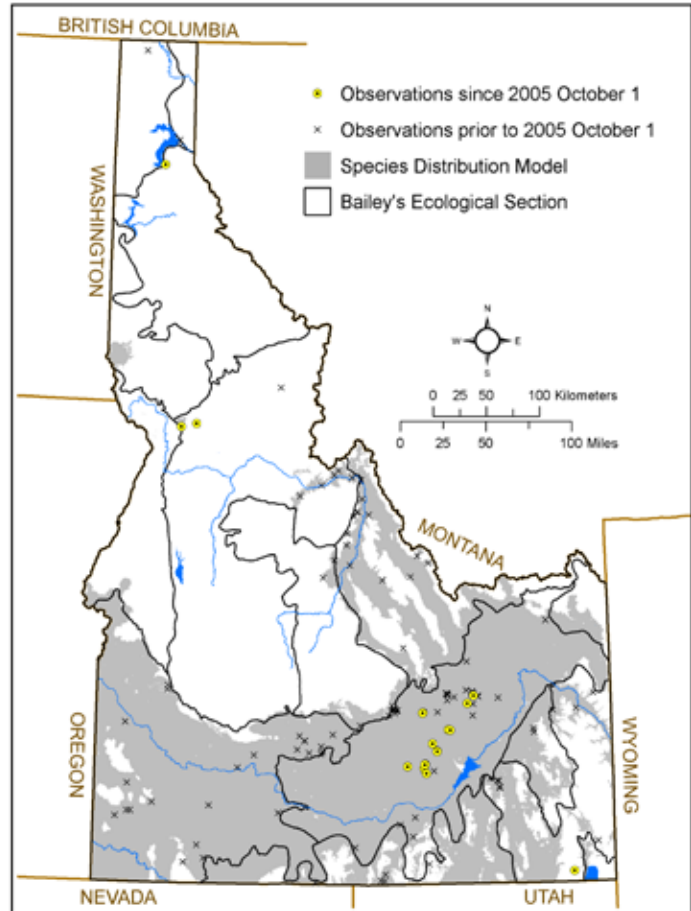
IDAPA: Protected Nongame Species

G-rank: G4G5

S-rank: S3

SGCN TIER: 3

Rationale: Important wintering area, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 144,000 km² (~55,600 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Blue Mountains, Challis Volcanics, Overthrust Mountains, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: Unknown

Description: Western Small-footed Myotis ranges from southwestern Canada through the western US into Mexico, but does not occur along the Pacific coast of Washington, Oregon, or northern California. It is widely distributed in southern Idaho and a lava-tube cave in south Idaho is the largest known hibernacula for this species in the western US.

HABITAT & ECOLOGY

Environmental Specificity: Broad: Generalist—all key requirements are common.

Description: The Western Small-footed Myotis is a small bat with black ears, a black mask across the eyes and nose, and fur that varies from brown to pale yellow. In summer, both reproductive and nonreproductive bats roost singly or in small groups in semi-arid habitats and coniferous forests, primarily in cliff and rock crevices, caves, and mines. Western Small-footed Myotis emerge early after sunset, fly slowly, and forage on small insects found in riparian areas, along cliffs, and rocky slopes. This species is one of the last to begin hibernation, wintering in small numbers inside lava-tube caves. In hibernacula, Western Small-footed Myotis wedge their bodies into small cracks and crevices in the ceiling, and are often found hibernating near Townsend's Big-eared Bats and Big Brown Bats, if present.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat for this species is white-nose syndrome (WNS) caused by the fungus *Pseudogymnoascus* (formerly *Geomyces*) *destructans* (Pd). While WNS has not been documented in this species, concern is high due to WNS-caused mortality in populations of Eastern Small-footed Myotis (*Myotis leibii*), its eastern counterpart. Although WNS has not yet been detected in Idaho, the potential impact of the disease demands monitoring and surveillance. Additional threats to this species include disturbance and loss of roost sites through mine closures, renewed mining, recreational caving, and other roost-disturbing activities.

CONSERVATION ACTIONS

Conservation issues and management actions are identified in the appropriate section plans. In short, the recommended conservation strategies are work with partners and stakeholders to develop a statewide strategic plan for WNS, including protocols for surveillance and response to the introduction of WNS in Idaho, assess distribution, monitor population trends through standardized surveys of hibernacula and maternity colonies, develop and disseminate educational materials, and engage local caving grottos in conservation actions.

ADDITIONAL COMMENTS

None.

Information Sources: Holloway, G. L. and R. M. R. Barclay. 2001. *Myotis ciliolabrum*. Mammalian Species 670, *Myotis ciliolabrum*: 1-5; Western Bat Working Group. 2015. Western Species Accounts: *Myotis ciliolabrum*. Accessed at: <http://wbwg.org/western-bat-species/>. 9 December 2015; IDFG, INL unpublished data

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Little Brown Myotis

Myotis lucifugus

Class: Mammalia

Order: Chiroptera

Family: Vespertilionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

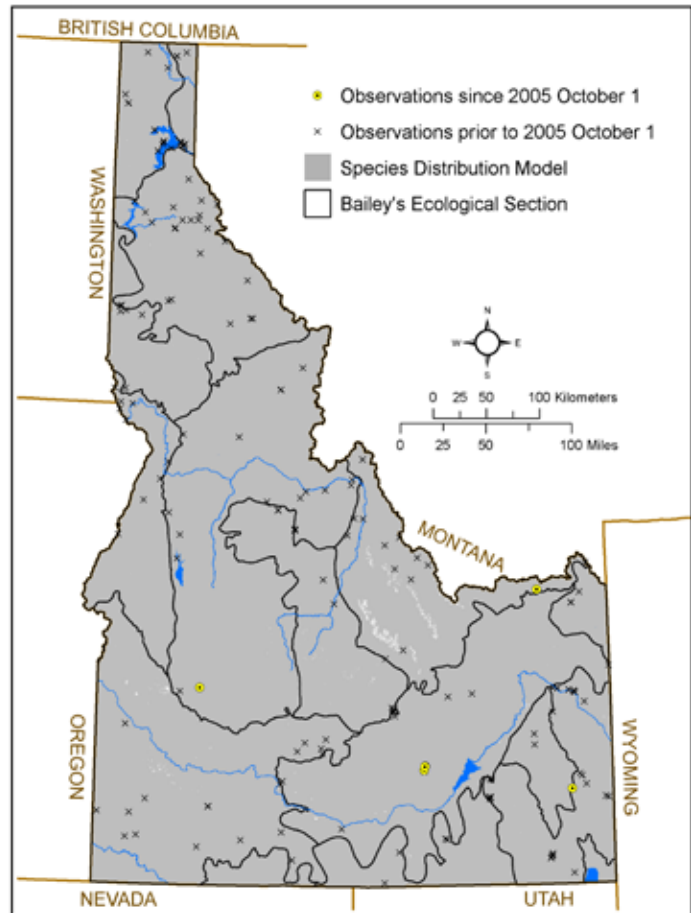
IDAPA: Protected Nongame Species

G-rank: G3

S-rank: S3

SGCN TIER: 3

Rationale: Multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 216,400 km² (~83,600 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Flathead Valley, Idaho Batholith, Northwestern Basin and Range, Okanogan Highlands, Overthrust Mountains, Owyhee Uplands, Palouse Prairie, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: Unknown

Description: Little Brown Myotis is the most studied bat in North America. It is widespread, occurring from Alaska south to central Mexico, including all of the conterminous US except for the southern Great Plains. Its distribution is limited by the availability of suitable caves and mines for hibernation, temperatures inside hibernacula, and by the length of the hibernation season. In Idaho, it is one of the most common bat species and has been detected across much of the state, including all 6 of the NWRs.

HABITAT & ECOLOGY

Environmental Specificity: Broad: Generalist—all key requirements are common.

Description: Little Brown Myotis is a small bat with glossy fur that ranges from dark, sooty brown to olive or golden brown. This species is considered catholic in its roosting and foraging habits, allowing it to occupy a variety of habitats and eat a variety of prey. Little Brown Myotis emerge from their day roosts early after sunset to forage near water, preying primarily on mosquitoes and midges. This bat uses human structures, hollow trees, rocky crevices, and occasionally caves for day roosting. Females form maternity colonies in roosts that are consistently warmer than ambient temperatures. In Idaho, known maternity colonies are usually located in human

structures. Evidence suggests this species can travel several hundreds of kilometers between summer habitat and hibernacula. Few Little Brown Myotis hibernacula have been located in Idaho.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends in Idaho have not been documented. However, the species is experiencing range-wide declines, particularly in the eastern US due to white-nose syndrome (WNS).

