

Appendix F: Species Conservation Status Assessments

Pacific Lamprey

Entosphenus tridentatus

Class: Petromyzontida

Order: Petromyzontiformes

Family: Petromyzontidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

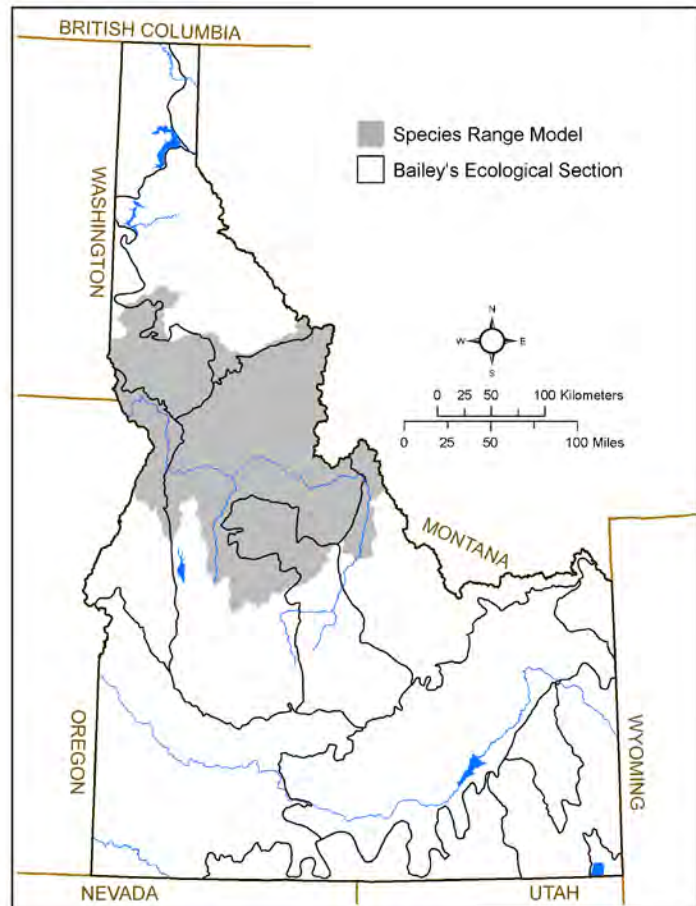
IDAPA: Endangered Species

G-rank: G4

S-rank: S1

SGCN TIER: 1

Rationale: Low population size, documented significant decline, IDAPA Endangered Species



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 43,900 km² (~16,900 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Challis Volcanics, Idaho Batholith, Palouse Prairie

Population Size in Idaho: 50–250

Description: Pacific Lamprey were historically widespread along the West Coast of the US from Baja California to the Aleutian Islands, but populations have declined in abundance and distribution throughout California, Oregon, Washington, and Idaho. In Idaho, the species was originally distributed in all drainages of the Snake River below Shoshone Falls, except the Palouse River. It is now restricted to the Clearwater and Salmon River drainages and tributaries of the Snake River below Hells Canyon Dam. Once an abundant species used by native peoples for food, Pacific Lamprey now number less than a few hundred.

HABITAT & ECOLOGY

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

Description: In spring, adults spawn at the upstream end of riffle habitat in small, gravel-bottomed streams, and die within days. The larvae or ammocoetes hatch, drift downstream and burrow into silt or sand in areas having low-velocity current where they live for 5 or more years as filter feeders. Ammocoetes transform into macrothemia (juvenile phase) over several months, developing eyes and teeth, before beginning their migration downstream to the ocean in winter and early spring. They spend 1–3 years in the ocean as a fish parasite before beginning upstream migration into freshwater in late spring. They overwinter in freshwater until they spawn the following spring.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Decline >90%

Description: Counts of adults returning to Idaho and eastern Oregon at Ice Harbor Dam in the lower Snake River decreased from >40,000 to <1,000 fish after the dam was built. Since 1998, there have not been more than 300 adults counted at Lower Granite Dam, and most years less than 100 adults.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary factor affecting the persistence of Pacific Lamprey in Idaho is the design of adult fish passage facilities at hydroelectric projects in the Columbia and Snake Rivers.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are described in several documents including the IDFG Fisheries Management Plan 2013–2018, Northwest Power and Conservation Council's Columbia River Basin Fish and Wildlife Program 2014, and the Pacific Lamprey Assessment and Template for Conservation Measures.

ADDITIONAL COMMENTS

Pacific Lamprey were petitioned for listing under the ESA in 2003. In 2004, the FWS found that the petition did not provide the required information to indicate that listing the species may be warranted. Idaho became a signatory to the Pacific Lamprey Conservation Initiative in 2012. The Initiative was developed to promote implementation of conservation measures for Pacific Lamprey in Alaska, Washington, Oregon, Idaho and California.

Information Sources: Cochnauer T, Claire C. 2009. Evaluate status of Pacific lamprey in the Clearwater and Salmon River drainages, Idaho. Draft Conservation Plan. Boise (ID): Idaho Department of Fish and Game.; FWS. 2012. Conservation Agreement for Pacific Lamprey (*Entosphenus tridentatus*) in the States of Alaska, Washington, Oregon, Idaho, and California. Portland (OR): US Fish and Wildlife Service.; IDFG. 2013. Fisheries Management Plan 2013–2018. Boise (ID): Idaho Department of Fish and Game.; IDFG. 2011. The status of Pacific lamprey (*Entosphenus tridentatus*) in Idaho. Boise (ID): Idaho Department of Fish and Game.; Luzier CW, Schaller HA, Brostrom JK, Cook-Tabor C, Goodman DH, Nelle RD, Ostrand K, Streif B. 2011. Pacific Lamprey (*Entosphenus tridentatus*) Assessment and Template for Conservation Measures. Portland (OR): US Fish and Wildlife Service.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

White Sturgeon (Kootenai River DPS)

Acipenser transmontanus pop. 1

Class: Actinopterygii

Order: Acipenseriformes

Family: Acipenseridae

CONSERVATION STATUS & CLASSIFICATION

ESA: Endangered

USFS:

Region 1: No status

Region 4: No status

BLM: Type 1

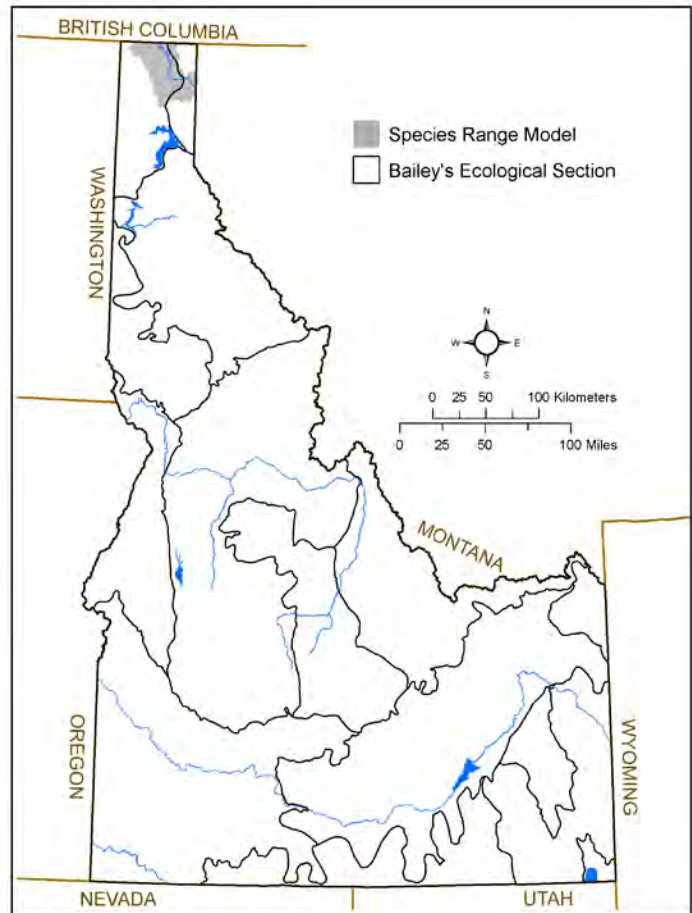
IDAPA: Endangered Species

G-rank: G4T1Q

S-rank: S1

SGCN TIER: 1

Rationale: Limited range, multiple threats, ESA listed



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,200 km² (~800 mi²)

Key Ecological Sections: Flathead Valley, Okanogan Highlands

Population Size in Idaho: 250–1,000

Description: The White Sturgeon occurs in large rivers in the Pacific Northwest from central California to southwest Alaska. The Kootenai River population has been geologically isolated from other populations since the last ice age. The population ranges from Kootenay Lake in British Columbia up the Kootenai River through Idaho to Kootenai Falls in Montana.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The White Sturgeon is the largest freshwater fish in North America with the largest verified record being a 630 kg (1,387 lb) fish caught during 1897. Large adults generally occur in the larger, deeper pools of main river channels. Juveniles and subadults seasonally occupy sloughs off the main channel. In the Columbia River, young-of-the-year fish occur in 12-27 m (39-88 ft) of water. Individuals reach sexual maturity at ages 9-16 years, corresponding to lengths of about 1.2 m (4 ft) for males and 1.8 m (6 ft) for females. Females do not spawn annually but repeat spawning at intervals of 3-11 years, depending on food availability. Spawning occurs during the spring at water temperatures of 8–19 °C (48–63 °F), normally in areas with fast current, such as rapids or areas with hard substrates. The White Sturgeon is primarily a benthic feeder. Juveniles feed opportunistically on amphipods, clams, insects, and fish eggs while larger individuals also eat fish, crayfish, and other large items.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Decline 70–80%

Description: The Kootenai River White Sturgeon population has been in general decline since the mid-1960s. In 1997, the population size was estimated at 2,439 fish, with most individuals greater than 25 years of age, and the wild population was augmented with 2,283 hatchery-produced juveniles. By 2011, only an estimated 990 adults remained, with no significant recruitment of juveniles since at least 1974. The current population now consists of the remnant wild population along with hatchery-produced juveniles that are estimated to number around 12,000–15,000. Juveniles have been produced from captured wild broodstock at the Kootenai Tribal Hatchery since 1992.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this population is habitat loss and degradation due to the construction of Libby Dam in 1972 and resulting altered river flow patterns and reduced river productivity. The development of agricultural lands has resulted in a loss of habitat for juvenile fish; dikes constructed along the river channel to prevent flooding eliminated slough backwaters, which has caused a decline in juvenile recruitment. Excessive levels of pollutants in the 1950s and 1960s may have also reduced reproduction.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are described in the appropriate section plans. In short, recommended strategies to restore habitat required for natural reproduction include adopting operational guidelines for Libby Dam that provide suitable flows and temperatures for successful recruitment, coordinating planning and implementation of annual flow proposals among involved agencies, monitoring the effects of flow augmentation, and continuing to refine a genetically-sound White Sturgeon conservation aquaculture program.

ADDITIONAL COMMENTS

This population of White Sturgeon was listed as Endangered under the ESA in 1994.

Information Sources: Wydoski RS, Whitney RR. 2003. Inland Fishes of Washington. Seattle (WA): University of Washington Press.; FWS. 1999. Recovery Plan for the White Sturgeon (*Acipenser transmontanus*): Kootenai River Population. Portland (OR): US Fish and Wildlife Service.; Paragamian VL. 2012. Kootenai River white sturgeon: synthesis of two decades of research. *Endangered Species Research* 17:157–167; Beamesderfer R, Garrison T, Anders P. 2014. Abundance and survival of the remnant Kootenai River White Sturgeon population. Moscow (ID): Cramer Fish Sciences.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Northern Leatherside Chub

Lepidomeda copei

Class: Actinopterygii

Order: Cypriniformes

Family: Cyprinidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

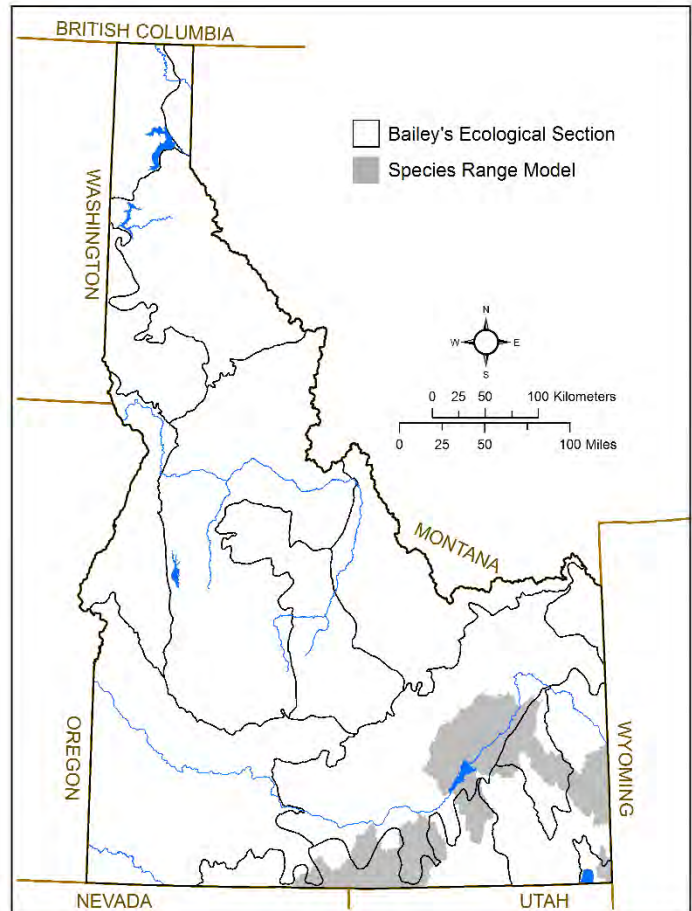
IDAPA: Protected Nongame Species

G-rank: G3

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, limited range, disjunct populations, IUCN Near Threatened



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,600 km² (~2,500 mi²)

Key Ecological Sections: Northwestern Basin and Range, Overthrust Mountains

Population Size in Idaho: Unknown

Description: The historical range of Northern Leatherside Chub encompassed portions of the Bear River drainage at the northeastern margins of the Bonneville Basin in Utah, Idaho, and Wyoming, and in tributaries of the Snake River in Idaho, including Goose Creek and the Wood, Raft, and Salt rivers. Populations persist in the Goose Creek drainage in Cassia County and in the upper Salt River tributaries along the Idaho–Wyoming border. The size of the disjunct populations in Idaho is highly variable but tend to number about 6 to 8 individuals per 100 m (328 ft) of stream. It is difficult to survey for this fish due to its extremely patchy distribution and often low abundance.

HABITAT & ECOLOGY

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

Description: This small fish inhabits desert streams of the Bonneville Basin and Snake River drainages in elevation ranges from 1,250 to 2,750 m (4,100–9,000 ft). The temperature range used by this species has been reported to be 10–23 °C (50–73 °F), but optimal conditions may be somewhat narrower, perhaps about 15–20 °C (60–68 °F). Although typically associated with low-velocity and intermediate to deep water habitats, particularly when overhead cover is present, this species also uses a variety of water depths and flows depending on other structural stream features. They have relatively broad diets, eating items in both the stream drift and the substrate,

Appendix F. Species Conservation Status Assessments. Continued.

with insects comprising a large portion of the diet. They can live up to 8 years, reach sexual maturity at age 2 (or >50 mm in length), and spawn at various times depending on temperature.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Decline 30–50%

Description: Population trends in Idaho have not been documented. Rangelwide the species is now limited to five of the eight documented historical subbasins. Targeted surveys by IDFG staff during the 1990s failed to find the species in the Little Wood River drainage. Between 1999 and 2005, comprehensive surveys for nongame fish across southern Idaho by IDFG detected the species in 4% of sampled reaches within the known or probable distribution. Recent (2010–2011) targeted surveys successfully located Northern Leatherside Chub in 10 selected streams. In some populations, a number of age classes have been observed, suggesting that reproduction and juvenile recruitment is being maintained. However, other populations appear to have been extirpated, suggesting an overall decline in population size.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threats to this species are the fragmentation and isolation of populations and the introduction of nonnative fish predators (e.g., Brown Trout), which affects Northern Leatherside Chub both directly (e.g., prey) and indirectly (e.g., by acting as a dispersal barrier). In addition, habitat degradation and loss from water development (e.g., diversions and dams) and stream alterations (e.g., channelization, barriers, etc.) may contribute to declines.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies for this species include monitoring the population status and trends, working with conservation partners to address habitat complexity, water quality, and quantity, and managing nonnative invasive species.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. In 2011, the FWS completed a status review and concluded it does not warrant protection.

Information Sources: Blakney JR, Loxterman JL, Keeley ER. 2014. Range-wide comparisons of northern leatherside chub populations reveal historical and contemporary patterns of genetic variation. *Conservation Genetics* 15:757-770.; FWS. 2011. Endangered and Threatened Wildlife and Plants: 12-Month finding on a petition to list Northern Leatherside Chub as Endangered or Threatened. *Federal Register* 76:63444-63478.; Meyer KA, Lamansky JA Jr, Schill DJ, Zaroban DW. 2013. Nongame fish species distribution and habitat associations in the Snake River Basin of southern Idaho. *Western North American Naturalist* 73: 20-34.; Keeley ER, Blakney JR, Loxterman JL. 2012. Distribution, abundance, and genetic population structure of Northern Leatherside Chub in the Snake River Basin of Idaho. Pocatello (ID): Idaho State University.; Blakney JR. 2012. historical connectivity and contemporary isolation: Population genetic structure of a rare high-desert minnow, the Northern Leatherside Chub (*Lepidomeda copeii*). MS Thesis. Pocatello (ID): Idaho State University.; Dauwalter DC, Wenger SJ, Gardner P. 2014. The role of complexity in habitat use and selection by stream fishes in a Snake River basin tributary. *Transactions of the American Fisheries Society* 143:1177-1187.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].; Keeley ER, Blakney JR, Loxterman JL. 2012. Distribution, abundance, and genetic population structure of Northern Leatherside Chub in the Snake River Basin of Idaho. Pocatello (ID): Idaho State University.

Steelhead (Snake River Basin DPS)

Oncorhynchus mykiss pop. 13

Class: Actinopterygii
Order: Salmoniformes
Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: Threatened

BLM: Type 1

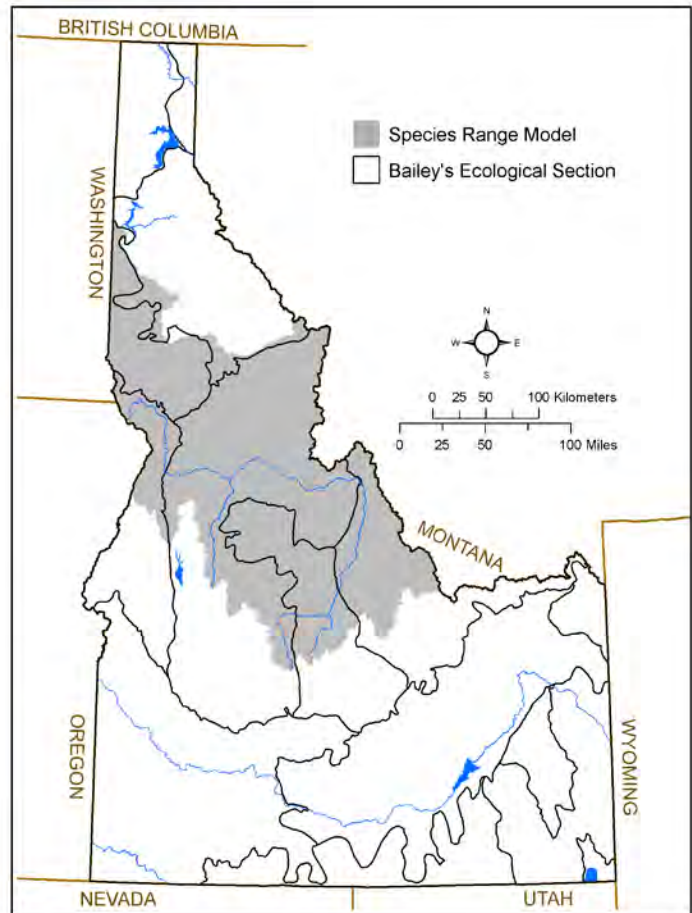
IDAPA: Game Fish, Threatened Species

G-rank: G5T2T3Q

S-rank: S2S3

SGCN TIER: 1

Rationale: Multiple threats, ESA listed



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 57,600 km² (~22,200 mi²)

Key Ecological Sections: Beaverhead Mountains, Blue Mountains, Challis Volcanics, Idaho Batholith, Palouse Prairie

Population Size in Idaho: 10,000–100,000

Description: Steelhead are native Rainbow/Redband Trout that migrate to the ocean as juvenile fish and return to fresh water as adults to spawn. Historically, Steelhead had access to most of the Clearwater, Salmon, Weiser, Payette, Boise, Owyhee, Bruneau and Salmon Falls Creek drainages in Idaho. However, populations using the tributaries above Hells Canyon Dam were eliminated with the construction of the Hells Canyon complex in the 1950s. Access to the North Fork Clearwater River is blocked by Dworshak Dam. Currently, wild and hatchery Steelhead are found in the Snake River below Hells Canyon Dam, Clearwater, and Salmon River drainages.

HABITAT & ECOLOGY

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

Description: Steelhead spawn and rear in stream and small river habitat. Successful egg development and fry emergence depends on clean gravels. Most Steelhead returning to Idaho cross Lower Granite Dam during August–October and over winter in main-stem rivers before spawning the next spring. Spawning occurs in March–May, with fry emergence in mid-summer. Depending on elevation, temperature and stream productivity, Steelhead juveniles will rear in streams for 1–7 years (commonly 2–3) and attain a size of 15–23 cm (6–9 in) before migrating to the ocean. Steelhead remain in the ocean for 1–3 years (commonly 1–2) before returning to natal streams to spawn. Steelhead can return to the ocean and become repeat spawners,

Appendix F. Species Conservation Status Assessments. Continued.

however it is rare for this to occur in Idaho. Diets of juvenile steelhead consist primarily of aquatic and terrestrial insects and other invertebrates. They switch to primarily fish and squid shortly after entering the ocean.