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat for this species is WNS, a disease caused by the fungus *Pseudogymnoascus* (formerly *Geomyces*) *destructans* (*Pd*). Since it was first discovered in New York in 2006-2007, WNS has been documented in 26 states and 5 Canadian provinces. *Pd* has been detected in 4 additional states without diagnostic evidence of WNS. Little Brown Myotis was one of the first species to be diagnosed with WNS, with mortality rates >90%. The species is predicted to be extirpated from the northeastern US by 2026. Although WNS has not yet been detected in Idaho, the potential impact of the disease demands monitoring and surveillance. Recent genetic analyses indicate lower levels of population connectivity in the western US, which may reduce the rate of disease spread. In addition, Little Brown Myotis in Idaho are subjected to intensive pest control in some areas.

CONSERVATION ACTIONS

Conservation issues and management actions are identified in the appropriate section plans. In short, the recommended conservation strategies are work with partners and stakeholders to develop a statewide strategic plan for WNS, including protocols for surveillance and response to the introduction of WNS in Idaho, assess distribution, monitor population trends through standardized surveys of hibernacula and maternity colonies, develop and disseminate educational materials, and engage local caving grottos in conservation actions.

ADDITIONAL COMMENTS

None.

Information Sources: M. Brock Fenton and R. M. R. Barclay. 1980. *Myotis Lucifugus*. Mammalian Species 142, *Myotis lucifugus*: 1-8; Barnett, J. K. 2014. Region 1 acoustic bat inventory: National Wildlife Refuges in Eastern Oregon, Eastern Washington, and Idaho. USFWS, Portland, OR; Vonhof, M. J., A. L. Russell, C. M. Miller-Butterworth. 2015. Range-wide genetic analysis of Little Brown Bat (*Myotis lucifugus*) populations: Estimating the risk of spread of white-nose syndrome. PloS One xx:xxx-xxx.; Frick et al. 2010. xxx; Kunz, T. H. and J. D. Richard, xxxx. Status review of the Little Brown Myotis (*Myotis lucifugus*) and determination that immediate listing under the Endangered Species Act is scientifically and legally warranted. Boston University, Boston, MA.; IDFG unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Wolverine

Gulo gulo

Class: Mammalia
Order: Carnivora
Family: Mustelidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Proposed

BLM: Type 2

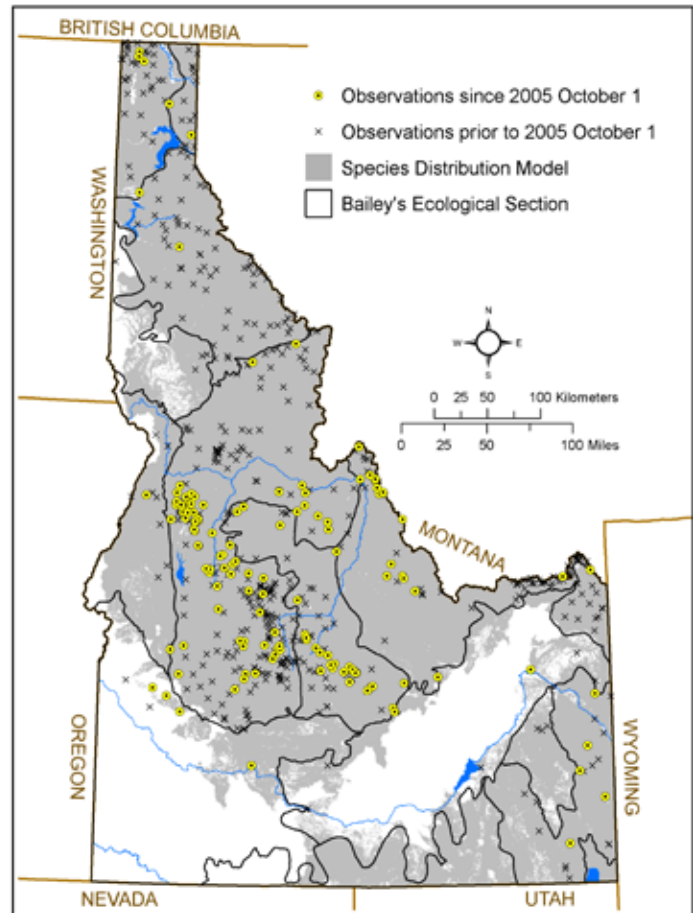
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S1

SGCN TIER: 1

Rationale: Idaho significant proportion of species range in lower 48, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 166,100 km² (~64,100 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Bitterroot Mountains, Challis Volcanics, Flathead Valley, Idaho Batholith, Okanogan Highlands, Overthrust Mountains, Yellowstone Highlands

Population Size in Idaho: 50–250

Description: The Wolverine is circumboreal in distribution, occurring in Europe, Asia, and North America. The southern-most extant population in North America occupies the Rocky Mountains of Idaho, Montana and Wyoming, and the North Cascade Range of Washington. Wolverines naturally occur at low densities and current western US population estimates range from 250-318 individuals. In Idaho, Wolverines have been reported in 34 of 44 counties and presently occur in most, if not all, historically occupied habitat in the state. Important core populations occur in the Salmon River Mountains north and east of McCall and the Sawtooth Mountains near Stanley, based on research encompassing these areas. Observations in the Gospel-Hump and Selway-Bitterroot Wilderness Areas suggest breeding populations in those areas as well, although recent studies have not been conducted.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: Wolverines inhabit remote, mountainous environments where cold, snowy conditions exist for much of the year. They require extensive tracts of land to accommodate large home ranges and long-distance movements. Wolverine habitat selection is strongly influenced by seasonal food supply, shifting from scavenging carrion in mid-elevation conifer

forests in winter to preying on small mammals and birds in higher elevation subalpine and alpine habitats in summer.

POPULATION TREND

Short-term Trend: Relatively Stable ($\leq 10\%$ change)

Long-term Trend: Unknown

Description: Current population estimates for the western US reflect the estimated population prior to European settlement, suggesting that Wolverines have reclaimed large expanses of their historical range in the contiguous US after historical lows and local extirpations in the early 1900s. While the current distribution in the state is considered similar in extent to historical levels, data on population density and productivity trends in Idaho are lacking.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: Given that Wolverine populations are not subject to hunting or trapping seasons in Idaho, the primary drivers for Wolverine populations will be threats affecting habitat suitability, breeding success, mortality, and food resources. Even with significant new information on Wolverine ecology and population dynamics in the last decade, there remain critical information gaps that limit our ability to draw conclusions on the effects of various threats including climate change, connectivity, dispersed snow sports recreation, and human infrastructure to Wolverines and their habitats.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the 2014 Management Plan for the Conservation of Wolverines in Idaho 2014–2019 and the appropriate section plans. In short, recommended strategies include producing finer-scale climate projections, researching wolverine-snow relationships, characterizing wolverine response to recreation and predicting potential overlap of wolverine and high levels of snow sports recreation.

ADDITIONAL COMMENTS

Although previously a candidate for listing as Endangered or Threatened under the ESA, the USFWS issued a decision in 2014 that listing the Wolverine was not warranted. However, the Wolverine and its habitat remain a management priority in Idaho.

Information Sources: Idaho Department of Fish and Game. 2014. Management plan for the conservation of wolverines in Idaho. Idaho Department of Fish and Game, Boise, USA.; CWCS

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Fisher

Pekania pennanti

Class: Mammalia
Order: Carnivora
Family: Mustelidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

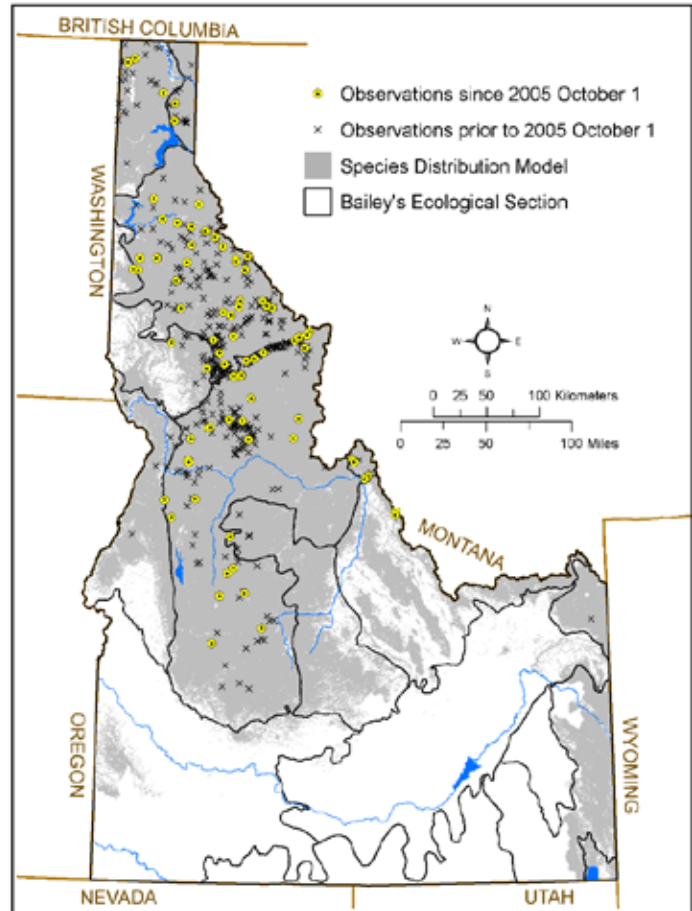
IDAPA: Furbearing Animals

G-rank: G5

S-rank: S2

SGCN TIER: 2

Rationale: Limited population, multiple stressors



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 151,700 km² (~58,600 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Challis Volcanics, Flathead Valley, Idaho Batholith, Okanogan Highlands, Palouse Prairie

Population Size in Idaho: Unknown

Description: Fisher naturally occur at low densities throughout much of Canada and the northern US, including the northern and central parts of Idaho. In Idaho, the species is currently known to be distributed from the Idaho-Canada border south at least 300 miles to the area around Cascade. There is no formal estimate of the number of Fishers in Idaho. During intensive surveys from 2010-2014, a robust population was detected in the Cabinet Mountains but only 1 male was detected in the Selkirk Mountains.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: In Idaho, the species occurs across a range of habitat types, including mesic conifer, dry conifer, and subalpine forests. Fishers are naturally found at low densities, with males and females maintaining intrasexually exclusive home ranges that average approximately 103 km² (40 mi²) and 51 km² (20 mi²), respectively. Throughout their range, Fishers are associated with forested habitats with high canopy closure, complex vertical and horizontal structure, plentiful snags, and an abundant prey base. An opportunistic predator, prey for this species includes rabbits, squirrels, and porcupines.

POPULATION TREND

Short-term Trend: Relatively Stable (<=10% change)

Long-term Trend: Unknown

Description: The current distribution of Fisher in Idaho is likely less than that of pre-Euro-American settlement (pre-1805), but distinctly more than it was in the 1920s to 1960s when the species was thought to be extirpated. Current population trends have not been documented.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: As Fishers are associated with mature forest characteristics, timber management and harvest activities may effect the species' abundance and distribution. Due to interactions among rising temperatures, drought, water stress, insect and disease occurrence and fire, indirect effects of climate change may exacerbate other threats to Fisher.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies for this species include promoting compatible timber management and harvest strategies and expanding the current knowledge of the species distribution, abundance, and habitat requirements.

ADDITIONAL COMMENTS

Fishers were petitioned for listing under the ESA in 2000 and determined by the USFWS to be warranted but precluded and placed on a candidate list in 2004. In 2011, the USFWS completed a status review of the Fisher in the Northern Rocky Mountains and concluded the species does not warrant protection under the ESA in Idaho, Montana, or Wyoming.

Information Sources: Schwartz, M. K., N. J. DeCesare, B. S. Jimenez, J. P. Copeland; W. E. Melquist. 2013. Stand- and landscape-scale selection of large trees by fishers in the Rocky Mountains of Montana and Idaho. *Forest Ecology and Management* 305:103-111; Sauder, J. D. and J. L. Rachlow. 2014. Both forest composition and configuration influence landscape-scale habitat selection by fishers (*Pekania pennanti*) in mixed coniferous forests of the Northern Rocky Mountains. *Forest Ecology and Management* 314:75-84; Olson, L. E., J. D. Sauder, N. M. Albrecht, R. S. Vinkey, S. A. Cushman and M. K. Schwartz. 2014. Modeling the effects of dispersal and patch size on predicted fisher (*Pekania [Martes] pennanti*) distribution in the US Rocky Mountains. *Biological Conservation* 169:89-98; Sauder, J. D. and J. L. Rachlow. 2015. Forest heterogeneity influences habitat selection by fishers (*Pekania pennanti*) within home ranges. *Forest Ecology and Management* 347:49-56.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Grizzly Bear

Ursus arctos

Class: Mammalia

Order: Carnivora

Family: Ursidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: Threatened

BLM: Type 1

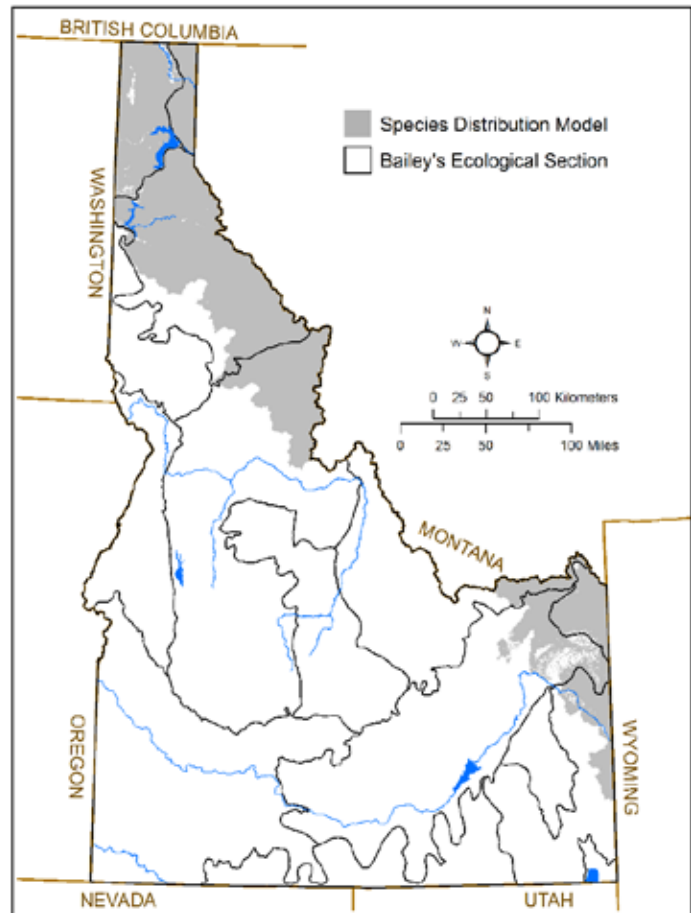
IDAPA: Big Game Animals

G-rank: G4

S-rank: S2

SGCN TIER: 1

Rationale: Listed Threatened



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 187,300 km² (~72,300 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Flathead Valley, Okanogan Highlands, Overthrust Mountains, Yellowstone Highlands

Population Size in Idaho: 80-500

Description: Grizzly Bears occur from Alaska through western Canada south to Idaho, Montana, Wyoming, and extreme northern Washington. In Idaho, there are 2 distinct populations, 1 in the north and the other in the southeast. The northern population occurs primarily in the Selkirk, Purcell, and Cabinet Mountains and extends into southern British Columbia, western Montana, and eastern Washington. The population in southeastern Idaho is centered in the Greater Yellowstone Ecosystem with individuals occurring in the Centennial Range, Henrys Lake Mountains, Shotgun Valley, Island Park, Teton Basin, and forested lands west and south of Yellowstone National Park.

HABITAT & ECOLOGY

Environmental Specificity: Broad: Generalist—all key requirements are common.

Description: This species occurs in a variety of habitats. After emergence from higher elevation dens in late April or May, individuals seek green forage, such as emergent vegetation, corms, and bulbs, in low-elevation meadows, riparian areas, and south-facing avalanche chutes. In some areas, ungulate carrion is also an important food source during the spring. Throughout late spring and early summer, individuals follow plant availability, primarily berries and nuts, to higher elevations. Both huckleberries and whitebark pine nuts are important foods where they are available.

POPULATION TREND

Short-term Trend: Relatively Stable ($\leq 10\%$ change)

Long-term Trend: Unknown

Description: The Idaho populations appear to be stable to expanding both in size and distribution.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: Primary threats to Grizzly Bear populations include habitat loss, habitat and population fragmentation, human-bear conflicts and direct mortality. In addition, changing temperature and precipitation patterns may have negative effects on foods the bears rely on (e.g., huckleberries and whitebark pine).

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies for this species include continuing conservation partnerships, reducing/preventing illegal and accidental mortalities, reducing anthropogenic attractants and other potential for human/bear conflicts, and managing access to limit conflict and disturbance within Bear Management Units.