POPULATION TREND

Short-term Trend: Increase 10–25%

Long-term Trend: Decline 80–90%

Description: Average abundance has increased from extremely low levels through much of the 1990s, but there can be large fluctuations between yearly returning migrations. Current 30-year trend data show an average increase of 14% but the 95% confidence interval is 4%-23%.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The construction of dams on the main stem Snake and Columbia Rivers has reduced survival of juveniles and adults migrating to and from the ocean as they pass through dams and impoundments. Additional effects from dams have resulted in altered hydrographs and water temperatures that affect the run timing of juveniles and adults. Diversions in spawning and rearing streams have removed water, resulting in direct mortality, loss of habitat and migration barriers. Land management activities in adjacent uplands and intentional instream alterations have led to the loss of riparian cover, increased sedimentation, a reduction in woody debris, an increase in stream temperature, and artificial barriers to passage. The addition of hatchery programs to mitigate for lost habitat and survival of fish has introduced genetic concerns about effects to some wild stocks. Declining water quality from increasing development in and along some river and tributary streams can impact fish populations. Climate change may exacerbate habitat threats by altering hydrologic regimes (peak flows, low flows) and stream temperatures, though the effects will vary depending on watershed characteristics. Deleterious climate effects will most likely occur at lower elevations and in altered habitats. Fish growth may improve in high-elevation reaches.

CONSERVATION ACTIONS

Conservation issues and management actions for Steelhead are described in the IDFG Fisheries Management Plan 2013-2018. In short, recommended strategies are to continue to work with federal, tribal, and state agencies and hydropower managers in developing recovery plans and actions to mitigate passage, habitat loss, hatchery and harvest issues, and altered hydrographs. In addition, continue to develop watershed agreements with private landowners and state and federal agencies as needed to address upstream habitat and flow issues to improve life cycle survival.

ADDITIONAL COMMENTS

The Snake River Steelhead population was listed as Threatened under ESA in 1997.

Information Sources: Isaak DJ, Luce CH, Rieman BE, Nagel DE, Peterson EE, Horan DL, Parkes S, Chandler GL. 2010. Effects of climate change and wildfire on stream temperatures and salmonid thermal habitat in a mountain river network. *Ecological Applications* 20:1350–1371; IDFG. 2013. Fisheries Management Plan 2013–2018. Boise (ID): Idaho Department of Fish and Game.; Copeland T, Idaho Department of Fish and Game, pers. comm.; Behnke RJ. 2002. Trout and Salmon of North America. New York (NY): The Free Press.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Sockeye Salmon (Snake River ESU)

Oncorhynchus nerka pop. 1

Class: Actinopterygii
Order: Salmoniformes
Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Endangered

USFS:

Region 1: No status

Region 4: Endangered

BLM: Type 1

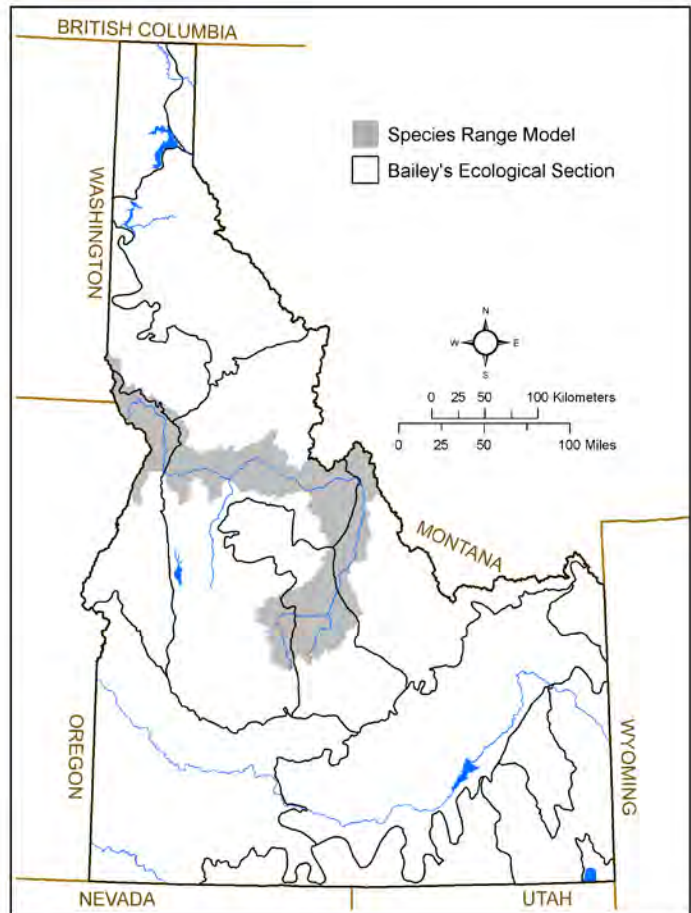
IDAPA: Game Fish, Endangered Species

G-rank: G5T1Q

S-rank: S1

SGCN TIER: 1

Rationale: Multiple threats, limited range,
ESA Listed



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 19,800 km² (~7,600 mi²)

Key Ecological Sections: Blue Mountains, Beaverhead Mountains, Challis Volcanics, Idaho Batholith

Population Size in Idaho: 1,000–2,500

Description: The natural range of Sockeye Salmon was associated with lake systems accessible to the ocean around the northern Pacific rim from northern California to Japan. In Idaho, Sockeye Salmon historically spawned and reared in the large lakes in the Payette and Salmon River drainages. The Payette Lake population was eliminated in the early 1900s due to dam construction on the Payette River. Currently Sockeye Salmon are only found in lakes in the Stanley basin of the upper Salmon River, primarily Redfish and Alturas lakes. Additionally, they migrate to and from the ocean through the Salmon, Snake and Columbia rivers. Successful adult returns have occurred in the Sawtooth Valley (primarily Redfish Lake) since 2000 with a high of 1,579 Sockeye returning in 2014 (including 453 wild fish).

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Sockeye Salmon in the Snake River basin are an anadromous species that depend on freshwater lakes and access to the ocean. They spawn in gravel areas in lakes, where the juveniles rear for 1-3 years prior to migrating to the sea. There are 2 resident life forms; one spawns in lakes in late fall with most juveniles remaining in the lake, maturing and spawning without rearing in the ocean. The second, more common form known as Kokanee, spawns in tributary streams and moves to lakes during late summer/early fall. While in freshwater lakes,

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Sockeye Salmon prefer temperatures near 10 °C (50 °F). Juvenile Sockeye Salmon (smolts) migrate to the ocean at ages 1-3 years and sizes of 7-18 cm (3-7 in). After 1-3 years in the ocean, they return as mature adults reaching the upper Salmon River lakes in mid-summer. Adults returning to Idaho weigh 1-2 kg (3-5 lbs). During their freshwater life, juveniles feed largely on zooplankton. In the ocean they feed upon marine zooplankton and small fish.

POPULATION TREND

Short-term Trend: Increase 10–25%

Long-term Trend: Decline >90%

Description: Counts of adult Sockeye Salmon at the Redfish weir in the 1950-60s averaged over 1,000/year, but decreased to years with no adult returns in the early 1990s. Between 1999 and 2007, more than 355 adults returned from the ocean, primarily because of a large return in 2000. Returns dropped from 2003-2007, but began building in 2008. Adult returns since 2009 have ranged from a high of 1,579 fish in 2014 (including 453 wild fish) to a low of 257 adults in 2012 (52 wild fish). Sockeye Salmon returns to Alturas Lake ranged from 1 fish in 2002 to 14 in 2010. No fish have returned since 2012.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The construction of present and past dams on the Columbia, Snake, and Salmon rivers for hydropower and water diversions has adversely affected survival during migration to and from the ocean. Sockeye Salmon are vulnerable to increased temperatures in the migration corridor and, as climate changes, warming thermal regimes of the Snake River may be an issue. Additional concerns include lowered levels of nutrients in lakes for juvenile life stages, genetic and disease issues with conservation hatchery programs, and the impacts of harvest of juvenile Sockeye Salmon in the Kokanee fisheries.

CONSERVATION ACTIONS

Conservation issues and management actions for Sockeye Salmon are described in the ESA Recovery Plan for Snake River Sockeye Salmon and the IDFG Fisheries Management Plan 2013-2018. In short, recommended strategies are to continue to work with federal agencies and the Bonneville Power Administration to improve passage conditions in the lower Snake and Columbia rivers, continue to maintain a conservation hatchery program, and continue to work with partners in evaluating population numbers, nutrient enrichment programs, Kokanee harvest fisheries, and genetic and disease prevention programs.

ADDITIONAL COMMENTS

The Snake River Sockeye Salmon was listed as Endangered under the ESA in 1991.

Information Sources: NMFS. 2015. ESA Recovery Plan for Snake River Sockeye Salmon (*Oncorhynchus nerka*). Portland (OR): NOAA, National Marine Fisheries Service.; Wydoski RS, Whitney RR. 2003. Inland Fishes of Washington. Seattle (WA): University of Washington Press.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Chinook Salmon (Snake River fall-run ESU)

Oncorhynchus tshawytscha pop. 2

Class: Actinopterygii
Order: Salmoniformes
Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: Threatened

BLM: Type 1

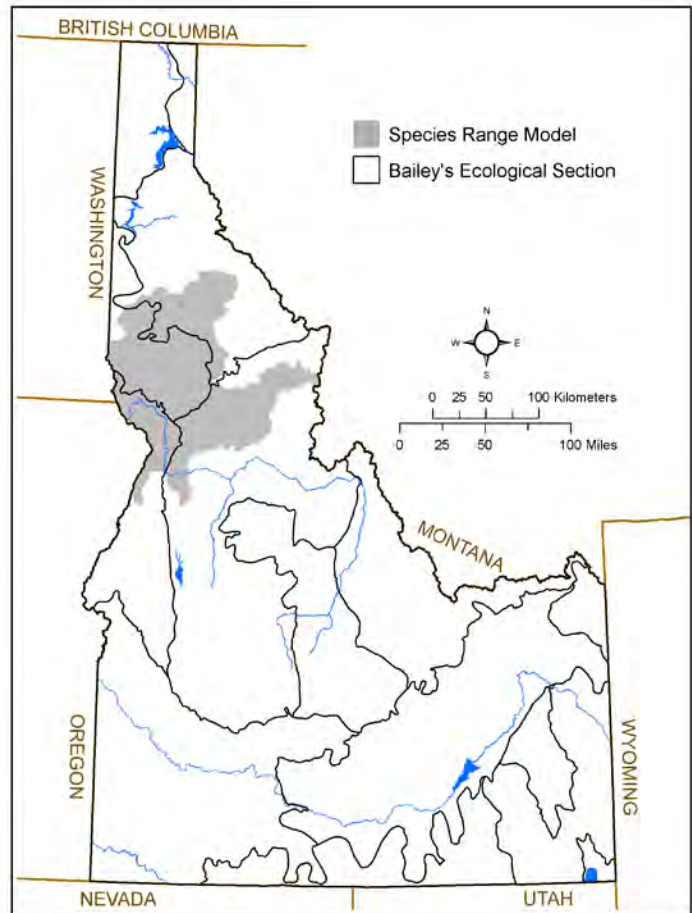
IDAPA: Game Fish, Threatened Species

G-rank: G5T1Q

S-rank: S1

SGCN TIER: 1

Rationale: Multiple threats, ESA Listed



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 19,800 km² (~7,600 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith, Palouse Prairie

Population Size in Idaho: 5,000–10,000 (mature wild individuals)

Description: Chinook Salmon are native to the Snake and Salmon Rivers. Historically, Snake River fall-run Chinook Salmon spawned in the Snake River upriver to the Hagerman Valley and in the lower portions of the Salmon and Clearwater Rivers. Populations using the tributaries above Hells Canyon Dam were eliminated with the construction of the Hells Canyon Complex in the 1950s and earlier upriver dams. The Idaho portion of the Snake River fall-run Chinook Salmon ESU consists of all the Clearwater River drainage up to Lolo Creek, except for the North Fork above Dworshak Dam, the Salmon River drainage upstream to the Little Salmon River, and the Snake River drainage upstream to Hells Canyon Dam. In recent years, the abundance of mature wild Fall Chinook has been between 5,000 and 10,000 individuals.

HABITAT & ECOLOGY

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

Description: Chinook Salmon are the largest of any salmon, with adults often exceeding 40-60 lbs after 3-5 years in the ocean. Fall Chinook Salmon use the mainstem of larger rivers to spawn compared to spring/summer runs, which spawn in smaller, higher tributary systems. Adult fall-run Chinook Salmon enter the Snake River from late August through November and normally spawn using gravel/cobble bars in main river channels from late September-October. As with most salmon, adults die after spawning providing a large nutrient source for juvenile fish. Fry emerge in March. Juvenile fall-run Chinook Salmon typically differ from spring/summer Chinook Salmon in

Appendix F. Species Conservation Status Assessments. Continued.

that they begin a slow downstream migration as subyearlings soon after emerging from the gravel and feed on their way to the ocean. The downriver migration peaks in April and lasts through June; most complete the journey in the first year. Optimal water temperatures range from 14–19 °C (59–64 °F) and temperatures that exceed 21 °C (73 °F) are lethal. Juvenile fall-run Chinook Salmon feed on small aquatic invertebrates in both fresh and salt water, primarily insects in freshwater and crustaceans in marine environments. As they grow in saltwater, they quickly change to a fish diet.

POPULATION TREND

Short-term Trend: Increase >25%

Long-term Trend: Decline 50–80%

Description: Historically, approximately half a million fall-run Chinook Salmon traveled up the Columbia River and spawned in the mainstem of the Snake River. The fish run began to decline in the late 1800s, dropping to 72,000 fish in the late 1930s and 29,000 during the 1950s. After dams were constructed on the middle and lower Snake River (1958-1975), counts over Lower Granite Dam below Lewiston dropped to less than 1,000 fish/year, including some hatchery fish that began returning in the early 1980s. In the last 20 years, annual counts of adult fall-run Chinook Salmon over Lower Granite Dam have increased from just over 1,000 fish in 1995 to over 60,000 in 2014, including both hatchery and wild fish.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The construction and operation of dams on the mainstem Snake and Columbia rivers has reduced survival of migrating juveniles and adults and blocked access to nearly half of the historic range. Additional threats include changes in run timing of juveniles and adults, impacts from stream diversions, loss of riparian cover, sedimentation, and artificial barriers to stream passage. The addition of hatchery programs to mitigate for lost habitat and survival of fish have introduced genetic concerns about effects to wild stocks.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are described in several documents including the Proposed ESA Recovery Plan for Snake River Fall Chinook Salmon and the IDFG Fisheries Management Plan 2013-2018. In short, recommended strategies include continuing to work with federal and state agencies, tribes, and hydropower managers to mitigate passage, habitat loss, harvest and hatchery issues, altered hydrographs, and to develop watershed agreements to address upstream habitat, flow issues, and management of nonnative species.

ADDITIONAL COMMENTS

The Snake River fall-run Chinook Salmon population was listed as threatened under ESA in 1992 and the listing was reaffirmed in 2005 and 2011.

Information Sources: NMFS. 2015. Proposed ESA Recovery Plan for Snake River Fall Chinook Salmon (*Oncorhynchus tshawytscha*). Portland (OR): NOAA, National Marine Fisheries Service.; Wydoski RS, Whitney RR. 2003. Inland Fishes of Washington. Seattle (WA): University of Washington Press.; Irving JS, Bjorn TC. 1981. A forecast of abundance of Snake River fall chinook salmon. Moscow (ID): Idaho Cooperative Fishery Research Unit, University of Idaho.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Chinook Salmon (Snake River spring/summer-run ESU)

Oncorhynchus tshawytscha pop. 8

Class: Actinopterygii
Order: Salmoniformes
Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: Threatened

BLM: Type 1

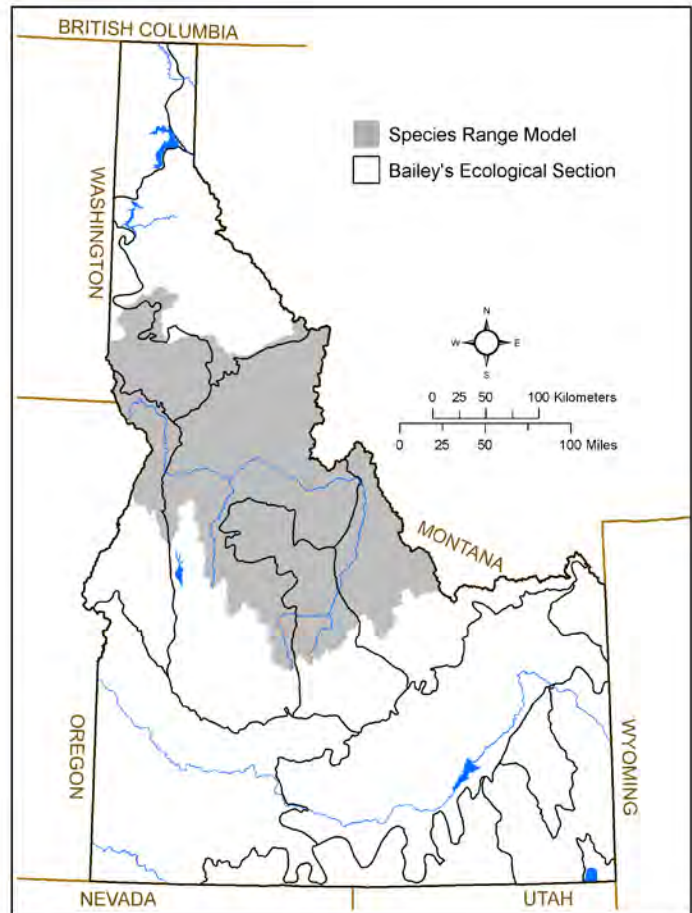
IDAPA: Game Fish, Threatened Species

G-rank: G5T1Q

S-rank: S1

SGCN TIER: 1

Rationale: Multiple threats, ESA Listed



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 55,600 km² (~21,500 mi²)

Key Ecological Sections: Beaverhead Mountains, Blue Mountains, Challis Volcanics, Idaho Batholith, Palouse Prairie

Population Size in Idaho: 20,000 (mature, wild individuals)

Description: Historically, Snake River spring/summer-run Chinook Salmon spawned in the Snake River tributaries of the Clearwater, Salmon, Weiser, Payette and Boise rivers. Populations using the rivers above Hells Canyon Dam were eliminated with the construction of Hells Canyon Complex from 1955-1967 and earlier upriver dams. Populations in the Clearwater drainage were eliminated or severely depressed by the Lewiston dam in the 1950s. The Idaho portion of the Snake River spring/summer-run Chinook Salmon ESU consists of all of the Salmon River drainage and the Snake River drainage upstream to Hells Canyon Dam. The Clearwater drainage was not included due to the loss of this population in the 1950s, however the reestablished Clearwater River populations are included in conservation efforts.

HABITAT & ECOLOGY

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

Description: Chinook Salmon are the largest of any salmon, with adults often exceeding 40-60 lbs after 3-5 years in the ocean. Spring/Summer-run Chinook Salmon use smaller, higher elevation tributary systems for spawning and juvenile rearing compared to fall-run fish, which spawn in the mainstem of larger rivers. They normally spawn in late July-September using gravel bars in summer river and tributary streams. As with most salmon, adults die after spawning and provide a large nutrient source for juvenile fish. Juvenile spring/summer-run Chinook Salmon behave

Appendix F. Species Conservation Status Assessments. Continued.

differently than fall-run Chinook Salmon in that they remain in headwater streams for a year and out-migrate the following spring. Optimal water temperatures range from 14–19 °C (59–64 °F) and temperatures that exceed 21 °C (73 °F) are lethal. Juvenile spring/summer-run Chinook Salmon feed on small aquatic invertebrates, primarily insects in freshwater and crustaceans in marine environments. As they grow in saltwater, they quickly change to a fish diet.

POPULATION TREND

Short-term Trend: Decline >90%

Long-term Trend: Unknown

Description: Historic runs in the Snake River probably exceeded 1 million fish annually in the late 1800s. By the 1950s, the abundance of adult spring/summer-run Chinook Salmon had greatly declined to near 100,000 adults/year. Since the 1960s, counts of spring/summer-run Chinook Salmon adults have declined considerably at the lower Snake River dams. Counts in the 1960s peaked at approximately 79,000 fish, with hatchery returns comprising less than 10% of the total returns. In the 1970s, the runs declined to 67,000 fish with hatchery returns climbing to 22% of the total returns. During the 1980s, maximum salmon returns declined to 40,000 while hatchery returns climbed to an average of 44%. Although the maximum return in the 1990s was similar to the 1980s (44,000 with an average hatchery return of 53%) the minimum count ever recorded occurred during this decade with 2,327 salmon counted at Lower Granite Dam in 1995. Returns were variable in the 2000s with a maximum return of 192,000, a minimum return 31,000, and average hatchery returns comprising 76% of the total.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threat for this species is the construction and operation of hydroelectric dams on the main stem Snake and Columbia rivers, which has blocked access to nearly half of the historic spawning habitat and reduced survival of juveniles and adults migrating to and from the ocean. Additional effects from hydroelectric dams and water storage projects have altered hydrographs and water temperature regimes affecting the timing of juvenile and adult runs. Additional threats include diversions in spawning and rearing streams, loss of riparian cover, sedimentation, genetic concerns, declining water quality, and introductions of nonnative fish.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are described in several documents including the Snake River Spring/Summer Chinook and Steelhead Recovery Plan (in Draft) and the IDFG Fisheries Management Plan 2013-2018. In short, recommended strategies include continuing to work with federal and state agencies, tribes, and hydropower managers to mitigate passage, habitat loss, harvest and hatchery issues, altered hydrographs, and to develop watershed agreements to address upstream habitat, flow issues, and management of nonnative species.

ADDITIONAL COMMENTS

The Snake River spring/summer-run Chinook Salmon population was listed as Threatened under the ESA in 1992. The listing was reaffirmed in 2005 and 2011.