ADDITIONAL COMMENTS

The Idaho Fish and Game Commission fully supports the State of Idaho Yellowstone Grizzly Bear Management Plan and delisting of the Yellowstone Grizzly Bear population. Yellowstone Grizzly Bears are a recovered population and have thrived under responsive cooperative management. For the northern population of Grizzly Bears, including the Cabinet-Yaak and Selkirk ecosystems, along with the North Continental Divide (located entirely in Montana), the Idaho Fish and Game Commission also believes the Grizzly Bear qualifies for delisting. These "ecosystems" are in fact extremities of a larger, connected population in Canada, and there is documented movement of bears between these areas and areas outside the core habitats as the population has grown. Future Grizzly Bear conservation in Idaho is best served with a return to state management and the local, state, tribal, and federal partnerships that fostered recovery.

Information Sources: Wakkinen, W.L., and Kasworm, W.F. 2004. Demographics and population trends of grizzly bears in the Cabinet-Yaak and Selkirk Ecosystems of British Columbia, Idaho, Montana, and Wyoming. *Ursus* 15:65-75; USFWS Grizzly Bear Recovery page; USFWS. 2011. Grizzly Bear (*Ursus arctos horribilis*) 5-Year Review: Summary and Evaluation. USFWS, Missoula, Mt; Schwartz, C.C., Gude, P.H., Landenburger, L., Haroldson, M.A., Podruzny, S. 2012. Impacts of rural development on Yellowstone wildlife: linking grizzly bear *Ursus arctos* demographics with projected residential growth. *Wildlife Biology* 18: 246-257

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Mountain Goat

Oreamnos americanus

Class: Mammalia
Order: Artiodactyla
Family: Bovidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

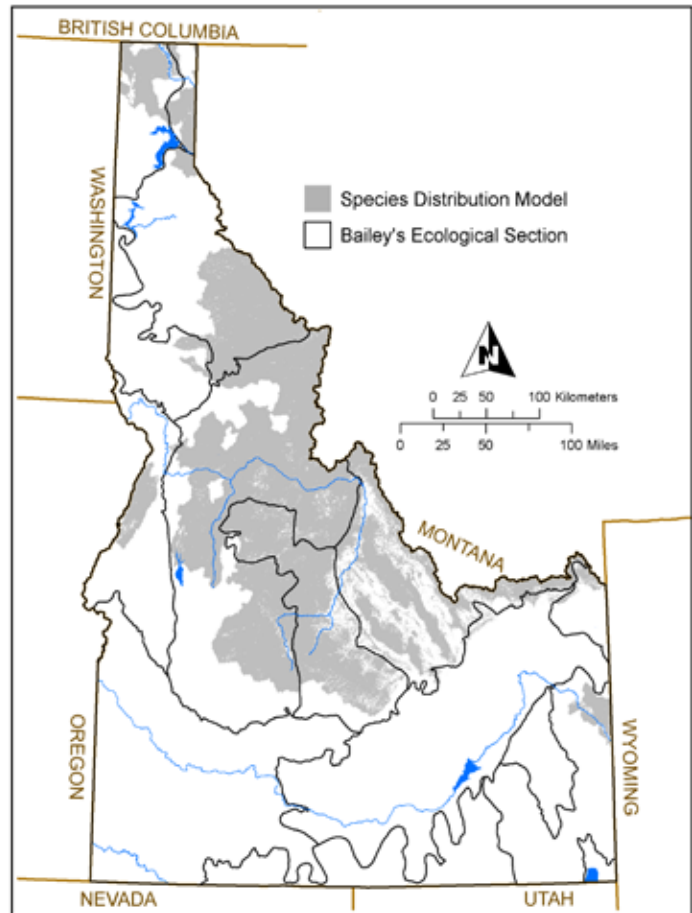
IDAPA: Big Game Animals

G-rank: G5

S-rank: S3

SGCN TIER: 3

Rationale: Small and fragmented populations, low intrinsic productivity, declines in some areas



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 71,800 km² (~27,700 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Flathead Valley, Idaho Batholith, Okanogan Highlands

Population Size in Idaho: 2500

Description: Mountain Goats occur in the rugged mountain ranges of northwestern North America, from southeastern Alaska south to Washington and Idaho. Populations have been widely introduced outside the historical range into Utah, Colorado, Oregon, South Dakota, and the Olympic Peninsula of Washington. In Idaho, populations are small and fragmented, with animals scattered throughout the central Idaho Wilderness as well as in the Panhandle, Hells Canyon, and the Snake River Range. Several reintroductions have occurred into previously occupied habitat across the state and the current Mountain Goat population is estimated at 2500 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: Mountain Goats inhabit rugged landscapes characterized by steep, rocky cliffs, talus slopes, grassy ledges, and alpine meadows. They are generalists with a diet that includes grasses, sedges, rushes, forbs, low growing shrubs, woody shrubs, conifers, mosses, and lichens depending on the season. Winter ranges are typically at lower elevation cliff complexes with south and west aspects where snow is less abundant and persistent. Migration to these wintering areas occurs along well-traveled corridors with the first heavy snowfall. Other populations may

winter in alpine habitats where wind and steep southern exposures create areas of reduced snow depth. This species has relatively low reproductive potential.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Statewide, populations appear to be declining slightly, although data are limited. Survey data indicate that while some populations are stable (e.g., Palisades), others are extremely low or have been lost from previously occupied range (e.g., Selway, southern Lemhi mountain range, southern Beaverhead mountain range).

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: Human encroachment into Mountain Goat habitat is a threat, particularly from road development, backcountry recreation, and aircraft. It is possible that disease could also be impacting populations. In addition, the effects of climate change on alpine and subalpine habitats will likely affect the conservation of this species.

CONSERVATION ACTIONS

The statewide management policy is to introduce Mountain Goats into all suitable ranges, maintain or increase all herds, and harvest under a conservative management framework. Harvest of $\leq 5\%$ of the non-kid segment of a herd is allowed if the total herd population is at least 50 individuals. Protection of the inaccessible, isolated nature of Mountain Goat habitat is recommended to minimize disturbance impacts to this species.

ADDITIONAL COMMENTS

Mountain Goats are an iconic watchable wildlife species in Idaho with some of the best viewing opportunities located in central Idaho and the Panhandle.

Information Sources: Idaho Department of Fish and Game. 2013. Mountain Goat Statewide Report. Idaho Department of Fish and Game, Boise, ID; CWCS

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Bighorn Sheep

Ovis canadensis

Class: Mammalia
Order: Artiodactyla
Family: Bovidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

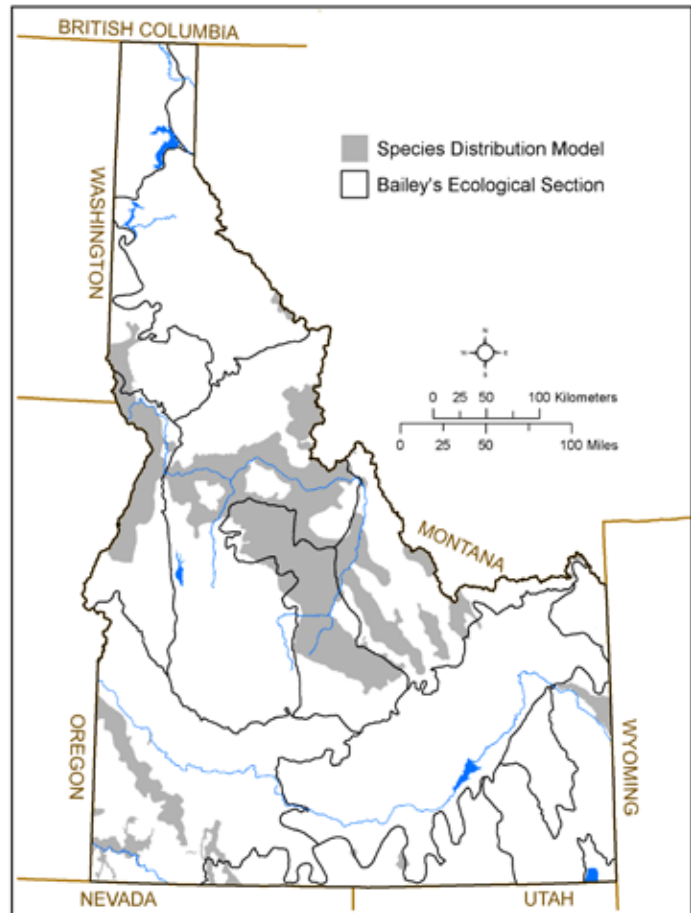
IDAPA: Big Game Animals

G-rank: G4

S-rank: S2

SGCN TIER: 2

Rationale: Widespread declines historically and over the past 25 years.