Information Sources: NMFS 2015. Draft ESA Recovery Plan for Idaho Snake River Spring/Summer Chinook Salmon (*Oncorhynchus tshawytscha*) and Snake River Steelhead (*Oncorhynchus mykiss*) Populations. Portland (OR): NOAA, National Marine Fisheries Service.; Wydoski RS, Whitney RR. 2003. Inland Fishes of Washington. Seattle (WA): University of Washington Press.; Matthews GM, Waples RS. 1991. Status review for Snake River spring and summer Chinook salmon. NOAA Tech Memo NMFS F/NWC-200. Seattle (WA): NOAA, National Marine Fisheries Service.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Bear Lake Whitefish

Prosopium abyssicola

Class: Actinopterygii

Order: Salmoniformes

Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

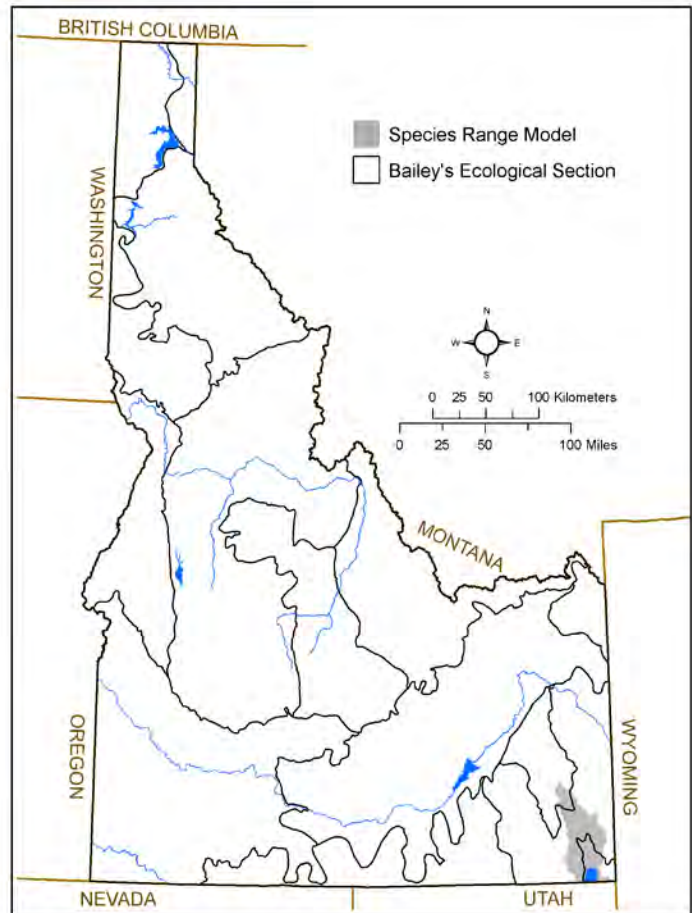
IDAPA: Game Fish

G-rank: G1

S-rank: S1

SGCN TIER: 2

Rationale: Endemic, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,600 km² (~1,000 mi²)

Key Ecological Sections: Bear Lake

Population Size in Idaho: >1,000,000

Description: Bear Lake Whitefish are endemic to Bear Lake in extreme southeast Idaho.

HABITAT & ECOLOGY

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

Description: This species typically occurs in the benthic zone at water depths greater than 40 m (130 ft). Spawning occurs in mid-February to mid-March in shallow, rocky areas. Ostracods comprise most of the diet, but other invertebrates found on the lake bottom may be consumed.

POPULATION TREND

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

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

Description: The Bear Lake Whitefish is monitored annually through standard gillnet surveys. The population appears stable.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: A lowering of lake levels due to drought and water management could limit spawning and rearing habitat. Increasing human development around the lake could lead to

Appendix F. Species Conservation Status Assessments. Continued.

lowering of water quality due to waste water discharges. Legal and illegal introductions of piscivorous fish could affect populations by increasing predation rate.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Bear Lake Section plan. In short, the conservation strategies for this species include monitoring the population status and trends and introducing rock substrates at elevations of 5914 and lower to increase spawning habitat and improve spawning success during prolonged drought cycles.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. Listing was determined to be not warranted in 2009 due to a lack of information.

Information Sources: Sigler WF, Sigler JW. 1987. Fishes of the Great Basin, A Natural History. Reno(NV): University of Nevada Press.; Tolentino S, Teuscher D. 2010. Bear Lake Fisheries Management Plan. Salt Lake City (UT): Utah Division of Wildlife Resources and Boise (ID): Idaho Department of Fish and Game.; Teuscher D, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Bonneville Cisco

Prosopium gemmifer

Class: Actinopterygii

Order: Salmoniformes

Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

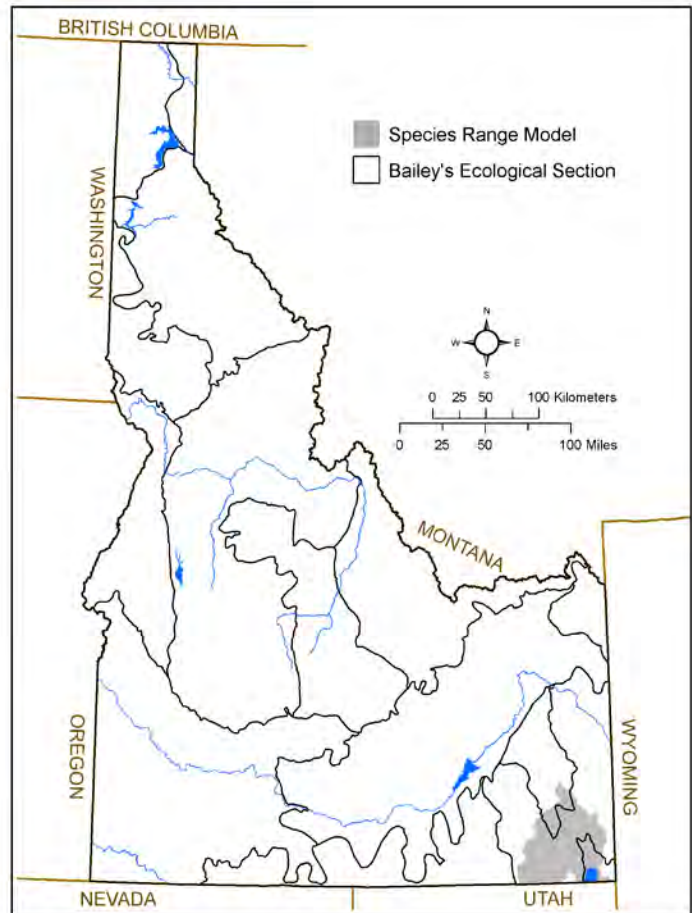
IDAPA: Game Fish

G-rank: G3

S-rank: S3

SGCN TIER: 2

Rationale: Endemic, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 5,100 km² (~2,000 mi²)

Key Ecological Sections: Bear Lake

Population Size in Idaho: >1,000,000

Description: Bonneville Cisco are endemic to Bear Lake in extreme southeast Idaho. Attempts to introduce the species into other waters in the West have been unsuccessful. The hydroacoustic estimate of abundance in 2008 was approximately 9 million individuals.

HABITAT & ECOLOGY

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

Description: This species is typically found in schools in the pelagic zone. Schools are near or below the thermocline when the lake is thermally stratified during the spring to fall months. At night, individuals break from their schools and are widely scattered throughout the lake. Spawning occurs from mid-January to early February over rocky areas along the shoreline, weedbeds, and deeper, rocky shoals. The species feeds almost exclusively on zooplankton.

POPULATION TREND

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

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

Description: The Bonneville Cisco is monitored annually through hydroacoustic surveys and comprehensive angler creel surveys at 3-5 year intervals. Hydroacoustic estimates of abundance indicate the population numbered between 2 and 3 million individuals from 1988 to the mid-1990s and between 5 and 10 million individuals from 2000-2008.

Appendix F. Species Conservation Status Assessments. Continued.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: A lowering of lake levels due to drought and water management could limit spawning and rearing habitat. Increasing human development around the lake could lead to lowering of water quality due to waste water discharges. Legal and illegal introductions of piscivorous fish could affect populations by increasing predation rate.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Bear Lake Section plan. In short, the conservation strategies for this species include monitoring the population status and trends, reducing trout stocking programs and harvest as necessary, introducing rock substrates at elevations of 5914 and lower to increase spawning habitat and improve spawning success during prolonged drought cycles, and working with water management entities to maintain water levels.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. Listing was determined to be not warranted in 2009 due to a lack of information.

Information Sources: Sigler WF, Sigler JW. 1987. Fishes of the Great Basin, A Natural History. Reno(NV): University of Nevada Press.; Tolentino S, Teuscher D. 2010. Bear Lake Fisheries Management Plan. Salt Lake City (UT): Utah Division of Wildlife Resources and Boise (ID): Idaho Department of Fish and Game.; Teuscher D, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Bonneville Whitefish

Prosopium spilonotus

Class: Actinopterygii

Order: Salmoniformes

Family: Salmonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

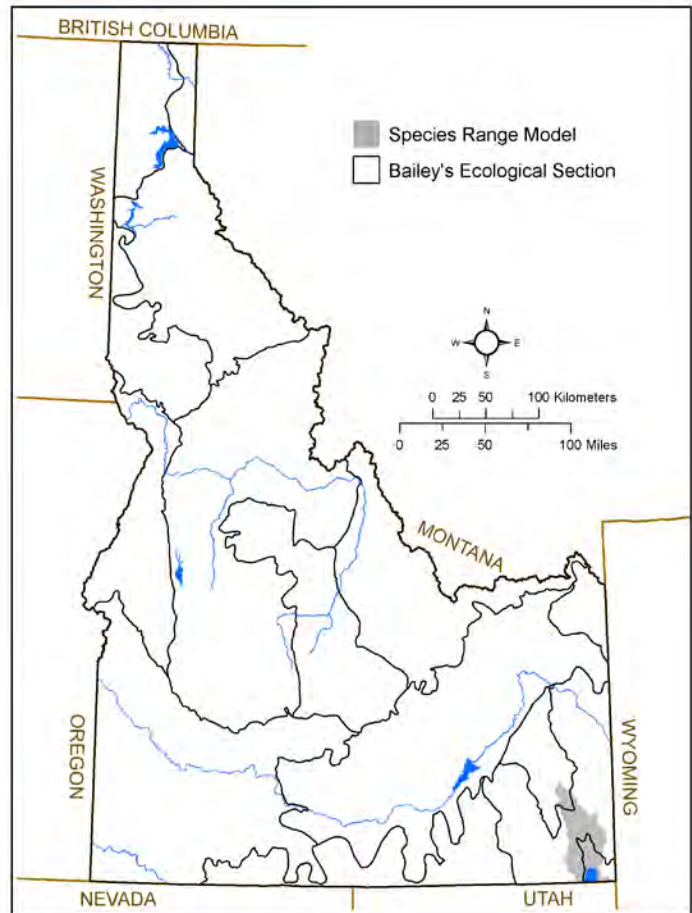
IDAPA: Game Fish

G-rank: G3

S-rank: S3

SGCN TIER: 2

Rationale: Endemic, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,600 km² (~1,000 mi²)

Key Ecological Sections: Bear Lake

Population Size in Idaho: >1,000,000

Description: Bonneville Whitefish are endemic to Bear Lake in extreme southeast Idaho.

HABITAT & ECOLOGY

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

Description: This species is typically found at depths of 12–30 m (40–100 ft). Spawning occurs from mid-February to early March over rocky areas along the shoreline. The species is omnivorous and consumes plankton and invertebrates found on the lake bottom. Individuals >30 cm (>12 in) are piscivorous and consume other whitefish, Bear Lake sculpin, and other small fish.

POPULATION TREND

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

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

Description: The Bonneville Whitefish is monitored annually through standard gillnet surveys and in comprehensive angler creel surveys at 3 to 5 year intervals. The population appears stable.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments. Continued.

Description: A lowering of lake levels due to drought and water management could limit spawning and rearing habitat. Increasing human development around the lake could lead to lowering of water quality due to waste water discharges. Legal and illegal introductions of piscivorous fish could affect populations by increasing predation rate.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Bear Lake Section plan. In short, the conservation strategies for this species include monitoring the population status and trends and introducing rock substrates at elevations of 5914 and lower to increase spawning habitat and improve spawning success during prolonged drought cycles.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. Listing was determined to be not warranted in 2009 due to a lack of information.

Information Sources: Sigler WF, Sigler JW. 1987. Fishes of the Great Basin, A Natural History. Reno(NV): University of Nevada Press.; Tolentino S, Teuscher D. 2010. Bear Lake Fisheries Management Plan. Salt Lake City (UT): Utah Division of Wildlife Resources and Boise (ID): Idaho Department of Fish and Game.; Teuscher D, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Burbot

Lota lota

Class: Actinopterygii

Order: Gadiformes

Family: Gadidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

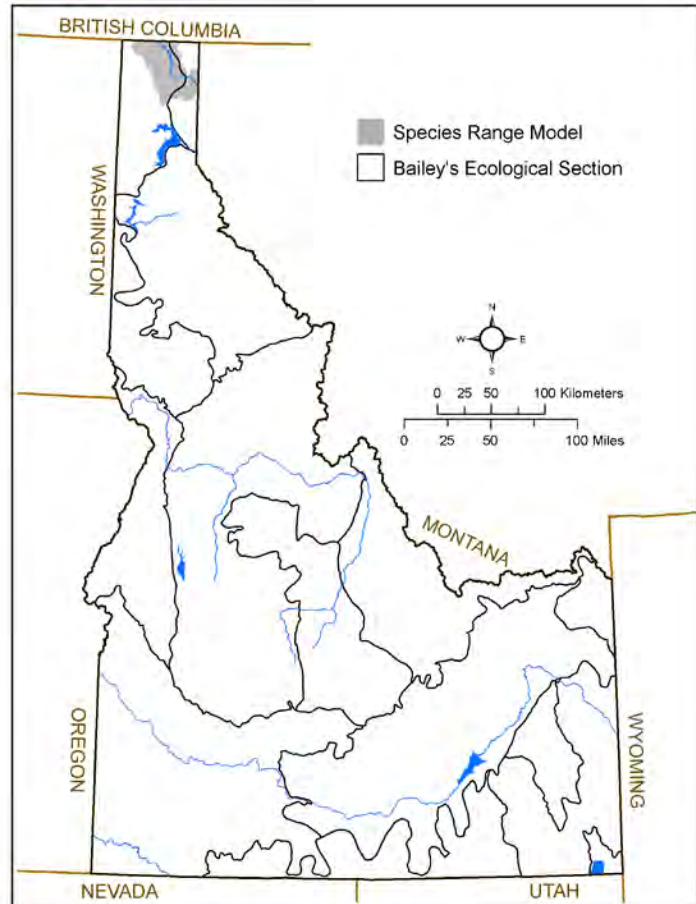
IDAPA: Game Fish, Endangered Species

G-rank: G5

S-rank: S1

SGCN TIER: 1

Rationale: Low population size, large long term declines, multiple threats, IDAPA Endangered



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,200 km² (~800 mi²)

Key Ecological Sections: Flathead Valley, Okanogan Highlands

Population Size in Idaho: 1–50

Description: Burbot are circumpolar in distribution, extending south just to the northern portions of the conterminous US. In Idaho, they are only found in the Kootenai River drainage. Population estimates (prior to hatchery releases) ranged from 225 in 1997 to 50 Burbot in 2003. Current total population size of Burbot, including hatchery juveniles, is estimated between 2,500-10,000.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Adult Burbot primarily inhabit deep, cool lakes, reservoirs, or rivers. In lakes, Burbot are strongly associated with the bottom and prefer temperatures of 10–12 °C (50–54 °F), remaining below the thermocline. They can attain lengths of 99 cm (39 in) and weigh 8 kg (17 lbs), but most are much smaller (in the 1-3 kg [2-7 lbs] range). Southern populations mature in 3-4 years and females may not spawn each year. Although Burbot can spawn in lakes and rivers, the wild and hatchery produced adults are currently recorded spawning only in the mainstem of the Kootenai River and its tributaries. In rivers, Burbot spawn in low velocity areas in main channels or in side channels behind deposition bars over fine gravel, sand, or silt. The semibuoyant eggs are broadcast above the substrate and may drift but eventually settle into the substrate. Spawning is generally highly synchronized over a short 2-3 week time period in late February to early March when water temperatures are low (1–3 °C [34–39 °F]). Burbot primarily

Appendix F. Species Conservation Status Assessments. Continued.

feed at night, with fry feeding on zooplankton and small aquatic invertebrates and adults mainly feeding on fish.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Decline >90%

Description: Although common in large portions of their range, the Kootenai population has declined significantly in past years. In the 1960s, the winter fishery on the Kootenai River was thought to have exceeded thousands of pounds of fish in both the commercial and sport harvest. By the late 1970s, the population had collapsed, and was estimated at 150 fish in the mid-1990s and only 50 fish by the early 2000s. With annual mortality estimated at 63%, the wild stock was estimated to be extirpated by 2015. Since 2009, juveniles have been produced from captured wild broodstock on Moyie Lake, British Columbia, and reared at the University of Idaho. Population trends for wild adults continues to decline, but the hatchery juvenile population has increased by >25%.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this species is habitat loss and degradation due to the construction of Libby Dam in 1972. The altered flows associated with hydropower and flood control below Libby Dam has resulted in higher winter velocities, which may restrict or disrupt upstream migration of adults, as well as warmer temperatures, which limit egg hatching success. Daily flow fluctuations for peak power generation may also flush eggs from spawning areas. In addition, nutrient settling above Libby Dam has reduced Burbot productivity of the river and the development of agricultural lands has resulted in a loss of habitat for juvenile fish with the elimination of slough backwaters by the diking of the river channel to prevent flooding.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are described in the Kootenai River/Kootenay Lake Burbot Conservation Strategy (Strategy) and appropriate section plans. The recommended action is to address the operation of Libby Dam considering river flow and temperature requirements for Burbot during the critical prespawn, spawning, and egg incubation periods from December through April. The Strategy also identifies conservation aquaculture as a remedial measure to help strengthen the depressed Burbot stock. In addition, habitat improvements to spawning and rearing locations as well as nutrient additions to increase food during larval rearing are also identified to help sustain and improve the population.

ADDITIONAL COMMENTS

The Kootenai River Burbot were petitioned for listing under the ESA in 2000, but was found as not warranted by the FWS because it did not represent a distinct population segment.

Information Sources: Paragamian VL, Pyper BJ, Daigneault MJ, Beamesderfer RCP, Ireland SC. 2008. Population dynamics and extinction risk of burbot in the Kootenai River, Idaho, USA and British Columbia, Canada. *American Fisheries Society Symposium* 59:213–234; Paragamian VL, Hansen MJ. 2011. Stocking for rehabilitation of burbot in the Kootenai River, Idaho, USA and British Columbia, Canada. *Journal of Applied Ichthyology* 27:22–26; KVRI Burbot Committee. 2005. Kootenai River/Kootenay Lake Burbot Conservation Strategy. Bonners Ferry (ID): Kootenai Tribe of Idaho and Moscow (ID): S. P. Cramer and Associates.; Hardy R, Paragamian VL. 2013. A synthesis of Kootenai River Burbot stock history and future management goals. *Transactions of the American Fisheries Society* 142:162–1670; Hardy RS, Stephenson SM, Neufeld MD, Young SP. 2015. Adaptation of lake-origin burbot stocked into a large river environment. *Hydrobiologia*. DOI: 10.1007/s10750-015-2226-0.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Bear Lake Sculpin

Cottus extensus

Class: Actinopterygii

Order: Scorpaeniformes

Family: Cottidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

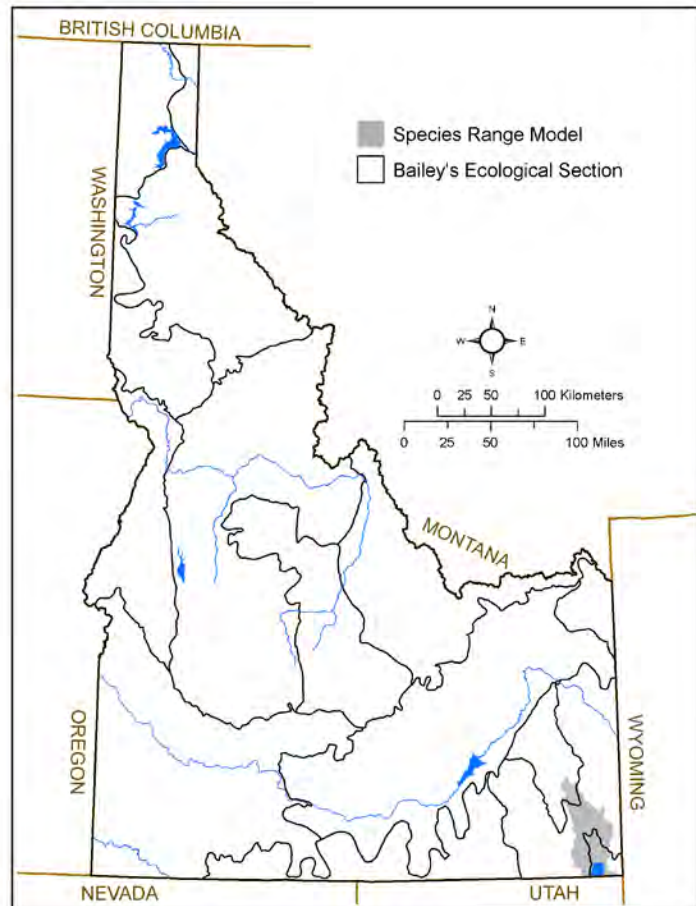
IDAPA: Protected Nongame Species

G-rank: G3

S-rank: S3

SGCN TIER: 2

Rationale: Endemic, range restricted, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,600 km² (~1,000 mi²)

Key Ecological Sections: Bear Lake

Population Size in Idaho: >1,000,000

Description: Bear Lake Sculpin are endemic to Bear Lake in extreme southeast Idaho. The population is estimated to be in the millions.

HABITAT & ECOLOGY

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

Description: This species occurs throughout the lake in benthic areas. Individuals spawn near shore in mid-April to mid-May and attach eggs to the undersides of rocks where males guard egg masses. Adults return to deeper waters after spawning. After hatching, fry use currents to disperse from the rocky spawning areas. Sculpins are opportunistic bottom feeders on benthic invertebrates and ostracods.

POPULATION TREND

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

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

Description: The Bear Lake Sculpin is monitored by bottom trawl surveys every other year. From 1988 to 1995, mean catch per trawl densities ranged from 25-50 sculpin per trawl, which extrapolates to a minimum whole lake population estimate between 1 and 2 million fish. Since 1995, the density estimates have been greater than 50 sculpin per trawl with a high of 175 sculpin per trawl in the late 1990s.

Appendix F. Species Conservation Status Assessments. Continued.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: A lowering of lake levels due to drought and water management could limit spawning and rearing habitat. Increasing human development around the lake could lead to lowering of water quality due to waste water discharges. Legal and illegal introductions of piscivorous fish could affect populations by increasing predation rate.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Bear Lake Section plan. In short, the conservation strategies for this species include monitoring the population status and trends, reducing trout stocking programs as necessary, introducing rock substrates at elevations of 5914 and lower to increase spawning habitat and improve spawning success during prolonged drought cycles, and working with water management entities to maintain water levels.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. Listing was determined to be not warranted in 2009 due to a lack of information.

Information Sources: Sigler WF, Sigler JW. 1987. Fishes of the Great Basin, A Natural History. Reno(NV): University of Nevada Press.; Tolentino S, Teuscher D. 2010. Bear Lake Fisheries Management Plan. Salt Lake City (UT): Utah Division of Wildlife Resources and Boise (ID): Idaho Department of Fish and Game.; Teuscher D, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Fish Distribution Database. [Accessed August 15, 2015].

Western Toad

Anaxyrus boreas

Class: Amphibia
Order: Anura
Family: Bufonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

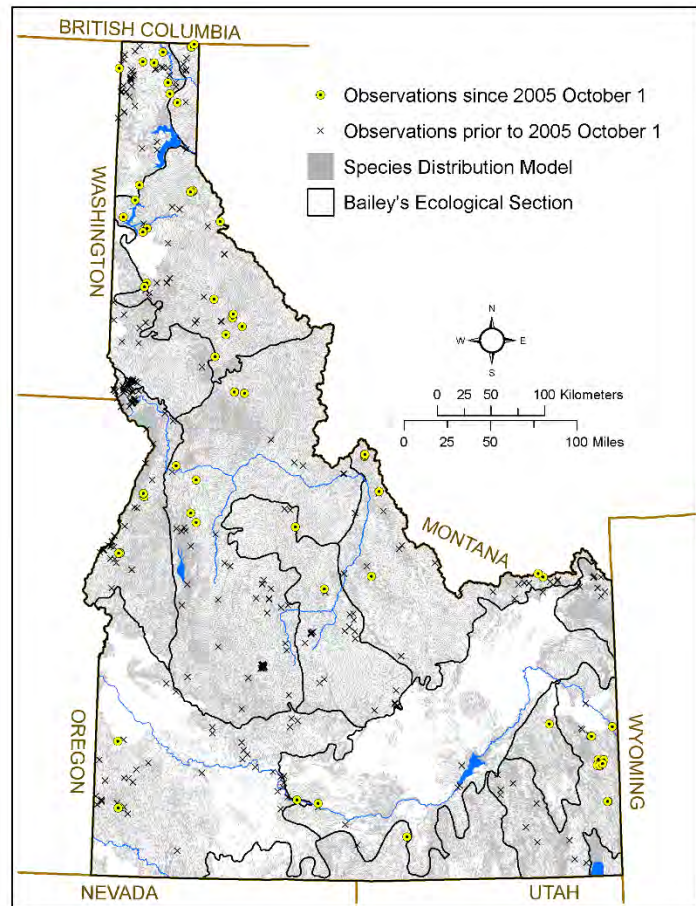
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S2

SGCN TIER: 2

Rationale: Significant declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 204,000 km² (~78,800 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Bitterroot 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: The Western Toad is widespread across the western US and Canada, including most of Idaho. Although it can be found in appropriate habitat throughout much of the state, populations south of the Snake River are disjunct and isolated. The species is still common across much of its range, but has experienced locally dramatic declines in many areas including southeastern Idaho. The total population size in Idaho is unknown.

HABITAT & ECOLOGY

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

Description: The Western Toad occurs in a wide variety of habitats, generally within proximity to water, and is found across Idaho from mountain meadows to low elevation deserts. Although primarily terrestrial, breeding occurs in quiet waters including beaver ponds, reservoirs, lakes, streams, marshes, and wet meadows. In Idaho, breeding sites tend to be sparse in some areas, suggesting that environmental tolerances and habitat preferences are limiting.

POPULATION TREND

Short-term Trend: Decline 10–30%

Appendix F. Species Conservation Status Assessments. Continued.

Long-term Trend: Unknown

Description: Significant declines have occurred in multiple areas across the species range, including Colorado, British Columbia, Wyoming, Montana, Yellowstone National Park, and Grand Teton National Park. This species could be experiencing similar declines in Idaho, although recent surveys indicate it is more abundant in some areas of the state than others (e.g., Okanogan Highlands).

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Amphibians, in general, are susceptible to pathogens, climate change, environmental pollution, ultraviolet-b exposure, and invasive species. The major threats to this species in Idaho are believed to be amphibian chytridiomycosis, a disease caused by a fungal pathogen, *Batrachochytrium dendrobatidis* (*Bd*), and habitat loss and degradation. As part of an amphibian assessment of IDFG's Southeast, Upper Snake, and Salmon regions, 10 swab samples were analyzed for *Bd* in August 2013 and one sample from Buster Lake in the Garden Creek subwatershed of Custer County tested positive.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, the conservation strategies for this species include determining the status of chytrid fungus in populations, developing a disease monitoring program, managing water quality and quantity, conserving habitats, and monitoring microclimates (particularly in relation to disease).

ADDITIONAL COMMENTS

None.

Information Sources: Hammerson G, Santos-Barrera G, Muths E. 2004. *Anaxyrus boreas*. The IUCN Red List of Threatened Species. Version 2014.2. www.iucnredlist.org. Downloaded on 26 September 2014; McGee M, Keinath D. 2004. Species Assessment for Boreal Toad (*Bufo boreas boreas*) in Wyoming. Cheyenne (WY): University of Wyoming.; Bartelt PE, Klaver RW, Porter WP. 2010. Modeling amphibian energetics, habitat suitability, and movements of western toads, *Anaxyrus* (= *Bufo*) *boreas*, across present and future landscapes. *Ecological Modelling* 221:2675–2686; IDFG. 2015. Southeast Idaho Northern Leopard Frog and Western Toad Status. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miwald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Woodhouse's Toad

Anaxyrus woodhousii

Class: Amphibia
Order: Anura
Family: Bufonidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

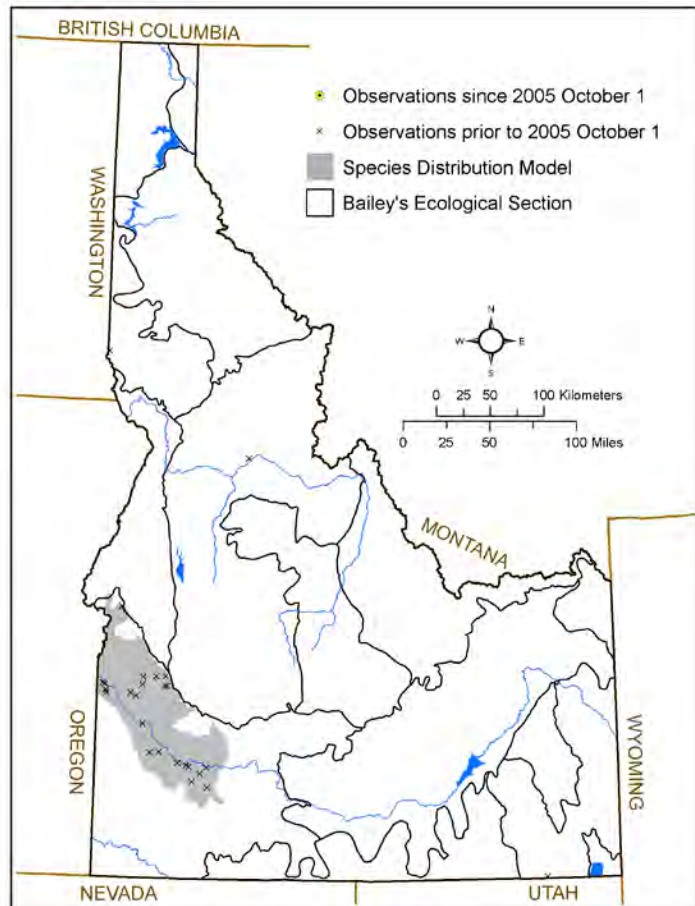
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2

SGCN TIER: 2

Rationale: Several threats, imperiled, limited range.



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 14,100 km² (~5,400 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Unknown

Description: Woodhouse's Toad occurs across much of the southwestern and central US and into northern Mexico. The isolated and disjunct populations of the species in parts of the Columbia and Snake River drainages represent the northern extent of its range. Idaho populations occur at a few locations along the western Snake River Plain from approximately Bruneau to Weiser, and are isolated from populations in Nevada and Utah by more than 230 km (126 mi). A single historical record from Lewiston suggests that populations along the upper Columbia River of Oregon and Washington formerly extended to the lower reach of the Snake River. The species is rarely encountered in Idaho.

HABITAT & ECOLOGY

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

Description: Woodhouse's Toad requires proximity to shallow-water breeding habitat in shallow quiet waterbodies, including marshes, rain pools, ponds, lakes, reservoirs, and flooded areas. When not breeding, adults inhabit a variety of upland habitats, including relatively dry grassland and shrubland cover types, but more typically mesic river valleys and floodplains, and agricultural areas. Breeding season is variable, and the timing of breeding depends in part on water availability and sometimes occurs in response to rain events.

Appendix F. Species Conservation Status Assessments. Continued.

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 habitat loss or degradation caused by reduction of floodplain wetlands from river regulation, reclamation of wetlands for development, and modification of wetlands for agricultural, industrial, and residential purposes. Breeding is dependent on the presence and persistence of surface water throughout the breeding and larval periods. The American Bullfrog is a well-established invasive species in this system, and bullfrog populations can compete with Woodhouse's Toad, prey on tadpoles and juveniles, and carry pathogens, such as *Batrachochytrium dendrobatidis* (*Bd*) that causes amphibian chytridiomycosis.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Owyhee Uplands Section Plan. Management priorities include efforts to maintain or improve ecological function of wetlands existing in riparian and floodplain habitats in managed river systems, evaluating the prevalence of amphibian diseases and seeking opportunities to manage their effects, and controlling invasive aquatic organisms, including the American Bullfrog. Supporting activities include assessing the status of southwest Idaho populations to aid land- and water-use decisions and to support habitat management prioritization.

ADDITIONAL COMMENTS

None.

Information Sources: Hammerson G, Santos-Barrera G. 2004. *Anaxyrus woodhousii*. The IUCN Red List of Threatened Species. Version 2014.2. www.iucnredlist.org. Downloaded on 29 August 2014.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Northern Leopard Frog

Lithobates pipiens

Class: Amphibia

Order: Anura

Family: Ranidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

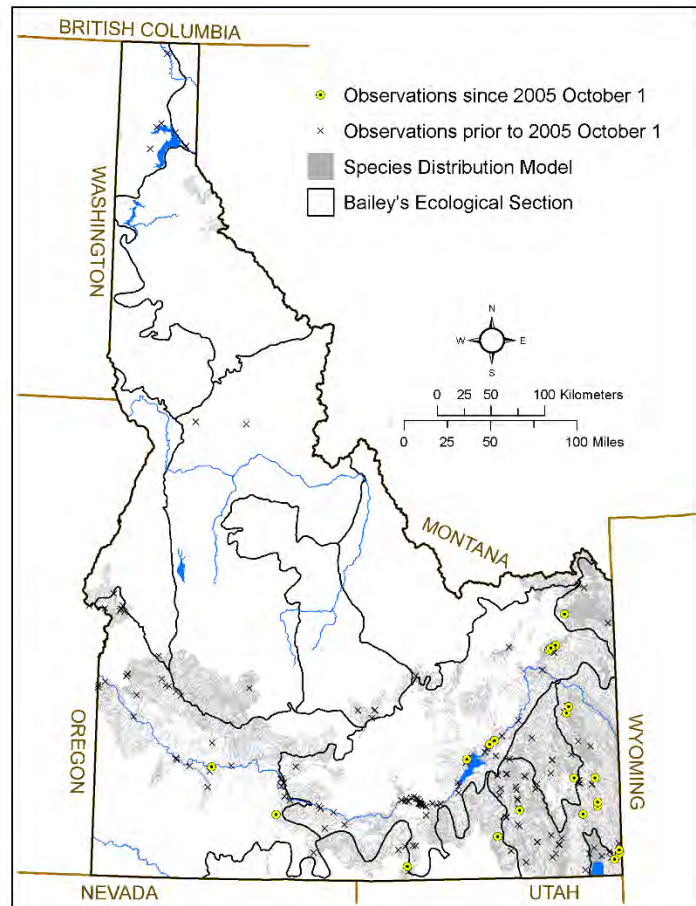
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2

SGCN TIER: 2

Rationale: Significant long term declines, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 79,800 km² (~30,800 mi²)

Key Ecological Sections: Bear Lake, Bitterroot Mountains, Flathead Valley, Northwestern Basin and Range, Okanogan Highlands, Overthrust Mountains, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: Unknown

Description: The Northern Leopard Frog is widely distributed across much of northern and central North America, but populations in the western US are sparse. In northern Idaho, it was found in the Kootenai, Pend Oreille, and Clark Fork rivers prior to 1955, but is now considered extirpated from this region. In southern Idaho, Northern Leopard Frogs were last documented on the Payette and Boise Rivers during the 1970s, and the last specimen or literature records on the Snake River below Grandview were also documented during that decade. However, incidental sightings in the Grandview and Bruneau vicinities along the Snake River were reported during 2004-2006, suggesting that remnant populations could persist in the mid-Snake drainage. Few incidental observations have been made in south-central Idaho since 2005, and several amphibian surveys in the BLM Four Rivers, Jarbidge and Shoshone Field Offices have yielded no new sightings or observations in historically-occupied habitats. In southeast Idaho, Northern Leopard Frogs occupied 23 of 116 (19.8%) subwatersheds surveyed during an amphibian assessment of IDFG's Southeast, Upper Snake, and Salmon regions. Surveyors documented adult, juvenile, larvae, and egg mass life stages at occupied sites in 2012 and 2014.

HABITAT & ECOLOGY

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

Appendix F. Species Conservation Status Assessments. Continued.

Description: Northern Leopard Frogs occur in springs, slow streams, marshes, bogs, ponds, canals, floodplains, reservoirs, and lakes; usually permanent water with rooted aquatic vegetation. In summer, this species commonly inhabits wet meadows and fields and usually overwinters underwater. Key habitats along the Snake River include the Bruneau Dunes ponds and adjacent aquatic habitats.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Decline 30–50%

Description: Significant population declines for this species have been documented rangewide. In Idaho, large-scale population extirpations have been documented in the Panhandle and the southwest, extending up the Snake River drainage to perhaps Hagerman.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Moderately vulnerable

Description: Primary threats for this species include the loss and degradation of wetland and riparian habitats, disease (i.e., chytridiomycosis, a disease caused by a fungal pathogen, *Batrachochytrium dendrobatidis*), and nonnative bullfrogs. Much of the Idaho range is in areas where wetlands are lost or affected by urban and agricultural development. Introduction of pathogens and population-level effects of disease are potentially related to habitat conditions or to changing climate conditions.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, the conservation strategies for this species include managing bullfrogs, assessing potential recovery options in areas where the species has been extirpated, developing a disease monitoring program, managing water quality and quantity, conserving habitats, and monitoring microclimates (particularly in relation to disease).

ADDITIONAL COMMENTS

The Northern Leopard Frog was petitioned for listing under the ESA in 2011, but was determined to be not warranted by the FWS.

Information Sources: Hammerson G, Solís F, Ibáñez R, Jaramillo C, Fuenmayor Q. 2004. *Lithobates pipiens*. The IUCN Red List of Threatened Species. Version 2014.2. www.iucnredlist.org. Downloaded on 03 September 2014; Makela PD. 1998. A Survey for Northern Leopard Frogs (*Rana pipiens*) in the Snake River Resource Area: 1997. Boise (ID): Bureau of Land Management; IDFG. 2015. Southeast Idaho Northern Leopard Frog and Western Toad Status. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigger J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Columbia Spotted Frog (Great Basin DPS)

Rana luteiventris pop. 3

Class: Amphibia
Order: Anura
Family: Ranidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

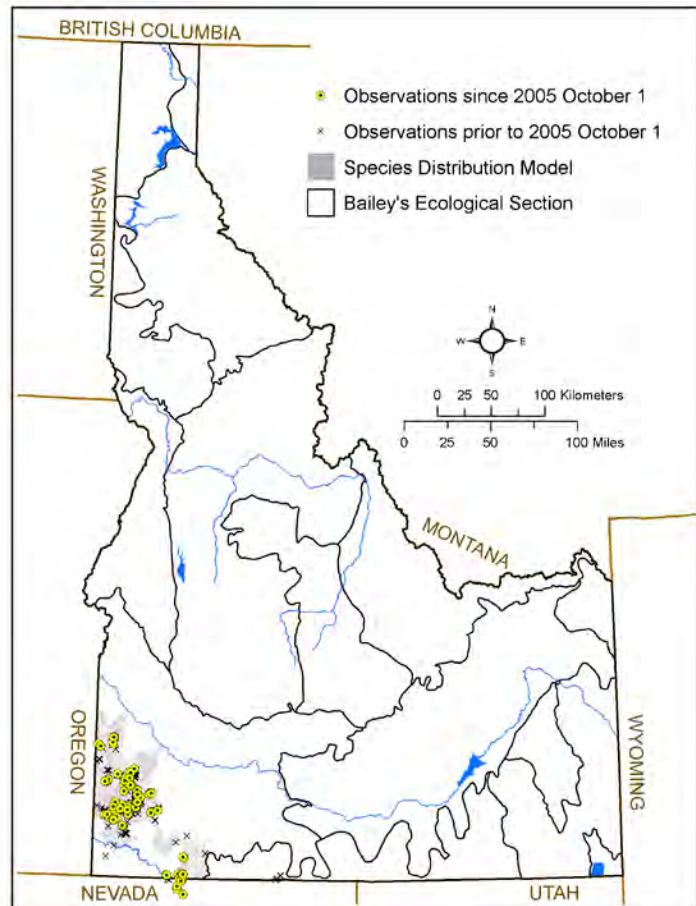
IDAPA: Protected Nongame Species

G-rank: G4T2T3Q

S-rank: S2

SGCN TIER: 1

Rationale: Distinct population segment, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,600 km² (~2,500 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Unknown

Description: The Columbia Spotted Frog is distributed across northwestern North America from British Columbia and southern Alaska south to central Nevada and Utah. In Idaho, populations south of the Snake River in Owyhee and Twin Falls counties are disjunct, isolated from neighboring populations by extensive areas of unoccupied and unsuitable habitat. The FWS included this portion of the species' range in the Great Basin Distinct Population Segment, which was designated a Candidate for listing under the ESA. Total population size in Idaho is not precisely known, as some populations occur on private land and are not monitored.

HABITAT & ECOLOGY

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

Description: Populations in southern Idaho typically occur in patches of wetland habitat that exist in a matrix of semidesert xeric habitat. Wetland habitat is associated with ponds and reservoirs, flooded meadows, small streams, and riparian habitat, including both perennial and seasonally ephemeral systems. Adjacent upland habitat includes sagebrush steppe and other shrubland habitat, juniper woodland, and stands of aspen. Breeding occurs in shallow water in ponds or other quiet waters.

POPULATION TREND

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

Appendix F. Species Conservation Status Assessments. Continued.

Long-term Trend: Decline 10–30%

Description: Extensive surveys in Idaho began in 1996 with monitoring of breeding sites beginning in ca. 2000. Since 2000, breeding site occupancy, total population size, and productivity have fluctuated at monitored sites. Evidence of extirpations have been infrequent, and these events rather localized. Rangewide long-term trend for this population appears downward, particularly in Oregon and Nevada, where occupancy rates at historical sites are estimated at 53% and 60%, respectively. Interpretation of historical data is admittedly problematic.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Nonnative species, such as Bullfrog and predatory fish (e.g., Brook Trout, bass, etc.), as well as amphibian pathogens have been identified as threats to the persistence of Columbia Spotted Frog populations. Diseases having the potential to cause population decline include ranaviruses and amphibian chytridiomycosis, which is caused by a fungal pathogen, *Batrachochytrium dendrobatidis* (*Bd*). Mortality from chytridiomycosis has been detected in the Great Basin population, but die-offs have not been detected and population-level implications are unknown. Reduction of key habitat elements, such as beaver ponds and riparian floodplain wetlands, may be affecting population densities and movement corridors, limiting genetic variability.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the 2010 draft Columbia Spotted Frog Great Basin Population Conservation Strategy and in the Owyhee Uplands Section plan. In short, the conservation strategies for this species include evaluating and managing disease, managing the introduction and spread of nonnative competitors and predators, and improving habitat conditions. American Beaver populations are currently being assessed, and restoration of beaver populations may be an important restoration tool in some areas.

ADDITIONAL COMMENTS

In October 2015, following completion of a status review, the FWS found that this species no longer warranted listing under the ESA as a result of collaborative conservation efforts and removed it from the ESA Candidate List.