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 34,000 km² (~13,100 mi²)

Key Ecological Sections: Beaverhead Mountains, Blue Mountains, Challis Volcanics, Idaho Batholith, Northwestern Basin and Range, Owyhee Uplands

Population Size in Idaho: 2900

Description: Bighorn Sheep occur in scattered localities in mountainous terrain from southwestern Canada through the western US and into northwestern Mexico, including scattered locations from north-central Idaho south to the state boundary. Translocations have successfully expanded the distribution of Bighorn Sheep (e.g., in south-central and southwestern Idaho), but the largest populations are still native Rocky Mountain Bighorn Sheep that were never extirpated in the Salmon River drainage. Current populations statewide are estimated to be 2,900 individuals (1,000 individuals south of Interstate 84 and 1,900 individuals in the rest of the state).

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: Populations occupy rugged canyons, foothills, and mountainous areas with key habitat features including steep, rugged "escape" terrain, grasses and forbs for forage, and a limited amount of tall vegetation. Populations in dry areas require perennial water sources, such as streams and springs, during the summer. Native bunchgrasses and forbs are important components of forage. Ewes with lambs are particularly dependent on the availability of "escape" terrain to avoid predators.

POPULATION TREND

Short-term Trend: Relatively Stable ($\leq 10\%$ change)

Long-term Trend: Decline 80–90%

Description: Bighorn Sheep were widely distributed and common in Idaho until the late 1800s. Populations declined dramatically in the late 1800s and early 1900s due to a combination of unregulated hunting, competition with livestock for forage, and disease introduced by domestic sheep and goats. By 1940, all sheep south of Interstate 84 had been extirpated. As a result of restoration efforts, numbers increased in Idaho from an estimated 1000 individuals in 1920 to about 5000 in 1990. However, starting in the late 1980s and continuing through the 1990s, population declines occurred, primarily associated with disease. Bighorn Sheep in much of Idaho exist as a metapopulation and although individual populations exhibit varied trends, current statewide estimates are relatively stable.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary limiting factor for Bighorn Sheep in Idaho is disease. Bighorn Sheep are vulnerable to organisms carried by healthy domestic sheep and goats and once these organisms are transmitted there is no effective treatment in Bighorn Sheep. Other factors including predation and habitat degradation can also be important. Invasive annual grasses and noxious weeds occur throughout lower elevations of occupied habitat, which may be impacting late summer forage value. Warming temperatures and changing precipitation patterns are likely effecting Bighorn Sheep habitat indirectly, particularly through fire and invasive annual grasses.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the 2010 IDFG Bighorn Sheep Management Plan and the appropriate section plans. In short, recommended strategies include maintaining spatial and temporal separation between Bighorn Sheep and domestic sheep and goats, and collaborating with partners to develop education and outreach strategies.

ADDITIONAL COMMENTS

Regulated hunting is the cornerstone of the North American Model of Wildlife Conservation, a system that keeps wildlife a public and sustainable resource, scientifically managed by professionals. Hunter harvest for Bighorn Sheep in Idaho is restricted to $<20\%$ of Class 3-4 Rams (3/4 curl or larger) within a population management area. A conservative harvest strategy, such as this, is unlikely to have an important influence on local population dynamics.

Information Sources: Idaho Department of Fish and Game. 2010. Bighorn sheep management plan 2010. Idaho Department of Fish and Game, Boise, ID.

Map Sources: Idaho Department of Fish and Game. 2010. Bighorn sheep management plan 2010. Idaho Department of Fish and Game, Boise, ID.

Northern Bog Lemming

Synaptomys borealis

Class: Mammalia
Order: Rodentia
Family: Cricetidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: No status

BLM: No status

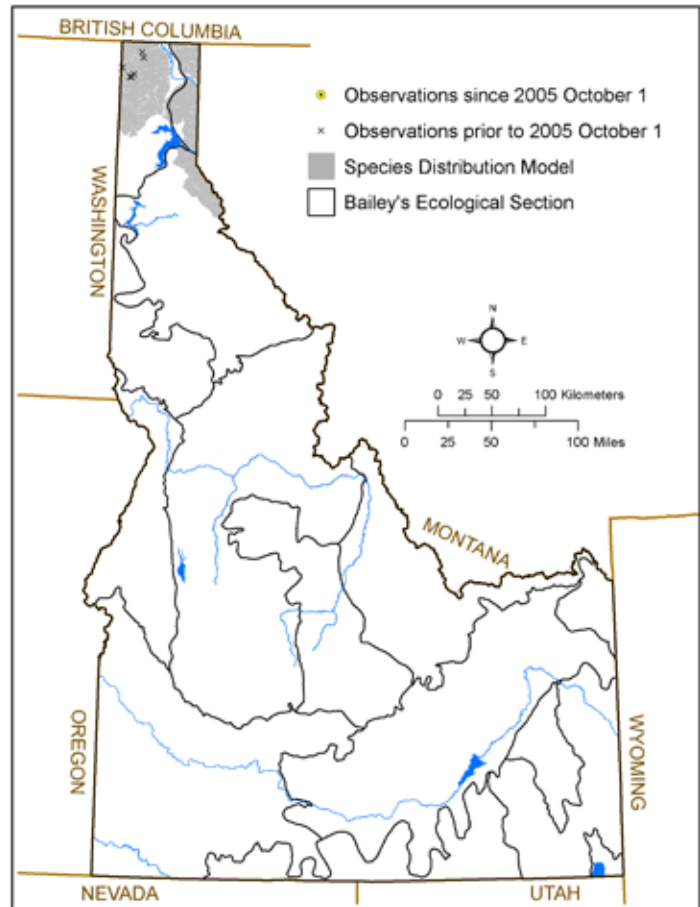
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S3

SGCN TIER: 3

Rationale: Data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 7,100 km² (~2,700 mi²)

Key Ecological Sections: Okanogan Highlands

Population Size in Idaho: Unknown

Description: The Northern Bog Lemming is generally boreal in distribution, occurring from Alaska south to Washington, Idaho, Montana, Minnesota, and the New England states. In Idaho, the species occurs in scattered localities in the extreme northwestern part of the state. Population size is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: Most populations in the Northwest have been found in peatlands, particularly sphagnum moss bogs, but also wet meadows, coniferous forests with dense mossy understory, and mossy streambanks. In Idaho, this species has been found in sphagnum bogs near stands of Engelmann spruce, lodgepole pine, and subalpine fir, and occurs most frequently in second-growth stands and sometimes in old-growth forest. Northern Bog Lemmings are herbivorous, feeding on grasses and other herbaceous vegetation. Individuals are active throughout the year.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been determined. The loss of sphagnum or other bog mats and corridors for inter-patch movement due to habitat disturbances (e.g., timber harvest, grazing, roads, recreation) and climate change are thought to affect populations.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are detailed in the Okanogan Highlands Ecological Section plan. The primary recommended strategy is to establish methods for assessing distribution and monitoring populations.

ADDITIONAL COMMENTS

The species was petitioned for listing under the ESA in 2014. In September 2015, the USFWS issued a "substantial finding" meaning that the petition provided enough information to substantiate that listing the species may be warranted. A thorough status review to determine whether to propose listing was initiated.

Information Sources: Groves, C. and E. Yensen. 1989. Rediscovery of the northern bog lemming (*Synaptomys borealis*) in Idaho. Northwest Naturalist 70:14-15; Groves, C. R. 1994. Effects of timber harvest on small mammals and amphibians in old-growth coniferous forests on the Priest Lake Ranger District, Idaho Panhandle National Forests. Unpublished report to the Priest Lake Ranger District. 188p. The Nature Conservancy, Boulder, CO; Groves, C. R., B. Butterfield, A. Lippincott, B. Csuti, and J. M. Scott. 1997. Atlas of Idaho's Wildlife: Integrateing Gap Analysis and Natural Heritage Information. Idaho Department of Fish and Game, Boise, ID 372 p.; Boggs, J. R. and S. Woods. 2004. Northern bog lemmings and rare plants in the Panhandle of Idaho. A final report submitted to Idaho Department of Fish and Game in fulfillment of grant SWG T-1-5-0403. 40p.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Dark Kangaroo Mouse

Microdipodops megacephalus

Class: Mammalia
Order: Rodentia
Family: Heteromyidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