Information Sources: IDFG. 2010. The Columbia Spotted Frog (*Rana luteiventris*) Great Basin Population Conservation Strategy DRAFT. Boise (ID): Idaho Department of Fish and Game.; FWS. 2009. Species Assessment and Listing Priority Form for the Columbia spotted frog (Great Basin DPS). http://ecos.fws.gov/docs/candforms_pdf/r8/D027_V01.pdf.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Trumpeter Swan *Cygnus buccinator*

Class: Aves
Order: Anseriformes
Family: Anatidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

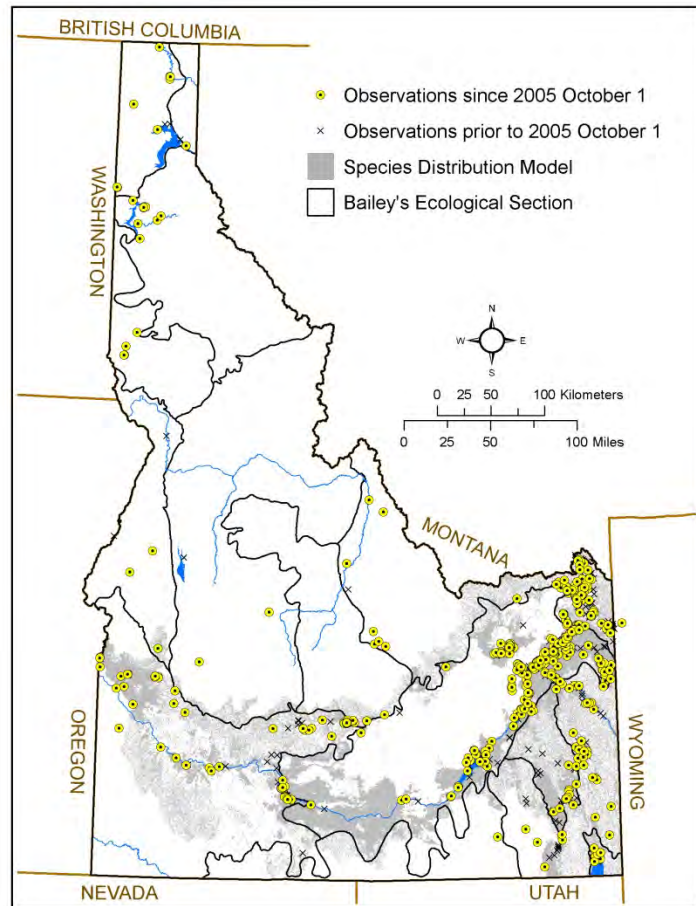
IDAPA: Migratory Game Birds

G-rank: G4

S-rank: S1B, S4N

SGCN TIER: 2

Rationale: Small breeding population size, breeding population decline, multiple threats, significant portion of the Rocky Mountain Population winters in Idaho



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 118,900 km² (~45,900 mi²)

Key Ecological Sections: Bear Lake, Overthrust Mountains, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: 100 in breeding season; 3,000–5,000 overwintering

Description: Rocky Mountain Population (RMP) Trumpeter Swans nest in several flocks from western Canada south to Nevada and Wyoming. A resident population occurs in east Idaho and is part of the Greater Yellowstone breeding flocks. Key nesting areas include Harriman State Park, the Caribou–Targhee National Forest, Market Lake and Sand Creek WMAs, and Camas, Grays Lake, and Bear Lake NWRs. Roughly 100 adults are present during summer, but only 15-25 pairs nest annually; as few as 50% of these successfully fledge young. In winter, migratory swans from Canada mix with resident US flocks. The RMP winters primarily in the Greater Yellowstone area, with >70% in east Idaho in some years. Crucial winter habitat occurs in the Snake, Henrys and South forks of the Snake, and Teton rivers. Field-feeding swan concentrations (100-2,500 birds) occur near the lower Henrys Fork River (Deer Parks WMA), the main Snake River above American Falls Reservoir, Market Lake WMA, and the lower Teton River north of Newdale.

HABITAT & ECOLOGY

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

Description: Trumpeter Swans nest on relatively undisturbed natural and impounded wetlands with slow and shallow water. Nests are located on islands, muskrat and beaver houses, or exposed hummocks and consist of mounds of emergent vegetation that can reach 3–4 m (9–12 ft) in diameter. Most successful nesting territories occur on state or federally managed wetlands

Appendix F. Species Conservation Status Assessments. Continued.

where water levels and access are controlled during the breeding season. Average clutch size is 3–6 eggs and productivity and cygnet survival are highly variable. Primarily herbivores, many wintering swans have adapted to field feeding on grain, potatoes, and corn when available.

POPULATION TREND

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

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

Description: This species once ranged from the Atlantic to the Pacific, but was reduced to near extinction by 1900 and persisted only in small flocks in Alaska and the Rocky Mountains. The RMP has since rebounded in response to hunting restrictions and conservation efforts. While the RMP and Greater Yellowstone breeding flocks have steadily increased from 1993-2015, the number of resident swans in Idaho has shown no statistically significant trend during this period. More recently, however, the number of adults has declined $>20\%$, from 136 individuals in 2005 to 104 in 2015. Annual productivity is variable (15-40 cygnets), but no trend is evident. Mid-winter counts of total swans in the RMP and Idaho from 1972-2014 suggest annual increases of 5.4% and 6.8%, respectively. Winter distribution in the Greater Yellowstone area has shifted substantially—in the last decade Idaho supported 73% of the total RMP, up from 53% during the 1970s and 1980s.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: Primary threats are the loss and/or degradation habitat from residential development, declining water supplies, and human disturbance. Large concentrations of swans are vulnerable to local habitat changes and stochastic events such as severe winter weather or disease. Power line collisions near nesting and wintering habitat and poaching in wintering areas are also concerns. In their summary of lead poisoning in birds from ammunition and fishing tackle, Haig et al. (2014) noted that despite a large body of scientific literature about toxicological effects of lead on individual birds, controversy exists regarding its impacts at a population level. To date, incidence of lead poisoning of Trumpeter Swans in Idaho has been low. While individual birds may be susceptible to ingest lead shot and tackle as they forage, we have insufficient information to draw any conclusion about population and productivity effects.

CONSERVATION ACTIONS

Recommended actions include periodic population monitoring, reducing disturbance at breeding sites, maintaining and improving suitable breeding habitat, maintaining crucial winter riverine habitat and agricultural open space in river corridors, installing bird diverters on power lines, examining landscape stressors that influence rangewide demographic patterns, and continuing managed food plots that provide significant winter and early spring forage.

ADDITIONAL COMMENTS

Concentrations of wintering swans provide watchable wildlife opportunities to Idaho citizens.

Information Sources: Banko WE. 1960. The trumpeter swan: its history, habits, and population in the United States. *North American Fauna* 63; FWS. 2015. Trumpeter swan survey of the Rocky Mountain Population, Winter 2015. Lakewood (CO): US Fish and Wildlife Service; USFS unpublished data; Mitchell CD, Eichholz MW. 2010. Trumpeter Swan (Cygnus buccinator). *The Birds of North America Online* (Poole A, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Shea RE, Nelson HK, Gillette LN, King JG, Weaver DK. 2002. Restoration of trumpeter swans in North America: a century of progress and challenges. *Waterbirds: The International Journal of Waterbird Biology* 25: 296–300.; Haig SM, D'Elia J, Eagles-Smith C, Fair JM, Gervais J, Herring G, Rivers JW, Schulz JH. 2014. The persistent problem of lead poisoning in birds from ammunition and fishing tackle. *The Condor* 116:408–428.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model modified by IDFG biologists).

Harlequin Duck

Histrionicus histrionicus

Class: Aves
Order: Anseriformes
Family: Anatidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

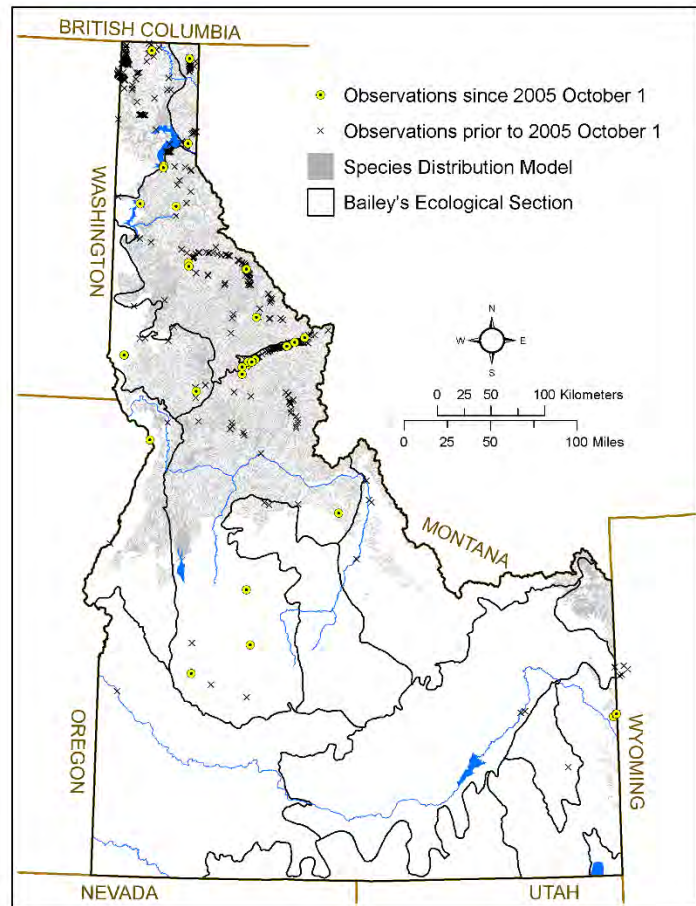
IDAPA: Migratory Game Birds

G-rank: G4

S-rank: S1B

SGCN TIER: 2

Rationale: Range restricted, low population size, local declines, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 71,500 km² (~27,600 mi²)

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

Population Size in Idaho: 100–250

Description: This species occurs in disjunct populations associated with the Pacific and Atlantic coastlines of North America and Asia. In Idaho, approximately 50 pairs breed along a limited number of high quality streams within the Priest River, Kootenai River, Clark Fork, Lake Pend Oreille, St. Joe River, Clearwater River, and the South Fork Snake River watersheds. Individuals marked in Idaho have been observed along the coasts of Washington and southern British Columbia during the nonbreeding season.

HABITAT & ECOLOGY

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

Description: This sea duck inhabits shallow, intertidal coastal areas in the winter. In spring, pairs migrate inland to breed on swiftly-flowing mountain streams, usually in the female's natal area. Breeding occurs along relatively undisturbed, 2nd-order or larger streams with high elevation gradients (1-7%), cold and clear water, some areas of shallow water (riffles), gravel to boulder-size substrates, forested bank vegetation, and instream loafing sites (e.g., logs, boulders). Breeding areas are occupied from April to September, but different stream reaches are used during prenesting, nesting, early and late brood-rearing periods. Nests are well-concealed on the ground in dense vegetation, in piles of woody debris, on cliff ledges above the stream, or in hollow trees or snags in the adjacent upland. Males return to the coast to molt once incubation

Appendix F. Species Conservation Status Assessments. Continued.

begins. Eggs hatch in June and July and females and broods migrate in August and September. Breeding pairs reunite each year on the wintering grounds and form long-term monogamous pair bonds. This species is long-lived, exhibits delayed reproduction (at least 3 years old), has low reproductive success (only about one third of Idaho breeding pairs successfully raise a brood to fledging), and exhibits high fidelity to breeding, molting, and wintering areas. Its diet consists of aquatic invertebrates, primarily benthic macroinvertebrates, and fish roe when available.

POPULATION TREND

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

Long-term Trend: Unknown

Description: The Harlequin Duck has been considered rare in Idaho for over 100 years. Population assessments in 1995, 1996 and 2007 showed no statistically significant difference in the number of breeding pairs statewide, but ducks have disappeared from or have declined in areas where they were formerly present but rare and from centrally located areas where they were once relatively common (e.g., Coeur d'Alene River, Moyie River, Granite Creek (Lake Pend Oreille watershed), St Joe River, Lochsa River). Reasons for declines are unknown. Wintering populations have declined slightly in the Puget Sound, Washington from 1994-2013.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: Direct or indirect human disturbance such as from timber harvest, road and pipeline construction and maintenance, mining, improper livestock grazing management, shoreline development, recreation, water impoundments and diversions, and other instream activities can reduce habitat, disrupt nesting activities, alter stream flows, reduce water quality, and impact benthic macroinvertebrates. Climate change can exacerbate these threats by altering the timing and magnitude of peak and low stream flows and increase stream temperatures, which can impact nest success, brood survival, the invertebrate prey base, and eliminate habitat. Exposure to oil spills, heavy metals from mining, and other pollution in breeding and wintering areas can have immediate and long-term impacts on survival.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, they include working with land managers to maintain the integrity (water quality, quantity, vegetation composition and structure) and natural flow regimes of montane riparian habitats, evaluating factors that influence stream occupancy, reproduction, and survival to support land and recreation management decisions, and incorporating the Harlequin Duck into riverine monitoring programs and assess current distribution and abundance.

ADDITIONAL COMMENTS

See Cassirer et al. (1996) for detailed monitoring protocols.

Information Sources: Cassirer EF, Reichel JD, Wallen RL, Atkinson EC. 1996. Harlequin duck (*Histrionicus histrionicus*) conservation assessment and conservation strategy for the US Rocky Mountains. Lewiston (ID): Idaho Department of Fish and Game; Esler D, Iverson SA. 2010. Female harlequin duck winter survival 11 to 14 years after the Exxon Valdez oil spill. *Journal of Wildlife Management*; Washington Department of Fish and Wildlife. 2013. WDFW Sea Duck Management Strategies: Draft report to the Washington Fish and Wildlife Commission. Olympia (WA): Washington Department of Fish and Wildlife.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Mountain Quail

Oreortyx pictus

Class: Aves
Order: Galliformes
Family: Odontophoridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

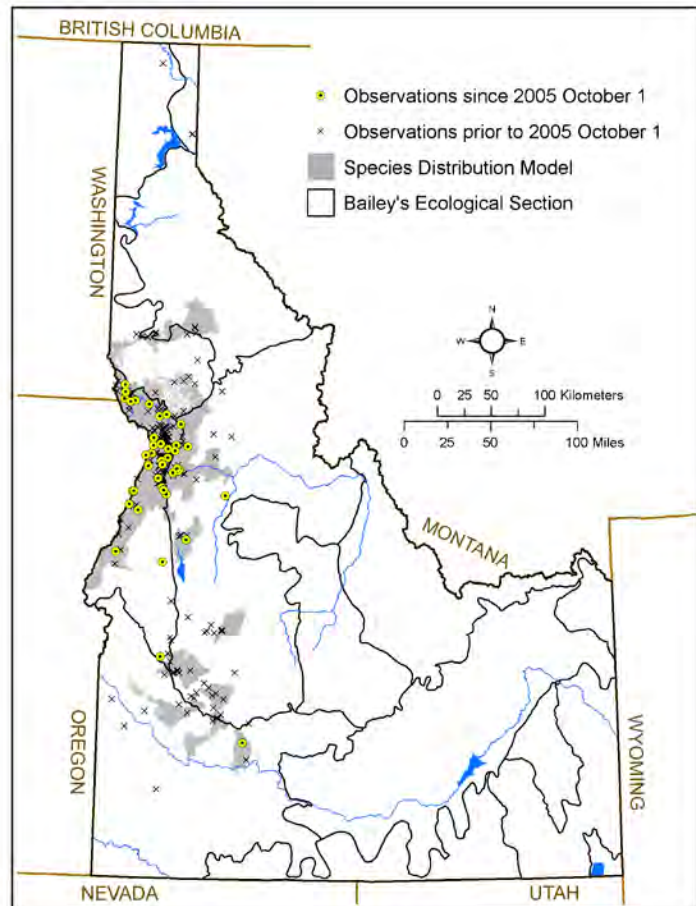
IDAPA: Upland Game Birds

G-rank: G5

S-rank: S2

SGCN TIER: 2

Rationale: Restricted distribution, low population size, declining habitat quantity and quality



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 15,200 km² (~5,900 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Unknown

Description: The Mountain Quail is a resident in mountain ranges of western North America from Washington south to Baja California and east to Nevada and Idaho. Mountain Quail remain common along the west of the Sierra Nevada and Cascades ranges, but major declines have occurred in the intermountain West in the last several decades. Mountain Quail occur in Idaho at the extreme northeastern edge of their range, centered in the lower Salmon River Canyon and Hells Canyon along the Snake River. Small, isolated populations likely occur in the Boise Mountains and Bennett Hills in southwest Idaho, and near Dworshak Reservoir in northern Idaho. The current population size is unknown.

HABITAT & ECOLOGY

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

Description: Mountain Quail inhabit brushy, early-successional habitats, often within coniferous forests and on steep slopes. In the western part of their range, habitat requirements are largely met in open or recently logged forest and chaparral vegetation. Within the more arid landscapes of their eastern range, Mountain Quail typically occur in dense shrubs in steep riparian draws. In all habitats, Mountain Quail use areas of dense, tall shrubs, within close proximity to water.

POPULATION TREND

Appendix F. Species Conservation Status Assessments. Continued.

Short-term Trend: Unknown

Long-term Trend: Decline 80–90%

Description: Although populations appear stable in much of the West, significant declines have occurred east of the Cascades and Sierra Nevada ranges, including a 95% decline in occupied habitat in Idaho since 1938. Short-term population trends have not been documented.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Population declines are often attributed to deterioration and loss of habitat due to intensive agriculture, improper grazing, and fire suppression. However, there is no direct research or evidence linking declines to specific causes. It is also unknown whether competition for resources with other game birds introduced to Idaho, particularly California Quail and Chukar, is a factor for Mountain Quail. Small, isolated Mountain Quail populations are likely at risk due to extreme environmental events, habitat changes, and genetic isolation.

CONSERVATION ACTIONS

Current information on the status of Mountain Quail populations in Idaho is needed.

ADDITIONAL COMMENTS

The Mountain Quail was petitioned for listing under the ESA in 2000 but the FWS concluded listing was not warranted. Although still classified as a game bird, the hunting season for Mountain Quail was closed in Idaho in 1984.

Information Sources: Brennan LA. 1991. Regional tests of a mountain quail habitat model. *Northwestern Naturalist* 72:100–108; Gutiérrez RJ, Delehanty DJ. 1999. Mountain Quail (*Oreortyx pictus*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Moser A. 2004. Statewide survey for Mountain Quail 2003–2004. Boise (ID): Idaho Department of Fish and Game; Ormiston JH. 1966. The food habits, habitat and movements of Mountain Quail in Idaho. MS Thesis. Moscow (ID): University of Idaho.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Greater Sage-Grouse

Centrocercus urophasianus

Class: Aves
Order: Galliformes
Family: Phasianidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

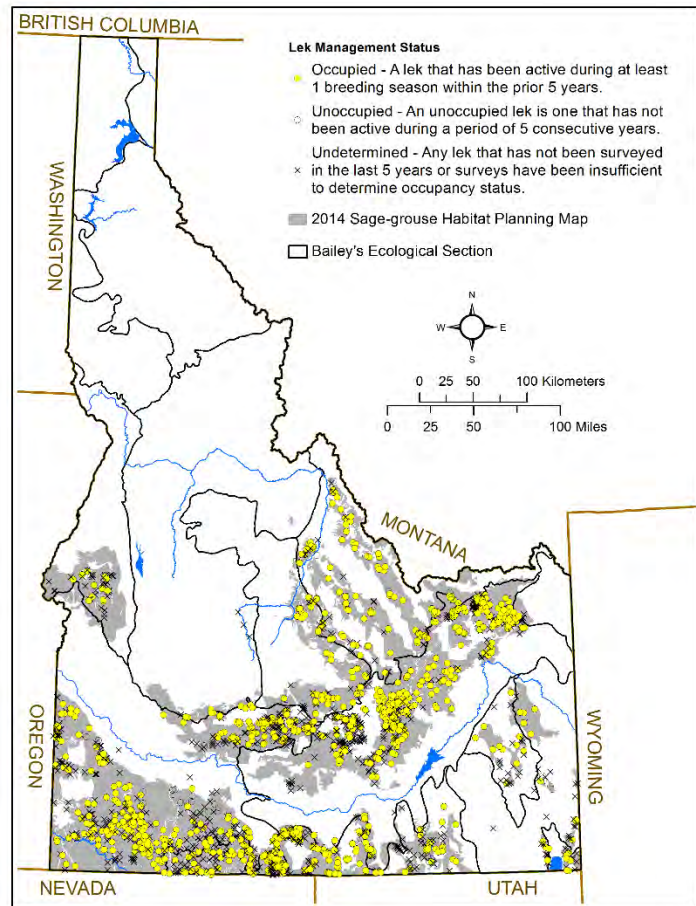
IDAPA: Upland Game Birds

G-rank: G3G4

S-rank: S3

SGCN TIER: 1

Rationale: Multiple threats to habitat, IUCN Near Threatened



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 112,300 km² (~43,400 mi²)

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

Population Size in Idaho: 50,000-100,000

Description: Greater Sage-Grouse are found in sagebrush steppe habitats in 11 western states and 2 Canadian provinces. Historically, Sage-Grouse occurred throughout southern Idaho, but are now absent from the Snake River plain and parts of southeastern Idaho. Sage-Grouse population estimation is challenging and populations are known to be somewhat cyclical (8–10 year cycles).

HABITAT & ECOLOGY

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

Description: Sage-Grouse are considered a landscape-level, sagebrush-obligate species that require large areas of intact, connected sagebrush to meet seasonal habitat requirements. Sage-Grouse populations are often migratory, moving among breeding and nesting habitat, late-brood rearing habitat, and winter areas. Some Sage-Grouse may move among all seasonal areas or between two distinct ranges, while some are nonmigratory. In general, breeding and nesting habitat requirements include sufficient nesting cover of sagebrush and a healthy understory of perennial grasses and forbs. As the shrubsteppe vegetation desiccates during summer, hens move their broods higher in elevation or to wet meadows. Because Sage-Grouse

Appendix F. Species Conservation Status Assessments. Continued.

almost exclusively eat sagebrush in winter, they require large areas of sagebrush that is free from, or available above, snow.

POPULATION TREND

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

Long-term Trend: Decline 50–70%

Description: Greater Sage-Grouse populations experienced historic declines as large areas throughout the west were converted from shrubsteppe habitats to agriculture and other human development. In Idaho, it was estimated that populations declined at an average rate of 1.47% per year from 1965–2003. Various rangewide analyses indicate that although populations experienced historic declines, they have been relatively stable in the last 10-15 years.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Governor Otter's Sage-Grouse alternative indicated that the primary threats to Sage-Grouse and their habitat in Idaho are wildfires, invasive plant species (primarily invasive annual grasses), and large scale infrastructure. Secondary threats are improper livestock grazing management, recreation, and West Nile virus. Changing climate is exacerbating threats to habitat, particularly drought, invasive species and altered fire regimes.

CONSERVATION ACTIONS

Conservation issues and management actions are provided in numerous documents including the 2006 Conservation Plan for the Greater Sage-Grouse in Idaho, the Federal Alternative of Governor C.L. "Butch" Otter for Greater Sage-Grouse Management in Idaho, the Record of Decision for the BLM and USFS's Idaho and Southwestern Montana Sub-regional Greater Sage-Grouse Proposed Land Use Plan Amendment and Final Environmental Impact Statement, the Idaho State Board of Land Commissioners Greater Sage-Grouse Conservation Plan, and the Natural Resource Conservation Service's Sage-Grouse Initiative plan for Idaho. These federal and state plans provide management direction, regulatory mechanisms, and/or voluntary incentives to avoid and minimize impacts to Sage-Grouse habitat from wildfire and invasive plants, infrastructure development, improper livestock grazing, and other threats.

ADDITIONAL COMMENTS

Greater Sage-Grouse were a candidate for listing under the ESA from 2010-2015. In September 2015, the FWS determined that listing the Greater Sage-Grouse as an endangered or threatened species was not warranted.

Information Sources: Bureau of Land Management and US Forest Service. 2015. Records of decisions and resource management plan amendments for the Great Basin region, including the greater sage-grouse sub-regions of Idaho and Southwestern Montana. Washington (DC): US Department of the Interior; Connelly JW, Knick ST, Schroeder MA, Stiver SJ. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Cheyenne(WY): Western Association of Fish and Wildlife Agencies.; Idaho Sage-grouse Advisory Committee. 2006. Conservation Plan for the Greater sage-grouse in Idaho. Boise (ID).; Idaho Department of Lands. 2015. Idaho State Board of Land Commissioners Greater Sage-Grouse Conservation Plan. Boise (ID); Idaho Governor's Sage-grouse Task Force. 2012. Federal alternative of Governor C.L. "Butch" Otter for greater sage-grouse management in Idaho. September 5, 2012 version. Boise (ID); 75 FR 13910; 80 FR 59857.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, 2014 Greater Sage-grouse Lek Database. [Accessed August 14, 2015]; BLM Idaho Greater Sage-Grouse Habitat 2014.

Sharp-tailed Grouse

Tympanuchus phasianellus

Class: Aves
Order: Galliformes
Family: Phasianidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 2

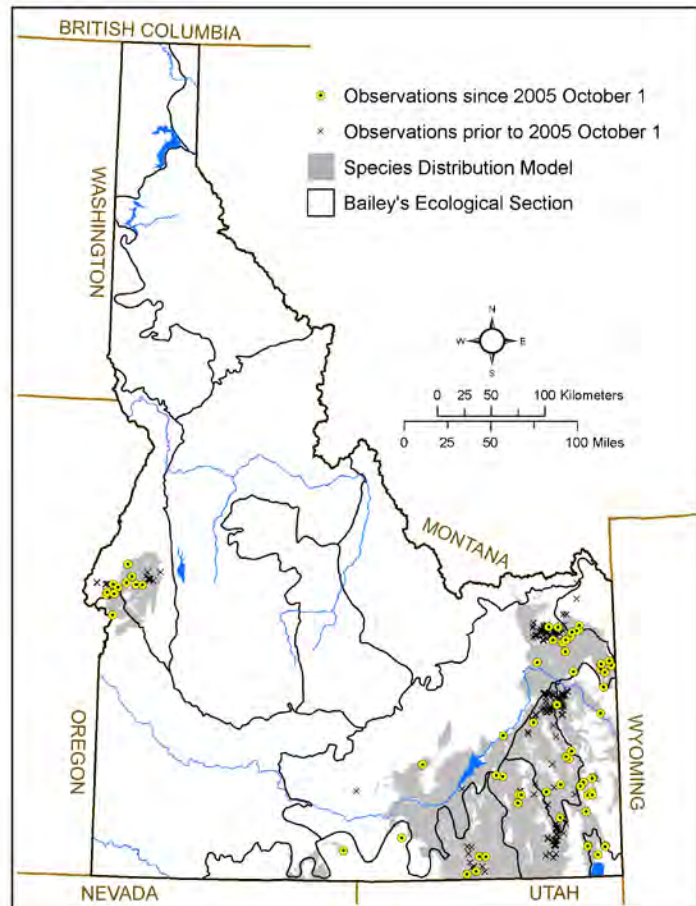
IDAPA: Upland Game Birds

G-rank: G4T3

S-rank: S3

SGCN TIER: 2

Rationale: Multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 114,800 km² (~44,300 mi²)

Key Ecological Sections: Bear Lake, Blue Mountains, Northwestern Basin and Range, Overthrust Mountains, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: 31,000-34,000

Description: The Columbian Sharp-tailed Grouse (CSTG) is 1 of 7 subspecies (1 extinct) of sharp-tailed grouse in North America and was once considered the most abundant and well-known upland game bird in the Pacific Northwest. Of the 6 extant subspecies of sharp-tailed grouse, CSTG has experienced the greatest decline in distribution and abundance. It is reasonably widespread in southeastern Idaho and also occurs in south-central Idaho along the Nevada border and in an isolated portion of western Idaho. Idaho plays a critical role in the continued persistence of populations in the US, as it supports 60-65% of the breeding population.

HABITAT & ECOLOGY

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

Description: Columbian Sharp-tailed Grouse are habitat generalists and inhabit a mosaic of agricultural and rangeland communities. Native habitat is characterized by bunchgrass prairie and shrub-bunchgrass rangelands in good to excellent ecological condition for nesting and brood-rearing habitat and tall, deciduous shrub thickets in shrubby riparian zones, mountain-shrub patches, and aspen stands for overwintering. CSTG will also use, and can benefit from, artificially created habitats, such as agricultural fields, seeded rangelands, and Conservation Reserve Program (CRP) or State Acres For wildlife Enhancement (SAFE) fields. During spring, males gather at traditional lek sites that are typically located on low knolls, benches, and

Appendix F. Species Conservation Status Assessments. Continued.

ridgetops slightly higher than surrounding terrain. Usually within 2 km (1.2 mi) of the breeding lek, the female constructs a rudimentary nest on the ground in dense vegetation and lays 10-12 eggs. Seasonal diets include insects, herbaceous forbs, berries, buds of deciduous shrubs and trees, and cultivated plants where available.

POPULATION TREND

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

Long-term Trend: Decline 70–80%

Description: Columbian Sharp-tailed Grouse were once widely distributed in Idaho (in >35 of 44 counties). Idaho population declines were first noted during the early 1900s, but major range reduction and declines occurred between 1950 and 1970. Occupied range currently encompasses approximately 35,900 km² (13,861 mi²), or 23% of the historical range estimate of 155,200 km² (59,923 mi²). Since inception in 1985, CRP has provided many thousands of acres of nesting and brood-rearing habitat on private lands in Idaho, resulting in an apparent increase in CSTG populations.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Habitat loss and fragmentation are responsible for extirpation of CSTG across most of their historical range. Furthermore, habitat loss and degradation continue to be the 2 most unequivocal threats to CSTG throughout their range. Historically, the primary cause of habitat loss was conversion to intensive agriculture; however, in recent years, the primary causes of habitat loss have been residential and commercial development. Modern, large-scale farming and intensive farming practices (e.g., clean farming, autumn plowing, continuous row cropping) have been detrimental to CSTG. The birds may experience nest loss or direct mortality due to cultivation, haying, mowing, and agricultural chemical application. Improper livestock grazing management is often considered a primary factor contributing to the decline in CSTG populations.

CONSERVATION ACTIONS

Conservation issues and actions are described in the 2015 Management Plan for the Conservation of Columbian Sharp-tailed Grouse in Idaho 2015-2020 and the appropriate section plans. In short, recommended strategies include protecting the quantity and quality of existing habitat (including CRP and SAFE lands), providing incentives and assistance to landowners to improve habitat on private land, implementing a monitoring program that provides annual estimates of productivity, harvest, population abundance, and trend information, and avoiding disturbance to breeding complexes (lands within a 2 km [1.2 mi] radius of occupied leks).

ADDITIONAL COMMENTS

None.

Information Sources: IDFG. 2015. Management plan for the conservation of Columbian sharp-tailed grouse in Idaho 2015–2025. Boise (ID): Idaho Department of Fish and Game; Hoffman RW, Thomas AE. 2007. Columbian sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*): A Technical Conservation Assessment. Fort Collins (CO): USDA Forest Service, Rocky Mountain Region.; Knetter J, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Common Loon

Gavia immer

Class: Aves
Order: Gaviiformes
Family: Gaviidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: No status

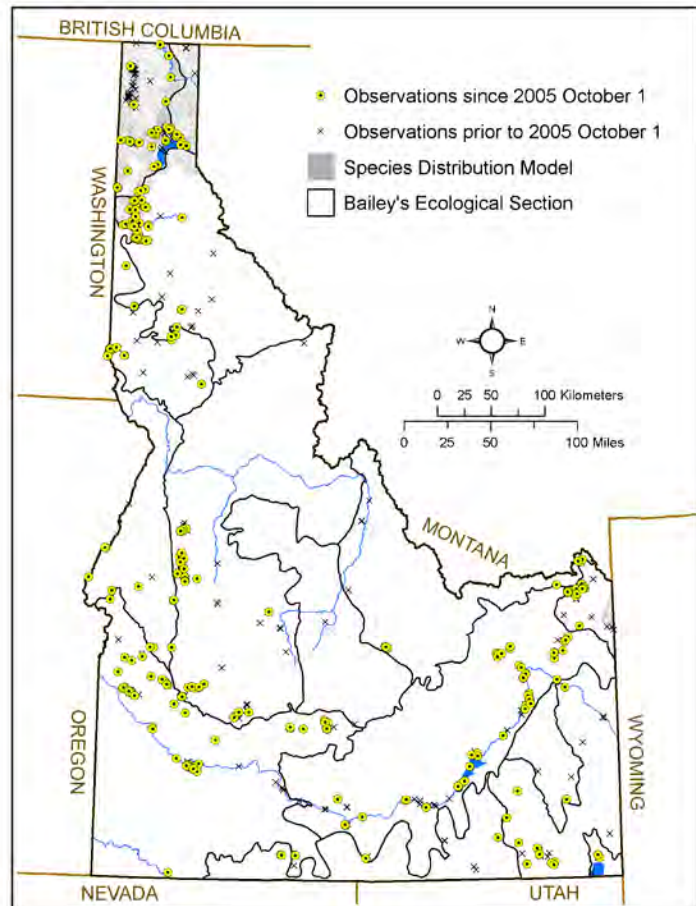
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S1B, S2N

SGCN TIER: 2

Rationale: Breeding population only,
limited distribution, low population size



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 213,700 km² (~82,500 mi²)

Key Ecological Sections: Flathead Valley, Okanogan Highlands, Yellowstone Highlands

Population Size in Idaho: <20

Description: The Common Loon breeds from Alaska south to the northern parts of the conterminous US and winters on the Pacific and Atlantic coasts. Although these birds are commonly seen in Idaho during migration, and have been observed in breeding plumage on 13 lakes in northern and southeastern Idaho, few instances of nesting are confirmed or can be inferred. In the 1990s, nonflying juveniles were observed at Priest Lake, Upper Priest Lake, and the Clark Fork Delta. In recent years, adult pairs have been observed at Island Park Reservoir and nests found at Herman Lake (2012) and Bonner Lake (2014—although this nest was later abandoned). An estimated 1,320 breeding adults are in the Great Basin and Northern Rocky Mountains. Idaho's breeding population size is uncertain, but is likely fewer than 20 individuals.

HABITAT & ECOLOGY

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

Description: This species is long-lived, exhibits delayed reproduction (7 years of age), and has low lifetime reproductive potential. Loons are piscivorous, visual predators that require clear, oligotrophic lakes with an abundance of small fish. Lakes are usually larger than 9 ha (22 ac) in size and below 1,800 m (5,905 ft) elevation with forested or rocky shorelines. Nesting occurs in wind-sheltered locations on islands, floating bogs, marshes, muskrat houses, logs, and artificial nest platforms. Common Loons prefer nest sites with open views adjacent to the water and near

Appendix F. Species Conservation Status Assessments. Continued.

drop-offs steep enough to enable an underwater approach. Females produce 1-2 eggs per year and may attempt to renest if their first attempt is unsuccessful.

POPULATION TREND

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

Long-term Trend: Unknown

Description: Common Loon numbers declined substantially across their southern range during the early and mid-1900s. Widespread shooting, sparked by public belief that loons were depleting game fish populations, contributed to declines. In Idaho, at least 12 lakes historically had nesting pairs, but were apparently extirpated by the mid-1900s. Numbers appear to be steadily increasing in much of the US and Canada. Although no population trends have been documented in Idaho, nesting does occur intermittently. In Montana, the population north of Missoula and west of the Continental Divide appears to be stable or slightly increasing. Although BBS data are considered poor reflections of Common Loon trends, they do indicate statistically significant increases in the US from 1966-2013 (+1.3% per year) and 2003-2013 (+1.7% per year).

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Human disturbance on nesting lakes can result in nest failure, juvenile mortality, and lake abandonment. Mortality associated with development of solar energy facilities is an emerging threat, particularly for wetland-dependent species. Most solar facilities have no systematic monitoring efforts in place to measure potential impacts on wildlife, yet incidental observations at three facilities in the West from 2012-2014 indicate >1,000 mortalities of at least 160 bird species, including Common Loons. It is suspected that large, flat solar panels resemble waterbodies. Birds crash into the panels while attempting to land and either die upon impact or become grounded (loons cannot take off from land) and perish in the heat.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include developing a monitoring and protection program for nesting birds, establishing reporting protocols for injured and dead loons, and working with the US Fish and Wildlife Service and the Pacific Flyway Council's Nongame Technical Committee to research and develop operational guidelines intended to minimize wildlife mortality at solar energy facilities.

ADDITIONAL COMMENTS

None.

Information Sources: Evers DC, Paruk JD, McIntyre JW, Barr JF. 2010. Common Loon (*Gavia immer*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Pacific Flyway Council. 2015. Pacific Flyway Council recommendations, informational notes, and subcommittee reports, March 2015; IDFG unpublished data; N Merz, Kootenai Tribe of Idaho, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Western Grebe

Aechmophorus occidentalis

Class: Aves

Order: Podicipediformes

Family: Podicipedidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

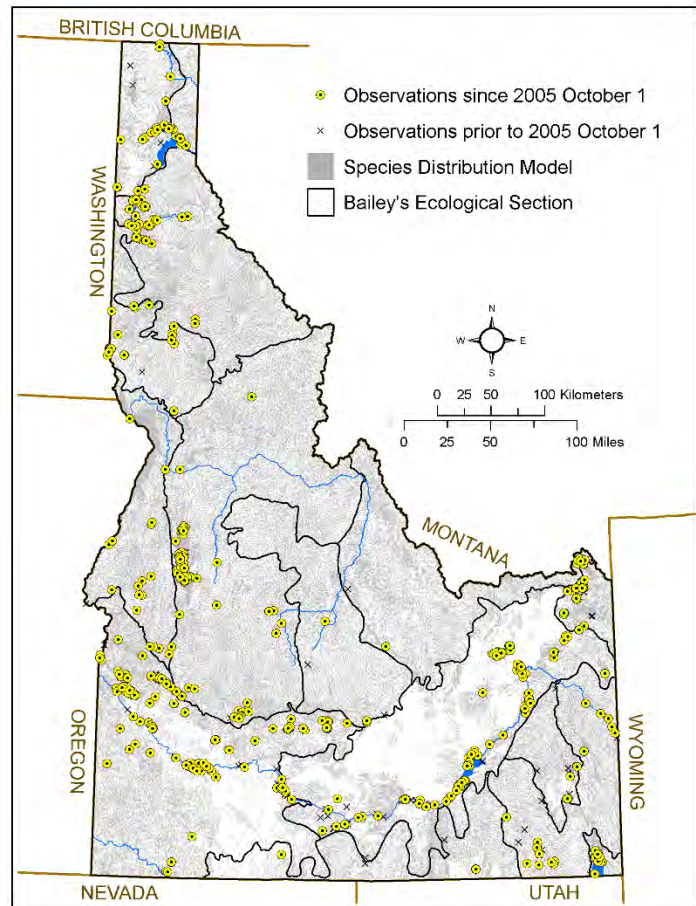
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2B

SGCN TIER: 2

Rationale: Declining population, multiple threats



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bear Lake, Bitterroot Mountains, Idaho Batholith, Northwestern Basin and Range, Okanogan Highlands, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: 3,000-4,500

Description: Western Grebes occur seasonally throughout most of the western half of North America where suitable wetlands occur. Most birds winter along the Pacific coast from British Columbia to Baja California, although some winter records at inland locations of open water have been documented. There are approximately 110,000 individuals in North America, and approximately 4,000 of these breed in Idaho. In Idaho, this species breeds along the Snake River drainage in the southern and southeastern parts of the state, at Lake Cascade, and at several locations in the Panhandle. More than half of the state's population breeds at Lake Cascade.

HABITAT & ECOLOGY

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

Description: Western Grebes are colonial waterbirds that nest on freshwater lakes or marshes with extensive open water, where they feed primarily on fish. They arrive at Idaho nesting areas in late April to early May. This species is best known for its elaborate courtship displays of running (called "rushing") across the water's surface. They construct a floating platform nest in emergent vegetation protected from wind and waves. Usually nests are in colonies, where the earliest nests establish the core and subsequent nests radiate outward. Some colonies contain hundreds to thousands of nests. Young leave the nest on their parents' backs as soon as they hatch and are raised on the open water. Western Grebes migrate from September through October.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Unknown

Description: Population trend data for Western Grebes are combined with those for Clark's Grebes because the two species are so similar in appearance that observers typically do not distinguish between them. In the US, BBS data indicate 1.6% annual declines from 1966–2013. In Idaho, BBS data indicate declines of 5% per year during that time period, and even steeper declines of 5.7% per year between 2003 and 2013. Productivity has dropped significantly in recent years at all locations that are monitored regularly, including at Lake Cascade, Lake Lowell, and Minidoka NWR.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Because Western Grebes build floating nests on the surface of the water, they are particularly vulnerable to droughts, floods, wind-driven waves, and fluctuating water levels. Most nesting colonies in Idaho are located on reservoirs or along rivers susceptible to water fluctuations resulting from dam operations. Rapid increase in water levels results in nest flooding, while rapid releases of water results in nests that are no longer accessible. From nest initiation through brood-rearing, this species is also sensitive to recreational boating activities. Boat wake can inundate or flip nests, causing nest failure, and inattentive boat use too close to Western Grebes carrying young can result in separation of the young from adults, and ultimately mortality of the separated young. Mortality associated with development of solar energy facilities is an emerging threat, particularly for wetland-dependent species. Most solar facilities have no systematic monitoring efforts in place to measure potential impacts on wildlife, yet incidental observations at three facilities in the West from 2012–2014 indicate >1,000 mortalities of at least 160 bird species, including Western Grebes. It is suspected that large, flat solar panels resemble waterbodies. Birds crash into the panels while attempting to land and either die upon impact or become grounded (grebes cannot take off from land) and perish in the heat.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, they include developing Best Management Practices for managing water level fluctuations around nesting colonies, identifying opportunities for reducing water level fluctuations, determining causes of high nest failure, and managing recreational boating during the nesting season (e.g., creating no-wake zones and installing interpretive signage).

ADDITIONAL COMMENTS

None.

Information Sources: Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DL, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Pacific Flyway Council. 2015. Pacific Flyway Council recommendations, informational notes, and subcommittee reports, March 2015.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Clark's Grebe

Aechmophorus clarkii

Class: Aves

Order: Podicipediformes

Family: Podicipedidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

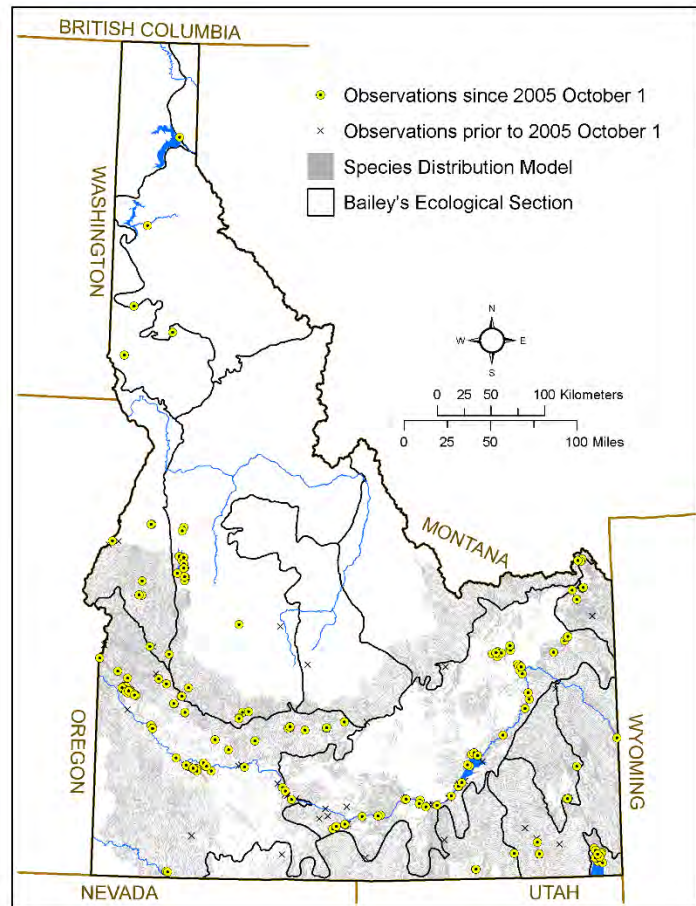
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2B

SGCN TIER: 2

Rationale: Population declines, multiple threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 119,600 km² (~46,200 mi²)

Key Ecological Sections: Bear Lake, Bitterroot Mountains, Idaho Batholith, Northwestern Basin and Range, Okanogan Highlands, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 250-500

Description: Clark's Grebes occur seasonally throughout most of the western half of North America where suitable wetlands occur. Most birds winter along the Pacific coast from British Columbia to Baja California. There are approximately 15,000 individuals in North America, and an estimated 472 of these breed in Idaho. In Idaho, the breeding distribution is primarily associated with the extensive Snake River drainage in the southern and southeastern parts of the state.

HABITAT & ECOLOGY

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

Description: Clark's Grebes are colonial waterbirds that nest on freshwater lakes or marshes with extensive open water, where they feed primarily on fish. They arrive at Idaho nesting areas in late April to early May, and are generally found in mixed species flocks with Western Grebes. This species is best known for its elaborate courtship displays of running (called "rushing") across the water's surface. They construct a floating platform nest in emergent vegetation protected from wind and waves. Usually nests are in colonies, where the earliest nests establish the core and subsequent nests radiate outward. Young leave the nest on their parents' backs as soon as they hatch and are raised on the open water. Clark's Grebes depart Idaho nesting sites September through October.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Unknown

Description: Population trend data for Clark's Grebes are combined with those for Western Grebes because the two species are so similar in appearance that observers typically do not distinguish between them. In the US, BBS data indicate 1.6% annual declines from 1966–2013. In Idaho, BBS data indicate declines of 5% per year during that time period, and even steeper declines of 5.7% per year between 2003 and 2013. Productivity has dropped significantly in recent years at all locations that are monitored regularly, including at Lake Cascade, Lake Lowell, and Minidoka NWR.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Because Clark's Grebes build floating nests on the surface of the water, they are particularly vulnerable to droughts, floods, wind-driven waves, and fluctuating water levels. Most nesting colonies in Idaho are located on reservoirs, or along rivers susceptible to water fluctuations resulting from dam operations. Rapid increase in water levels results in nest flooding, while rapid releases of water results in nests that are no longer accessible. From nest initiation through brood-rearing, this species is also sensitive to recreational boating activities. Boat wake can inundate or flip nests, causing nest failure, and inattentive boat use too close to grebes carrying young can result in separation of the young from adults, and ultimately mortality of the separated young. Mortality associated with development of solar energy facilities is an emerging threat, particularly for wetland-dependent species. Most solar facilities have no systematic monitoring efforts in place to measure potential impacts on wildlife, yet incidental observations at three facilities in the West from 2012-2014 indicate >1,000 mortalities of at least 160 bird species, including Clark's Grebes. It is suspected that large, flat solar panels resemble waterbodies. Birds crash into the panels while attempting to land and either die upon impact or become grounded (grebes cannot take off from land) and perish in the heat.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, they include developing Best Management Practices for managing water level fluctuations around nesting colonies, identifying opportunities for reducing water level fluctuations, determining causes of high nest failure, and managing recreational boating during the nesting season (e.g., creating no-wake zones and installing interpretive signage).