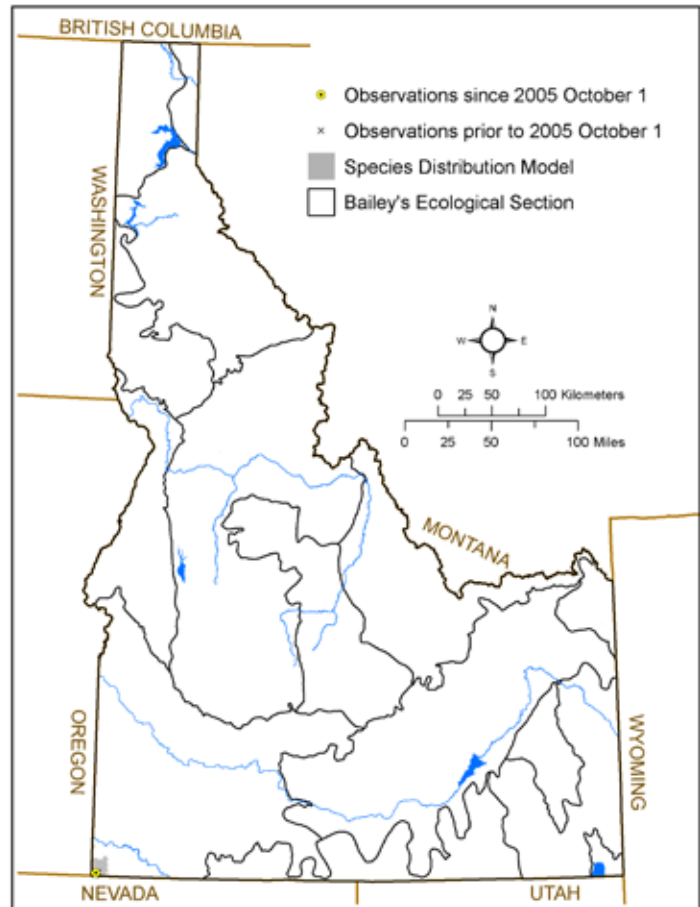
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S1

SGCN TIER: 2

Rationale: Range restricted, habitat specialist, threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: <100 km² (<~40 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Unknown

Description: The Dark Kangaroo Mouse occurs in Nevada, Utah, California, and Idaho.

Populations are discontinuous and irregularly distributed across its range. The Idaho population occurs in a portion of the Little Owyhee River drainage in the extreme southwest corner of Owyhee County.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: This species is an edaphic specialist inhabiting xeric shrub communities, including low dryland shrubland dominated by saltbush, associated with sandy substrates. The majority of habitat in the occupied range comprises sagebrush-dominated mixed shrub habitat having a sparse understory of bunchgrasses, annual forbs, and perennial forbs. A distinctive feature in this habitat is the presence of Mima mounds, small patches of relatively loose soil on the order of 100 square meters in area.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Description: The very restricted distribution makes this population vulnerable to extirpation if habitat is lost. Range fires are the greatest threat and have the potential to destroy all habitat in a single event. Currently, the habitat is largely intact within the Idaho distribution with much of it unaffected by invasive weeds. Nevertheless, cheatgrass is somewhat established and has the potential to expand.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are detailed in the Owyhee Uplands Ecological Section plan. The primary recommended strategy for habitat management is to reduce invasive weeds and minimize fire risk. In addition, ecological data needed to guide habitat management prescriptions is minimal. Additional information regarding natural history, ecology, and population status would provide stronger support for habitat management decisions.

ADDITIONAL COMMENTS

Currently the Idaho population is taxonomically identified as a subspecies, but preliminary analysis of molecular data has suggested that it and a population in north-central Nevada represent a distinct species.

Information Sources: Hafner, J. C., N. S. Upham, E. Reddington, C. W. Torres. 2008. Phylogeography of the pallid kangaroo mouse, *Microdipodops pallidus*: a sand-obligate endemic of the Great Basin, western North America. *Journal of Biogeography* 35:2102-2118; Hafner, J. C. and N. S. Upham. 2011.

Phylogeography of the dark kangaroo mouse, *Microdipodops megacephalus*: cryptic lineages and dispersal routes in North America's Great Basin. *Journal of Biogeography* 38:1077-1097; Anderson, J. J., D. S. Portnoy, J. C. Hafner, and J. E. Light. 2013. Populations at risk: conservation genetics of kangaroo mice (*Microdipodops*) of the Great Basin Desert. *Ecology and Evolution* 3:2497-2513.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Hoary Marmot

Marmota caligata

Class: Mammalia

Order: Rodentia

Family: Sciuridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

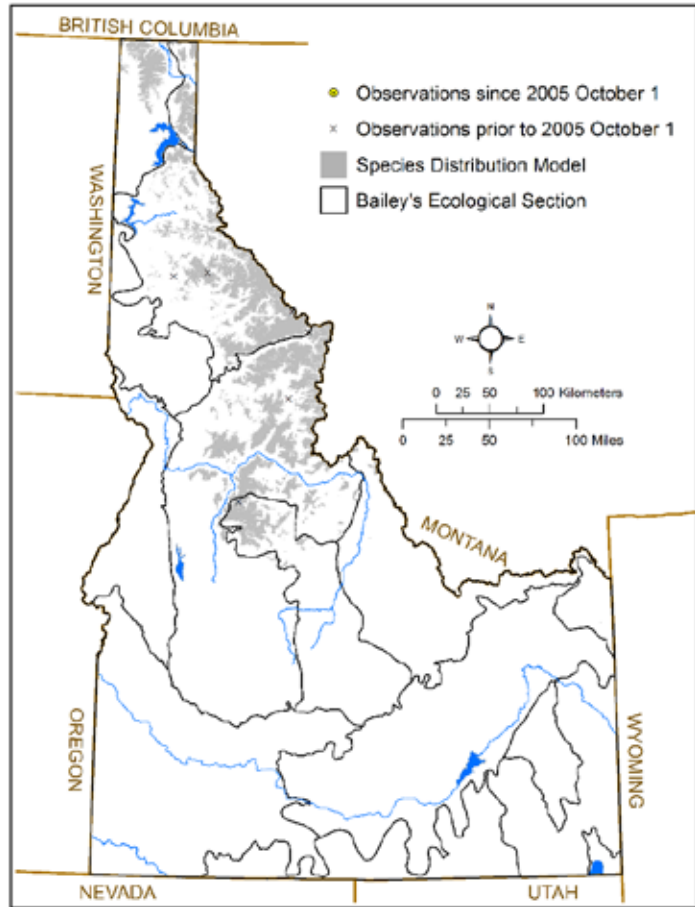
IDAPA: Unprotected Wildlife

G-rank: G5

S-rank: S4

SGCN TIER: 3

Rationale: Threats to habitat, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 48,700 km² (~18,800 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Challis Volcanics, Idaho Batholith, Okanogan Highlands

Population Size in Idaho: Unknown

Description: The Hoary Marmot is a large ground squirrel distributed in western North America from Alaska south to Washington, Idaho, and Montana. Central Idaho is the southern extent of the species range. Few occurrences have been documented in north-central Idaho, and these sightings are all from before 1955. Some records are from vouchered specimen, but some sites of occurrence documented in literature references are difficult to interpret because they are not from typical habitat and may represent misidentifications. Recent surveys in the Panhandle documented three occurrences in the Selkirk Mountains.

HABITAT & ECOLOGY

Environmental Specificity:

Description: Hoary Marmots occur at or above timberline on alpine and subalpine rockslides, boulder piles, and talus slopes surrounded by meadows. They are highly social and form relatively isolated colonies. The species is slow to mature (reproductive maturity at 3 years) and reproductive effort is low with females typically breeding in alternate years. Litters are spaced 2 to 4 years apart. Hibernation extends 8 months from September to mid-May.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this species is believed to be changing temperature and precipitation patterns. Limited to high elevation areas, Hoary Marmots are directly affected by temperature, snowpack, and timing of snow melt. In Canada, survival was negatively correlated with winter severity, especially for juveniles. Winters with low snowpack and early spring snowmelt negatively impacted survival while heavy snow cover correlated with low mortality for all age groups. In the summer, foraging is reduced at air temperatures >20°C (68°F).

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. Additional information is needed to confirm the status of Idaho populations and evaluate distribution in the context of habitat requirements, availability, future climate projections, and vulnerability. Habitat priorities include maintaining natural fire disturbance in subalpine and alpine forest systems.

ADDITIONAL COMMENTS

None.