ADDITIONAL COMMENTS

None.

Information Sources: Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Pacific Flyway Council. 2015. Pacific Flyway Council recommendations, informational notes, and subcommittee reports, March 2015.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

American White Pelican *Pelecanus erythrorhynchos*

Class: Aves
Order: Pelecaniformes
Family: Pelecanidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

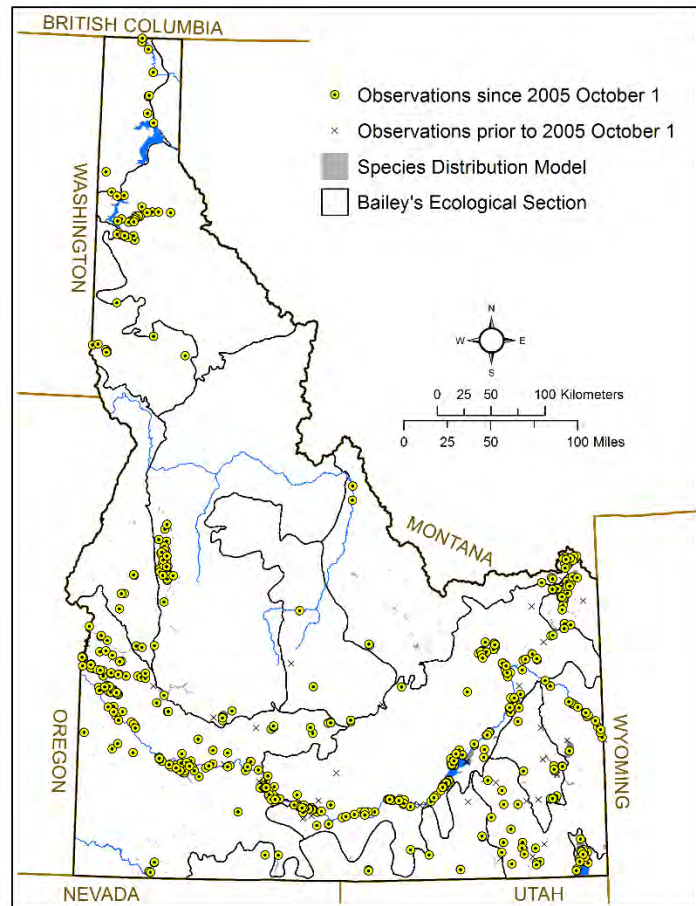
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S3B

SGCN TIER: 2

Rationale: Significant proportion of the western US population breeds in Idaho, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 100,800 km² (~38,900 mi²)

Key Ecological Sections: Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: 3,000-8,000

Description: The American White Pelican breeds in two distinct populations, east and west of the Continental Divide. Winter range includes the Pacific coast from California south to Mexico and along the Gulf of Mexico. The western population is distributed among 17-19 colonies and was estimated at 43,000 birds in 2014. Idaho supports approximately 16% of the western breeding population and is the third largest relative contributor to this population segment. In 2015, 2,151 breeding pairs nested at three locations in Idaho: Minidoka NWR (1,102 pairs), Blackfoot Reservoir (733 pairs), and Island Park Reservoir (316 pairs).

HABITAT & ECOLOGY

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

Description: This fish-eating species nests in colonies predominantly on isolated, permanent islands in freshwater lakes and managed reservoirs. It typically winters on shallow coastal bays, inlets, and estuaries in areas where the minimum January temperature stays above 4° C (40° F). Pelicans marked in Idaho winter on reservoirs and large rivers that remain ice-free. This species is long-lived (average 12-14 years, longevity records > 26 years) and begins breeding at 4+ years. Productivity in the western US averaged 0.38 and 0.30 young fledged per nest from 2000-2009 and 2010-2013, respectively.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Increase >25%

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

Description: In the early 1900s, there were approximately 60,000 breeding birds and 24 nesting colonies (4 in Idaho) in the western population segment. By the late 1970s, this population declined to 16,000 breeding birds and 8 nesting colonies (none in Idaho). The subsequent ban of organochlorine pesticide use and an increase in federal and state protections were likely key factors to recovery that began in the 1980s. The population peaked at 46,000 breeding birds in 1992 and has since remained relatively stable. However, average annual productivity declined 67% from 0.96 young fledged per nest in the 1960s to 0.30 young per nest from 2010-2013. In Idaho, this species recolonized in the early 1990s and quickly grew to almost 8,000 breeding birds by 2007. From 2010-2015, the breeding population fluctuated between 3,040 and 7,740 individuals (average 5,680).

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threats to Pelicans include human disturbance of nesting colonies and climate change. There are indications that the western population is shifting northward, latitudinally, perhaps in response to climate change-related drought conditions in the southern extent of their breeding range. In addition, pelican migration has advanced by more than 2 weeks at the largest known pelican colony in Chase Lake, North Dakota, possibly in response to warmer spring temperatures. This has increased exposure to late winter storms and cold temperatures and negatively impacted productivity (0-4% productivity rate in 4 of 5 years studied). This is a potential concern in Idaho, though arrival dates have not been tracked.

CONSERVATION ACTIONS

Conservation actions for this species are described in more detail in the appropriate section plans. These include working with the Pacific Flyway Council's Nongame Technical Committee to develop and implement a wetland connectivity assessment to address impacts of drought, analyzing trends in population size and productivity, and determining current survivorship rates. The Idaho Pelican Management Plan and Pelican Conservation Strategy provide detailed guidance on maintaining viable breeding populations of pelicans while reducing impacts to native trout and key recreational fisheries.

ADDITIONAL COMMENTS

Following the decline in pelican abundance in the western population, the FWS drafted the "Guidelines for the Management of the American White Pelican, Western Population" in 1984 to proactively manage recovery and preclude listing under the ESA.

Information Sources: Sovada MA, Igl LD, Pietz PJ, Bartos AJ. 2014. Influence of climate change on productivity of American white pelicans, *Pelecanus erythrorhynchos*. PLoS ONE 9(1): e83430; IDFG. 2014. Bird conservation strategy: reducing American White Pelican/Yellowstone cutthroat trout conflicts. Boise (ID): Idaho Department of Fish and Game.; Pacific Flyway Council. 2015. Pacific Flyway Council recommendations, informational notes, and subcommittee reports, July 2015; Moulton CE, Wackenhut M. In Review. Changes in population size, productivity, and distribution of western American White Pelicans (*Pelecanus erythrorhynchos*), 1960–2013. Boise (ID): Idaho Department of Fish and Game; IDFG. In Revision. Management plan for the conservation of American White Pelicans in Idaho. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Scott JM, Peterson CR, Karl JW, Strand E, Svancara LK, Wright NW. 2002. A Gap Analysis of Idaho: Final Report. Moscow (ID): Idaho Cooperative Fish and Wildlife Research Unit.

American Bittern

Botaurus lentiginosus

Class: Aves
Order: Pelecaniformes
Family: Ardeidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

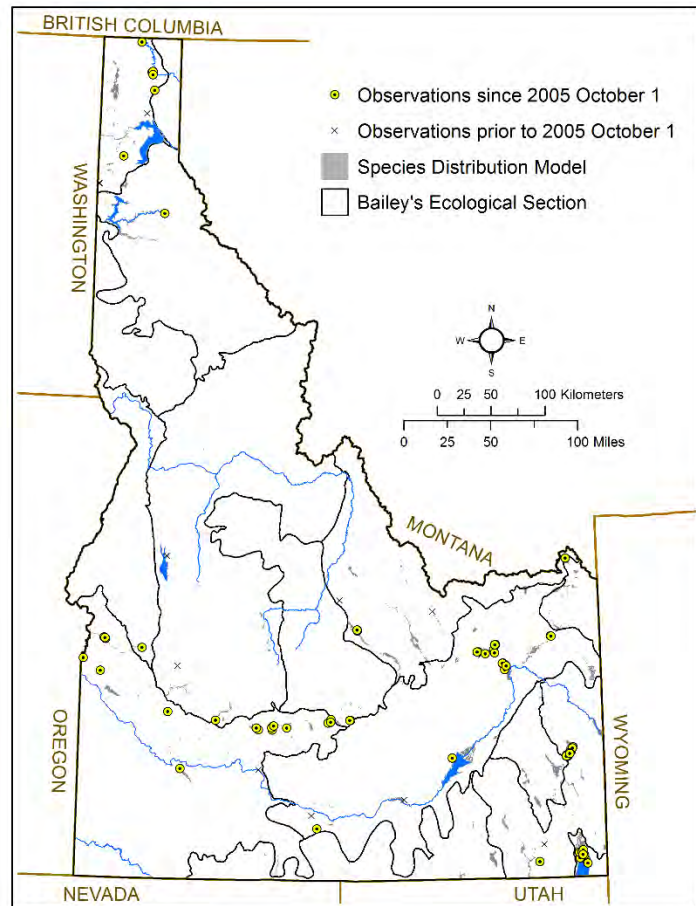
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S1B

SGCN TIER: 2

Rationale: Population declines, threats to wetland habitats



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bear Lake, Bitterroot Mountains, Okanogan Highlands, Overthrust Mountains, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 4,000-12,000

Description: American Bitterns breed in freshwater marshes throughout the northern half of the US north to approximately 55° latitude in Canada. Winters along southern coastal plain where temperatures remain above freezing. Breeding population is patchily distributed throughout southern Idaho and a couple isolated locations north of Lake Pend Oreille. Population size rangewide is uncertain. Surveys conducted in Idaho in 2009 and 2010 indicate an annually fluctuating population size between 4,000 and 12,000 individuals.

HABITAT & ECOLOGY

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

Description: American Bitterns require large (>10 ha) marshes with tall emergent vegetation (primarily hardstem bulrush and common cattail) for breeding. In Idaho, this habitat is limited mostly to NWRs and IDFG WMAs. Marshes that have become decadent are not typically suitable for this species, and birds using a decadent marsh can quickly dwindle. American Bitterns are strictly carnivorous, feeding primarily on insects, amphibians, crayfish, and small fish and mammals. They mainly forage along shorelines and edges of emergent vegetation, but may also hunt for prey in open, flooded fields. Females typically build nests in dense emergent vegetation over water that is 5-20cm (2-8 in) deep. This species is believed to produce a single brood per year.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 80–90%

Long-term Trend: Unknown

Description: North American Breeding Bird Survey data indicate long-term (1966-2013) population declines in the US and the western BBS region of -1.5% and -3.4% per year, respectively. BBS data also indicate both long-term (1966-2013) and short-term (2003-2013) declines in Idaho of greater than -15% per year, however, these trends are based upon extremely small sample sizes and should be interpreted cautiously. There is concern at Bear Lake NWR that the once dense population of bitterns, as documented by surveys in 2005-2007, has declined dramatically in recent years.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Loss of suitable wetland habitat is of primary concern for American Bitterns. In Idaho, suitable habitat is limited mostly to protected lands (NWRs and WMAs) and managing these wetlands for the structural characteristics needed by American Bitterns is a challenge. For example, some sites may require prescribed burns to open decadent stands of bulrush and cattail, which can be logistically and financially difficult to accomplish. Impacts of climate change, particularly from drought, are also of concern for this species. Declines in US may indicate a northern population shift, in part because of habitat destruction and drought at southern extent of this species' range.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include working with the Pacific Flyway Council's Nongame Technical Committee on a wetland connectivity assessment, working with land managers to identify opportunities for increasing the availability of natural wetlands and developing wetland management actions that would benefit this species, and determining current distribution and abundance.

ADDITIONAL COMMENTS

None.

Information Sources: Lowther P, Poole AF, Gibbs JP, Melvin S, Reid FA. 2009. American Bittern (*Botaurus lentiginosus*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; M Seamans, FWS, pers. comm.; IDFG unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Scott JM, Peterson CR, Karl JW, Strand E, Svancara LK, Wright NW. 2002. A Gap Analysis of Idaho: Final Report. Moscow (ID): Idaho Cooperative Fish and Wildlife Research Unit.

White-faced Ibis

Plegadis chihi

Class: Aves

Order: Pelecaniformes

Family: Threskiornithidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

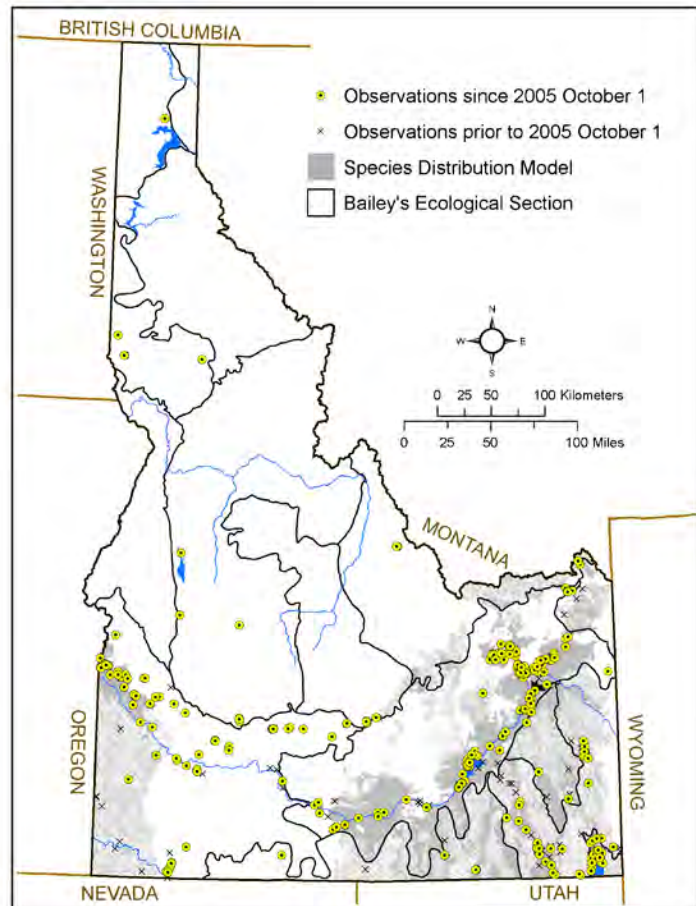
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2B

SGCN TIER: 2

Rationale: Significant threats to habitat and productivity



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 110,100 km² (~42,500 mi²)

Key Ecological Sections: Bear Lake, Overthrust Mountains, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: >85,000

Description: Over 85,000 breeding birds nest at 6 known locations in Idaho, representing over half of the western states' breeding population: Bear Lake NWR, Duck Valley Indian Reservation, Grays Lake NWR, Market Lake WMA, Mud Lake WMA, and Oxford Slough Waterfowl Production Area. Market Lake and Mud Lake WMAs are the most critical areas for White-faced Ibis in the West, supporting approximately 40% of the Idaho breeding population and 20% of the western breeding population.

HABITAT & ECOLOGY

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

Description: White-faced Ibis are colonial breeders, generally choosing to nest in shallow marshes with dense emergent vegetation. In Idaho, most colonies are found in hardstem bulrush/cattail marshes. Nest platforms are constructed within the bulrush, using bent-over bulrush stalks and adjacent upright stalks. This type of nest construction lends itself to collapse or flooding and nest failure if water levels drop or rise dramatically during the incubation/early nestling period. This species forages for aquatic and moist soil invertebrates in shallowly-flooded wetlands and flood-irrigated croplands. Alfalfa, barley, and native hay meadows are particularly important foraging areas in Idaho and the Intermountain West. After the nesting

Appendix F. Species Conservation Status Assessments. Continued.

season, this species congregates by the thousands to feed on the extensive mudflats of American Falls Reservoir.

POPULATION TREND

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

Long-term Trend: Unknown

Description: After a decline in the 1960s and 1970s, White-faced Ibis populations have increased in recent years, likely a result of improved nesting and foraging habitat management, a ban on DDT, and increased productivity at large breeding colonies. From 1966–2004, BBS data indicate statistically significant increases in the US (+8.6% per year) and western BBS region (+9.9% per year). The Great Basin population has experienced a four-fold increase since 1985 and, although BBS data do not indicate statistically significant changes in Idaho, Taylor et al. (1989) reported marked increases in the Idaho nesting population.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Agricultural conversion to center-pivot from flood irrigation is the biggest threat to this species in Idaho. 40% of Idaho's breeding population resides at Market Lake and Mud Lake WMAs. The surrounding landscape is rapidly losing flood-irrigated habitats that are used extensively by ibis for foraging. Research indicates that ibis nesting at Market Lake WMA are traveling further to forage than previously documented. The ibis colony at Mud Lake WMA is also threatened by rapid water level fluctuations that result in nest flooding and almost complete colony failure in some years. Decreased water levels in some locations, like Oxford Slough Waterfowl Production Area, result in increased access to nesting colonies by predators and significant nesting failure.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. Recommended actions include working with the Natural Resource Conservation Service, private landowners and land managers to identify opportunities to restore natural wetlands suitable for foraging, maintaining flood-irrigated agricultural fields within 20km (12.4 mi) of ibis colonies, and working with water managers to develop and implement water level management recommendations that reduce nest loss while meeting irrigation needs.

ADDITIONAL COMMENTS

None.

Information Sources: Cavitt JF, Jones SL, Wilson NM, Dieni JS, Zimmerman TS, Doster RH, Howe WH. 2014. Atlas of breeding colonial waterbirds in the interior western United States. Denver(CO): US Fish and Wildlife Service; Moulton C, Carlisle J, Brenner K, Cavallaro R. 2013. Assessment of foraging habitats of White-faced Ibis near two important breeding colonies in eastern Idaho. Boise(ID): Idaho Department of Fish and Game; Ryder RR, Manry DE. 1994. White-faced Ibis (*Plegadis chihi*). The Birds of North America Online. (A Poole, editor). Ithaca (NY): Cornell Laboratory of Ornithology. [accessed 2015 Jun 01]; Sauer JR, Hines JE, Fallon J. 2005. The North American Breeding Bird Survey, results and analysis 1966–2004. Version 2005.2. Laurel(MD): USGS Patuxent Wildlife Research Center; Ivey GL, Herziger CP, coordinators. 2005. Intermountain West Waterbird Conservation Plan—A plan associated with the Waterbird Conservation for the Americas initiative. Version 1.0. Portland(OR): US Fish and Wildlife Service Pacific Region; Yee DG, Deuel BE, Bailey SF. 1990. Middle Pacific coast region. American Birds 44:491–494; Taylor DM, Trost CH, Jamison B. 1989. The biology of the White-faced Ibis in Idaho. Western Birds 20:125–133.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Ferruginous Hawk

Buteo regalis

Class: Aves
Order: Accipitriformes
Family: Accipitridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

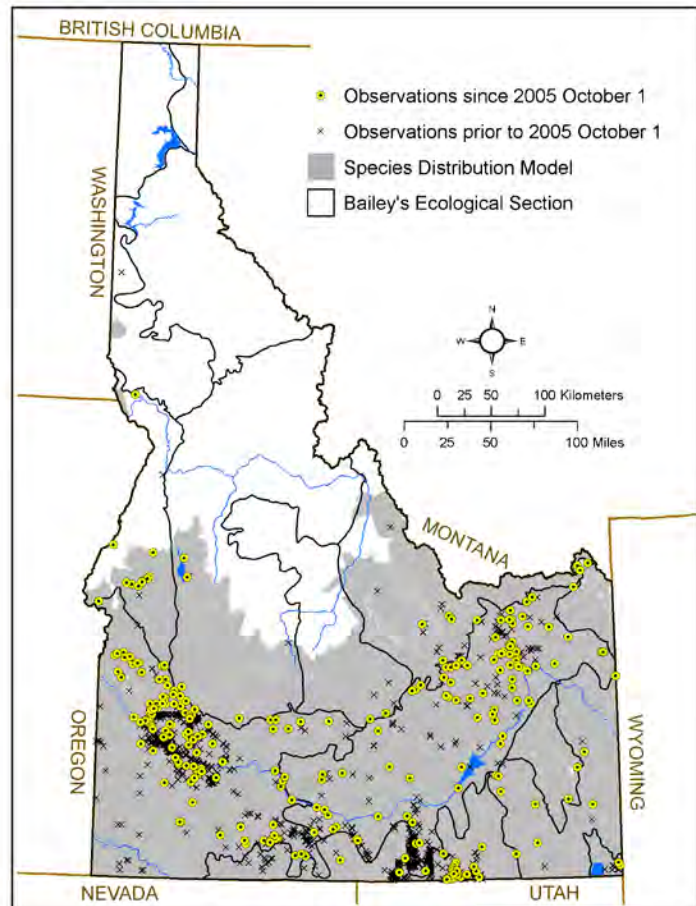
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S3B

SGCN TIER: 2

Rationale: Multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 142,100 km² (~54,900 mi²)

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

Population Size in Idaho: 500–1,000

Description: Ferruginous Hawks breed throughout western North America from southern Canada between the Great Plains and Rocky Mountains south to northern Arizona and New Mexico. They are distributed throughout southern Idaho, primarily in the shrubsteppe communities of the Snake River plain and are relatively uncommon with approximately 625 breeding individuals in the state. Ferruginous Hawks winter in the southern US and Mexico, but a limited number of birds reside year-round in the extreme southern part of Idaho.