Information Sources: Linzey, A.V. & NatureServe (Hammerson, G.) 2008. *Marmota caligata*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 14 October 2014; Braun, J. K., T. S. Eaton, Jr. and M. A. Mares. 2011. *Marmota caligata* (Rodentia: Sciuridae). *Mammalian Species* 43:155-171; Patil, V. P. 2010. The interactive effects of climate, social structure, and life history on the population dynamics of hoary marmots (*Marmota caligata*). MS Thesis, University of Alberta, Edmonton, Canada; Patil, V. P., S. F. Morrison, T. J. Karels, and D. S. Hik. 2013. Winter weather versus group thermoregulation: what determines survival in hibernating mammals? *Oecologia* 173:139-149.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Northern Idaho Ground Squirrel

Urocitellus brunneus

Class: Mammalia
Order: Rodentia
Family: Sciuridae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: Threatened

BLM: Type 1

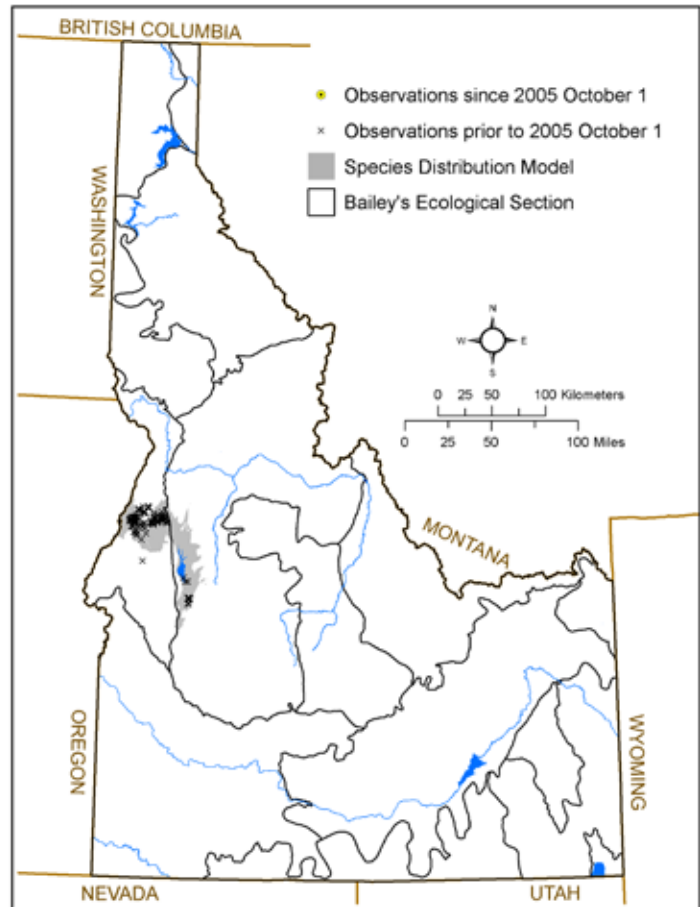
IDAPA: Threatened Species

G-rank: G2

S-rank: S2

SGCN TIER: 1

Rationale: Low population size, endemic, range restricted, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 4,600 km² (~1,800 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: 1,554-2,403

Description: The Northern Idaho Ground Squirrel is a rare endemic mammal that occurs at <60 sites in Adams and Valley Counties in west-central Idaho. Patchily distributed, the species occupies only ~2,300 ha (5,683 acres) of the mapped range extent and currently all but 1 extant colonies occur in the Blue Mountains Ecological Section. Colonies are distributed in the Bear Creek, Lick Creek, Lost Creek, Weiser River, and Mud Creek drainages. The modeled population size estimate using distance-based line-transect surveys in 2012 was 1,554-2,403 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: This species inhabits dry montane meadows surrounded by ponderosa pine or Douglas-fir forest. Most sites have a mixture of shallow and deeper soils to accommodate nest burrows. Individuals consume a wide variety of forbs and grasses, foraging on green vegetation after emergence and increasing seed intake prior to hibernation.

POPULATION TREND

Short-term Trend: Increase 10–25%

Long-term Trend: Decline 50–70%

Description: Recent population trends are improving. Standardized survey methods from 2005-2010 show population estimates increasing from 940 to 1600 individuals and the number of

known occupied sites increasing from 38 to 56. Over the longer term, the species has declined from the 1980s estimate of 5,000 to the 2013 estimate of <2,500.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Description: Primary threats for this species include fire suppression, private land development, and proposed reservoir enlargement. There is also evidence that bubonic plague may be adversely affecting populations; research is ongoing to confirm or disprove this hypothesis. In addition, several disturbances occur throughout the species range, including roads and human recreation, but the effects are largely unknown.

CONSERVATION ACTIONS

Conservation issues and management actions for this species are detailed in the USFWS Recovery Plan and address population size, spatial distribution, security, and habitat restoration needed to sustain and expand populations.

ADDITIONAL COMMENTS

The Northern Idaho Ground Squirrel was listed as Threatened under the ESA in 2000, with a Recovery Plan published in 2003.

Information Sources: Yensen, E. 1985. Taxonomy, distribution, and population status of the Idaho ground squirrel, *Spermophilus brunneus*. Department of Biology, Albertson College of Idaho, Caldwell, ID 41 p.; Yensen, E. 1991. Taxonomy and distribution of the Idaho Ground Squirrel, *Spermophilus brunneus*. Journal of Mammalogy 72:583-600; US Fish and Wildlife Service. 2003. Recovery Plan for the Northern Idaho Ground Squirrel (*Spermophilus brunneus brunneus*). Region 1, US Fish and Wildlife Service, Portland OR.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.

Columbia Plateau Ground Squirrel

Urocitellus canus

Class: Mammalia
Order: Rodentia
Family: Sciuridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

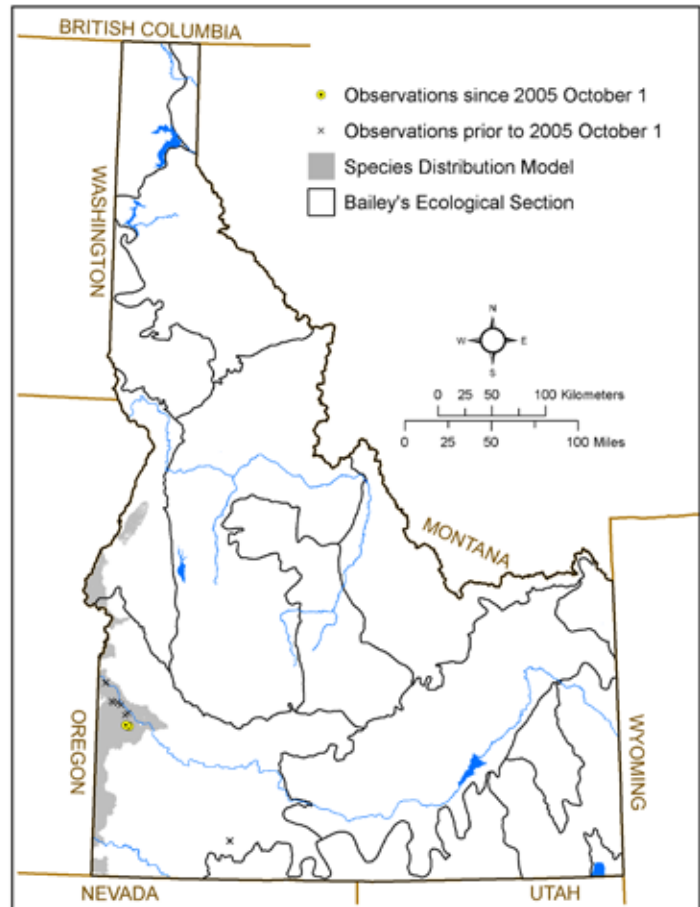
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S1

SGCN TIER: 2

Rationale: Range restricted, low population size in decline, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,500 km² (~1,000 mi²)

Key Ecological Sections: Northwestern Basin and Range, Owyhee Uplands

Population Size in Idaho: 250-500

Description: The Columbia Plateau Ground Squirrel occurs south of the Snake River and west of Reynolds Creek, but detailed information on the current distribution and status of the species is uncertain. Distinct range limits of the Columbia Plateau and Great Basin Ground Squirrels are not well demonstrated, and thus hybridization could occur in contact zones. As of January 2014, extirpation from Idaho remains a possibility, but extant colonies have been reported in the Owyhee foothills in the Reynolds Creek vicinity and population size is estimated at 250-500 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: This species occurs primarily in big sagebrush-western juniper habitats and grasslands, but also pastures, fence lines, and other agricultural lands.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Decline 80–90%

Description: Populations have been declining, but to what extent is unknown.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threat for this species is thought to be habitat loss and degradation due to conversion of natural habitat to agriculture, overgrazing, invasive plants, wildfire, and natural gas development. In addition, some local populations are affected by competition with Belding's Ground Squirrel.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are detailed in the appropriate section plans. In short, recommended strategies include determining the identity of ground squirrel populations in northwest Owyhee County and characterizing the distribution and status of Columbia Ground Squirrel populations.

ADDITIONAL COMMENTS

None.

Information Sources: Cole, F. R. and D. E. Wilson. 2009. *Urocitellus canus* (Rodentia: Sciuridae). Mammalian Species 834:1-8; Jensen, E., and P. W. Sherman. 2003. Ground-dwelling squirrels of the Pacific Northwest. Boise, ID 28p.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model modified by IDFG experts.

DRAFT DO NOT DISTRIBUTE

Wyoming Ground Squirrel [Southwest Idaho popn.]

Urocitellus elegans nevadensis

Class: Mammalia
Order: Rodentia
Family: Sciuridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

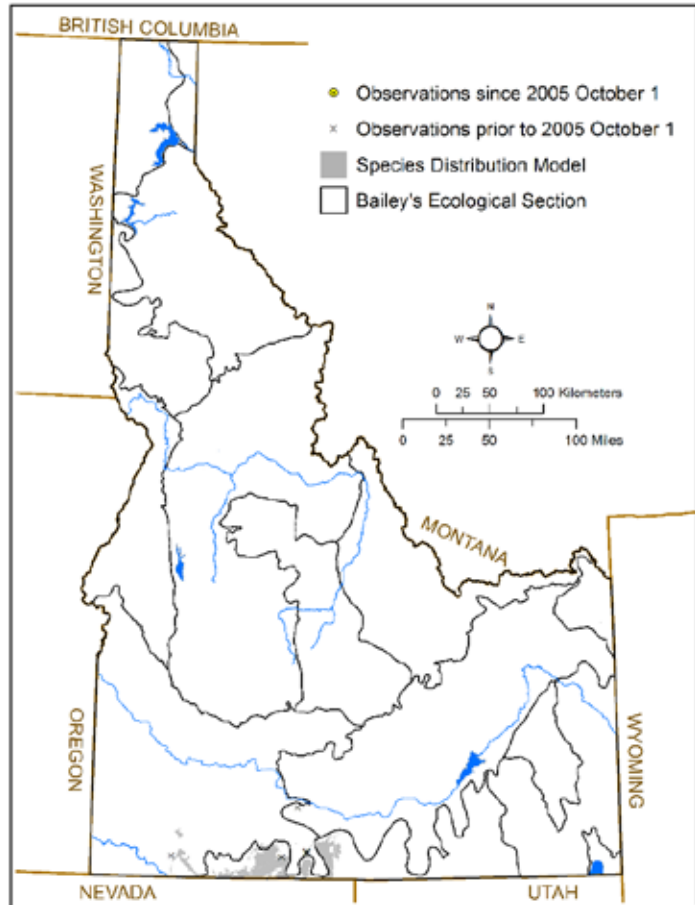
IDAPA: Protected Nongame Species

G-rank: G5T4

S-rank: S3

SGCN TIER: 2

Rationale: Range restricted, isolated and disjunct



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 38,300 km² (~14,800 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Unknown

Description: This subspecies of Wyoming Ground Squirrel is restricted to southwest Idaho and northern Nevada. While its distribution is poorly documented in Idaho, it is widely disjunct from other subspecies in the mountains of central Idaho. Population size is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: The Wyoming Ground Squirrel occupies shrubland and grassland habitats across its range, often in relatively mesic or productive sites, including mid- to high-elevation montane meadows and valley bottoms. The southwestern Idaho subspecies occurs primarily in sagebrush steppe.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: Populations are likely affected by widespread degradation of sagebrush habitat from invasive weeds and altered fire cycles.

CONSERVATION ACTIONS

The primary recommended conservation action for this species is to develop and implement surveys intended to characterize its distribution and status in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Yensen 2001

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed December 14, 2015; USGS Gap Analysis Program predicted year-round distribution model modified by IDFG experts to reflect only the southwest population.

DRAFT DO NOT Distribute

Southern Idaho Ground Squirrel

Urocitellus endemicus

Class: Mammalia
Order: Rodentia
Family: Sciuridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

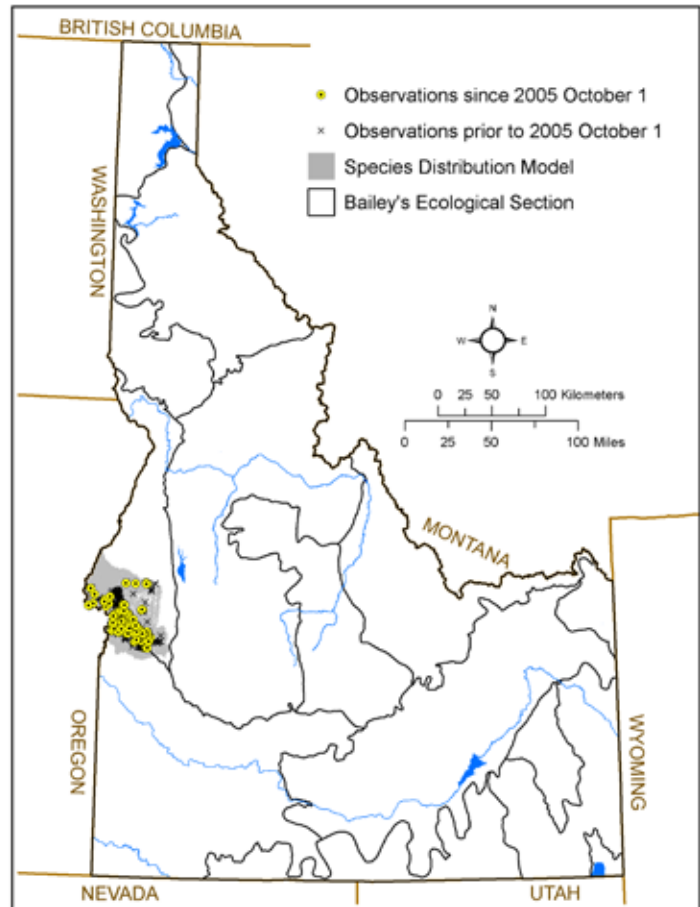
IDAPA: Protected Nongame Species

G-rank: G2T2

S-rank: S2

SGCN TIER: 1

Rationale: Low population size, endemic, range restricted, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,400 km² (~900 mi²)

Key Ecological Sections: Blue Mountains, Owyhee Uplands

Population Size in Idaho: 2,000-4,500

Description: The Southern Idaho Ground Squirrel is endemic to approximately 240,000 ha (593,053 acres) in Gem, Payette, Washington, and Adams Counties. Currently, the distribution is patchy and concentrated in the foothills north of the Payette River from Weiser east to Squaw Butte. Populations have been extirpated or are exceptionally small in the northern portions of the former range. Some populations (e.g., near Emmett and Payette) occur in proximity to anthropogenic landscapes and can be damaging to private property, including golf courses, cemeteries, and agricultural crops. Recent population size has been estimated to be 2,000-4,500 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Moderate: Generalist—some key requirements are scarce.

Description: This species occurs in a mosaic of shrubland and grassland habitats. Native cover is preferred, but nonnative alfalfa fields, haystacks, and fence lines may enhance their survival. Individuals hibernate for 7-8 months per year and, depending on winter conditions, are active between January and June.

POPULATION TREND

Short-term Trend: Relatively Stable (<=10% change)

Long-term Trend: Decline 80–90%

Description: Investigations into the status of this species began in the 1980s when populations were suspected to be declining, but not necessarily imperiled. During the late 1990s, however, resurveys indicated a dramatic decline with population estimates declining from 40,000 to 4,000 individuals between 1984 and 2000. Recent estimates indicate the population has stabilized.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to Southern Idaho Ground Squirrel populations is habitat degradation due to invasive plants, wildfire, and loss of soil moisture. In addition, competition and displacement by Columbian Ground Squirrels and disease (plague) may affect some populations.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are detailed in the appropriate section plans. In short, recommended strategies include evaluating the incidence of plague, managing habitat, and working with private land owners to minimize economic impacts and to ensure long-term productivity.

ADDITIONAL COMMENTS

The Southern Idaho Ground Squirrel was designated as a candidate under the ESA in 2001 and was removed from the list in October 2015.

Information Sources: Yensen, E. 1999. Population survey of the southern Idaho ground squirrel, *Spermophilus brunneus endemicus*. A report for US Fish and Wildlife Service, Snake River Basin Office. 16p.; Yensen, E. 2000. Additional surveys for southern Idaho ground squirrels, *Spermophilus brunneus endemicus*. A report for US Fish and Wildlife Service, Snake River Basin Office. 9p.; Yensen, E. 2001. Population estimate for the southern Idaho ground squirrel (*Spermophilus brunneus endemicus*). A report for the US Fish and Wildlife Service, Snake River Basin Office. 20p.; Lohr, K., E. Yensen, J. C. Munger, and S. J. Novak. 2013. Relationships between habitat characteristics and densities of southern Idaho ground squirrels. *J. Wildlife Management* 77:983-993; Barrett, J. 2005. Population viability of the southern Idaho ground squirrel: effects of an altered landscape. MS Thesis, Boise State University, Boise, ID; USFWS. 2014. Review of Native Species That Are Candidates for Listing as Endangered or Threatened. *Federal Register* 79(234):72450.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed August 14, 2015; USGS Gap Analysis Program predicted year-round distribution model.