HABITAT & ECOLOGY

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

Description: The Ferruginous Hawk inhabits flat and rolling terrain in grassland or shrub steppe regions, typically avoiding high elevation, forest interior, and narrow canyons. It occurs in grasslands, sagebrush and saltbush-greasewood shrublands, and the edges of pinyon-juniper forests. In Idaho, this species is locally abundant at the interface between pinyon-juniper and shrub steppe environments, and it hunts from the air or perch, most frequently near sunrise or sunset. Nests are constructed in trees (primarily junipers), tall shrubs, and on cliffs with up to 8–10 nests per 100 km² (39 mi²) if conditions are favorable. Breeding males in Idaho were estimated to have an average home range of 7–8 km² (2.7–3.0 mi²). Ferruginous Hawk nests are often located

Appendix F. Species Conservation Status Assessments. Continued.

within 0.8km (0.5 mi) of a Swainson's Hawk nest. They typically migrate southward in the fall, but reside year-round in limited numbers in the extreme southern part of the state.

POPULATION TREND

Short-term Trend: Increase >25%

Long-term Trend: Unknown

Description: North American Breeding Bird Survey data do not indicate any significant long-term (1966-2013) or short-term (2003-2013) trends in the US. BBS data do suggest increases in Idaho of 2.1% per year during the period 1966-2013 and 1.9% per year during the period 2003-2013. However, these trends are not statistically significant.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Main issues threatening the Ferruginous Hawk appear to be agricultural development and recreational disturbance. Population declines have been attributed to the deleterious effects of cultivation, grazing, poisoning and controlling of small mammals, mining, and fire in nesting habitats. Because this species often nests in tall shrubs (juniper) on rangelands, it is susceptible to human disturbance, particularly from OHV use on public lands. Occasional illegal shooting has been documented for individual birds (Idaho Power Company, pers. comm., 2015) but information is insufficient to draw conclusions about population or productivity effects.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include supporting legislation for renewing the Conservation Reserve Program in future Farm Bills, managing off-road travel in nesting areas, promoting best management practices for livestock grazing in sagebrush steppe habitat, and conducting public outreach and hunter education emphasizing native birds are protected species.

ADDITIONAL COMMENTS

None.

Information Sources: Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Golden Eagle

Aquila chrysaetos

Class: Aves
Order: Accipitriformes
Family: Accipitridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

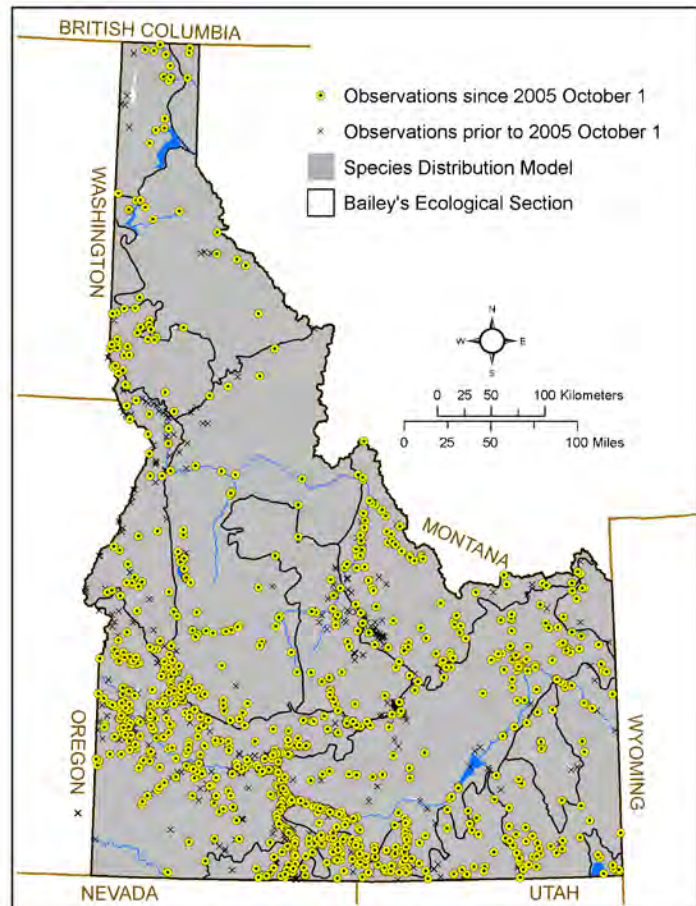
IDAPA: Protected Nongame Species

G-rank: G5

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, Challis Volcanics, Northwestern Basin and Range, Overthrust Mountains, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 1,000–2,500

Description: Golden Eagles are distributed throughout the western half of North America. This species is found throughout Idaho, wherever there is open habitat, but nests primarily in the southern half of the state. There are an estimated 130,000 individuals in North America and approximately 1,600 of these are present in Idaho during the breeding season.

HABITAT & ECOLOGY

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

Description: Golden Eagles breed in open and semiopen shrublands, grasslands, and coniferous forests, occurring primarily in canyon land and rimrock terrain. Nesting density in Idaho tends to be higher in areas bordered by shrub steppe and grassland than in areas bordered by agriculture. This species typically forages year-round in open habitats, particularly in shrub habitat, but tends to avoid agriculture, grassland, and burned habitats. Golden Eagles are an opportunistic predator, preying mainly on mammals, but will also feed on carrion, especially during winter. Black-tailed Jackrabbits and Cottontails are main prey items in the Great Basin. Golden Eagles usually nest on cliffs, but will also nest in trees. This species often constructs alternate nests (up to 14) in a single territory and will refurbish and re-use existing nests. Golden Eagles produce 1 brood per season, but will re-nest when eggs fail to hatch. Average productivity is 0.79 chicks fledged per nest in southwest Idaho.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

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

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

Description: Long-term nesting surveys show declines in western US populations, but not Alaska or Canada. The number of occupied nesting territories declined significantly from 35 to 29 (-0.71% per year) in the Snake River Canyon between 1971 and 1994. However, BBS data do not indicate any statistically significant trends in the western BBS region or in Idaho during the 1966–2013 or 2003–2013 periods.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Golden Eagles are subject to multiple threats. Nesting population declines have been associated with loss of shrubs and jackrabbit habitat due to widespread fires. Mortality of individual birds from illegal shooting has been documented via power pole surveys in the Snake River Birds of Prey Area (Idaho Power Company, pers. comm., 2015) but statewide information is lacking. As a wide-ranging predator, this species may be negatively affected by wind energy development. Increases in OHV use have been implicated in the decline of Golden Eagle occupancy and nest success in southwest Idaho. Because of their tendency to feed upon carrion, this species is attracted to roadkill and consequently can become subject to vehicle collisions.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies include implementing large-scale experimental activities to remove cheatgrass and other invasive annual grasses, developing appropriate fire suppression plans, conducting public outreach and hunter education emphasizing native birds are protected species, working with utilities to identify power lines that may pose a risk for collision or electrocution mortality, working with the Idaho Transportation Department to increase rate of roadkill removal, and managing OHV travel to minimize negative impacts on public lands.

ADDITIONAL COMMENTS

None.

Information Sources: Kochert MN, Steenhof K. 2002. Golden Eagles in the US and Canada; status, trends conservation challenges. *Journal of Raptor Research* 36(supplement):33–41; Kochert MN, Steenhof K, McIntyre CL, Craig EH. 2002. Golden Eagle (*Aquila chrysaetos*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed 9 Dec 2015; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. *The North American Breeding Bird Survey, Results and Analysis 1966–2013*. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Steenhof K, Brown JL, Kochert MN. 2014. Temporal and spatial changes in golden eagle reproduction in relation to increased off highway vehicle activity. *Wildlife Society Bulletin* 38(4):682–688; Tack JD, Fedy BC. 2015. Landscapes for energy and wildlife: conservation prioritization for Golden Eagles across large spatial scales. *PLoS ONE* 10(8): e0134781. doi:10.1371/journal.pone.0134781; Millsap B, US Fish and Wildlife Service, pers. comm.; Turley N, Idaho Power, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. *Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report*. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Sandhill Crane

Grus canadensis

Class: Aves
Order: Gruiformes
Family: Gruidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

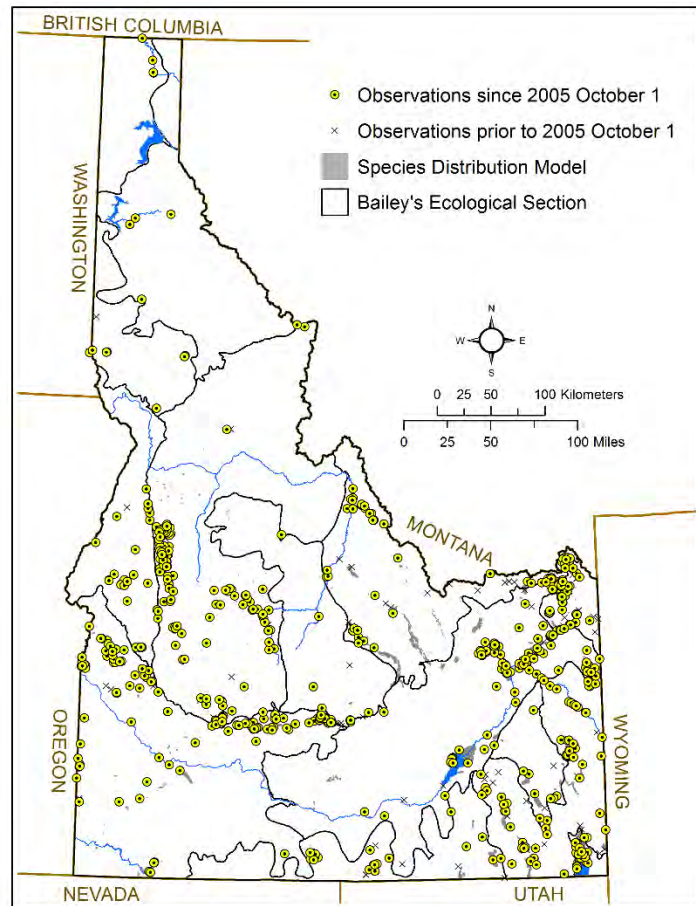
IDAPA: Migratory Game Birds

G-rank: G5

S-rank: S3B

SGCN TIER: 3

Rationale: Significant proportion of the Rocky Mountain Population breeds and/or stages in Idaho, population declines, multiple threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 195,800 km² (~75,600 mi²)

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

Population Size in Idaho: 7,500-10,000

Description: Three crane populations occur in Idaho. The Lower Colorado River Valley Population (LCRVP) breeds in southwest Idaho from the border with Nevada north to New Meadows. The Rocky Mountain Population (RMP) breeds in south-central and eastern Idaho. Lesser Sandhill Cranes in the Pacific Coast Population (PCP) use staging areas in the Treasure and Payette River valleys during spring migration on their way to nesting areas in southern Alaska. In Idaho there are approximately 6,500 birds in the RMP and 1,000 birds in the PCP; there is no population estimate for the LCRVP.

HABITAT & ECOLOGY

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

Description: Sandhill Cranes are found in well-watered river valleys, marshes, and meadows typically above 1500 m (5000 ft) elevation. Cranes nest along the edge of cattail and bulrush marshes in the wet meadow-shallow marsh zones and on islands. Following nesting, cranes stage in nearby wetlands in close proximity to cut grain (wheat or barley). Sandhill Cranes are long-lived and have the lowest recruitment rates (5-15% juveniles/total cranes) of any game bird in North America. Generally, they do not breed until 3-5 years of age and lay two eggs each year.

Appendix F. Species Conservation Status Assessments. Continued.

Less than 20% of breeding pairs are successful in raising young each year, and most successful pairs fledge only one young per year.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Decline (degree unknown)

Description: Sandhill Cranes originally nested in suitable habitat throughout Idaho, but the breeding population decreased rapidly following human settlement. September pre-migration staging surveys indicate the rangewide RMP has been relatively stable in the last 20 years (18,000-20,000 birds), but numbers in Idaho have declined from >10,000 birds in 1987 to 6,500 in 2015. Idaho has supported 22-61% of the RMP (long-term average of 37%). The rangewide RMP has been stable and estimated at 18,000-20,000 birds. The rangewide 20-year trend is increasing for the LCRVP (1,400-2,100 birds) and the PCP (≤25,000 birds).

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to most Sandhill Crane populations is the loss of wetland habitat to residential and agricultural development. Further, agricultural conversion to center-pivot from flood irrigation has reduced foraging habitat. Large congregations stage during migration and use relatively small areas. This makes them particularly vulnerable to local habitat changes. The juxtaposition of secure wetland habitat and cut grain (wheat and barley) is becoming increasingly rare in Idaho. Human disturbance during migration displaces individuals from traditional staging and breeding areas.

CONSERVATION ACTIONS

Recommended actions include improving population monitoring, maintaining suitable habitat at breeding sites, maintaining or increasing grain fields and roost sites at traditional spring and fall staging areas, and providing incentives and assistance to landowners to improve habitat on private land. It is also important to identify and examine broad-scale landscape stressors (e.g., drought and anthropogenic changes) influencing rangewide demographic patterns in the LCRVP and RMP.

ADDITIONAL COMMENTS

The Sandhill Crane is one of the most ancient species of birds that inhabits North America. Fossil records date back at least 2.5 million years.

Information Sources: Gerber BD, Dwyer JF, Nesbitt SA, Drewien RC, Littlefield CD, Tacha TC, Vohs PA. 2014. Sandhill Crane (*Grus canadensis*). The Birds of North America Online. (A Poole, editor). Ithaca(NY): Cornell Lab of Ornithology; Thorpe PP, Donnelly P, Collins D. 2015. September 2015 survey of the Rocky Mountain Population of Greater Sandhill Cranes. Lakewood(CO): US Fish and Wildlife Service.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Scott JM, Peterson CR, Karl JW, Strand E, Svancara LK, Wright NW. 2002. A Gap Analysis of Idaho: Final Report. Moscow (ID): Idaho Cooperative Fish and Wildlife Research Unit.

Long-billed Curlew

Numenius americanus

Class: Aves
Order: Charadriiformes
Family: Scolopacidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

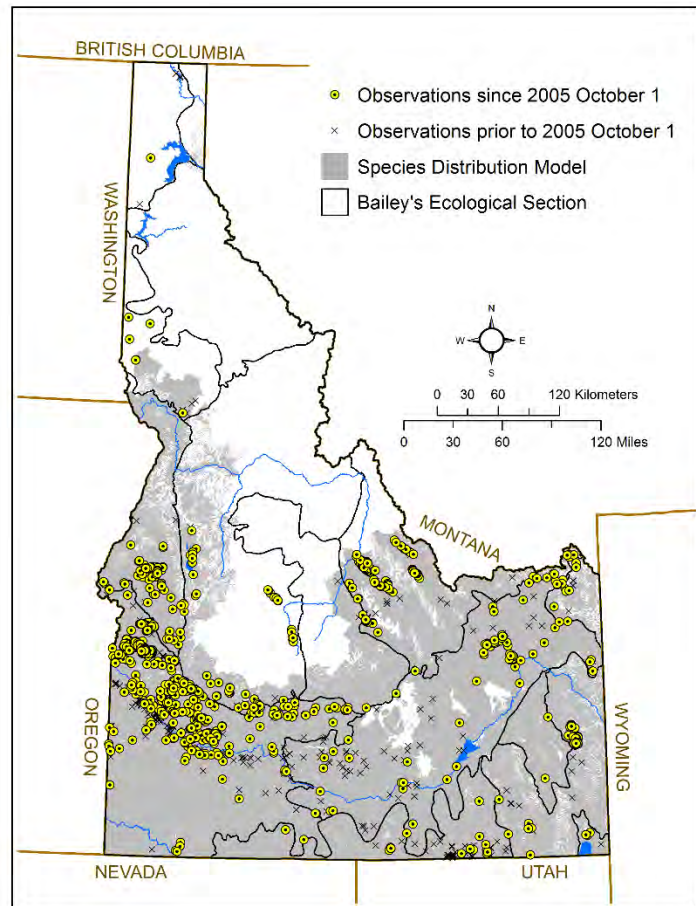
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2B

SGCN TIER: 2

Rationale: Nesting population declines, multiple threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 144,300 km² (~55,700 mi²)

Key Ecological Sections: Beaverhead Mountains, Overthrust Mountains, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

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

Description: The Long-billed Curlew is a shorebird that breeds in prairie and intermountain grassland basins of western North America, including southern Idaho. The continental and Great Basin breeding populations are roughly 123,500 and 40,000 individuals, respectively. In Idaho, the current population size is unknown. As of 1980, 3,000–5,000 pairs nested statewide and included nearly 1,000 nesting pairs in the Long-billed Curlew Habitat Area of Critical Environmental Concern (Curlew ACEC), located between the Boise, Payette, and Snake rivers in southwest Idaho. Recent surveys indicate only 80 pairs now nest in the Curlew ACEC and approximately 7,000 adults are present in the larger BLM Four Rivers Field Office area during the breeding season. Curlews that breed in Idaho are known to winter in California and Mexico.

HABITAT & ECOLOGY

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

Description: Long-billed Curlews require large, open, and contiguous grasslands for nesting. They prefer areas interspersed with emergent wetlands (important at the local scale) and associated with irrigated hay and pasture landscapes. Nesting areas are generally flat or slightly rolling and dominated by grasses. Curlews nest on the ground in patchy vegetation and lay one clutch per season (commonly 4 eggs). They feed on terrestrial insects, benthic invertebrates, and some

Appendix F. Species Conservation Status Assessments. Continued.

small vertebrates. Flood-irrigated and subirrigated fields are important foraging habitats in breeding, transitional, and wintering areas.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Early naturalists provide qualitative evidence of significant rangewide declines during the last half of the 1800s. Today, the species is still believed to be declining rangewide and particularly in the Great Plains, even though BBS data indicate long-term (1966-2013) and short-term (2003-2013) population increases in both the western BBS region (1.3%/year and 2.8%/year, respectively) and Idaho (1.7%/year and 3.8%/year, respectively). The applicability of BBS to monitor Long-billed Curlew trends has been questioned because routes are typically surveyed in June, when curlews are in the late stage of incubation and are generally inconspicuous, or have already left nesting areas. Recent and ongoing research in Idaho is assessing current population size using more appropriate survey methods that could validate BBS trends.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threats to Long-billed Curlew are habitat loss, fragmentation, and degradation of large, open grassland nesting habitats. On some public lands in Idaho, especially the Curlew ACEC, secure nesting habitat is lost from increased recreation pressure and associated activities, including OHV use. Mortality of a few individual birds from illegal shooting has been documented particularly in the area of the designated ACEC, but population effects are unknown. On private lands, major threats include the conversion of grasslands to croplands, rural residential development in landscapes formally dominated by ranching, loss and degradation of wetlands and wet meadows, and loss of flood irrigation.

CONSERVATION ACTIONS

Recommended strategies include working with public land managers on travel management plans to minimize fragmentation, disturbance, and direct mortality in nesting areas, examining the causes of population declines in the Curlew ACEC, conducting public and recreational shooter outreach and hunter education emphasizing native birds are protected species, and working with willing private landowners to protect intact blocks of native grassland habitat, perpetuate traditional ranching operations, and preserve flood irrigation practices.

ADDITIONAL COMMENTS

None.

Information Sources: Fellows SD, Jones SL. 2009. Status assessment and conservation action plan for the Long-billed Curlew (*Numenius americanus*). Washington (DC): US Fish and Wildlife Service; Moulton CE 2012. Long-billed Curlew (*Numenius americanus*) and Burrowing Owl (*Athene cunicularia*) populations in the BLM Four Rivers Field Office 2011 Report. Boise (ID): Idaho Department of Fish and Game; Carlisle J, Moulton C. 2012. 2011 abundance and productivity of Long-billed Curlews (*Numenius americanus*) in the Long-billed Curlew Area of Critical Environmental Concern of southwest Idaho. Boise (ID): Idaho Department of Fish and Game and Boise State University, Intermountain Bird Observatory; Saalfield, ST, Conway WC, Haukos DA, Rice M, Jones SL, Fellows SD. 2010. Multiscale habitat selection by Long-billed Curlews (*Numenius americanus*) breeding in the United States. *Waterbirds* 33(2): 148-161; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Franklin's Gull

Leucophaeus pipixcan

Class: Aves

Order: Charadriiformes

Family: Laridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

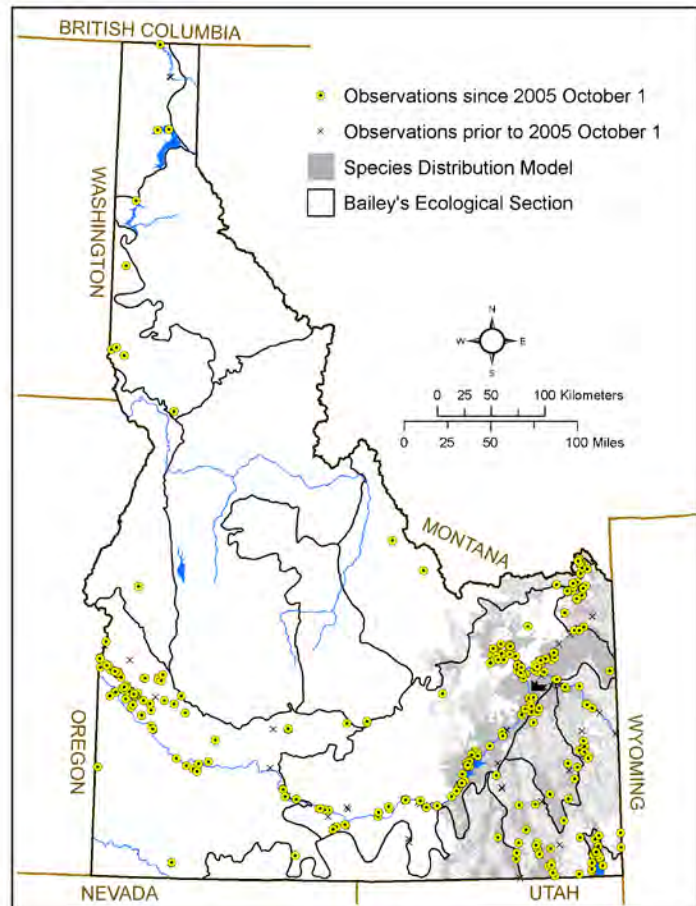
IDAPA: Protected Nongame Species

G-rank: G4G5

S-rank: S3B

SGCN TIER: 3

Rationale: Population declines, multiple threats



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bear Lake, Overthrust Mountains, Snake River Basalts

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

Description: In the interior western US, there are approximately 158,000 breeding adults. Of these, approximately 124,000 breed in eastern Idaho at Bear Lake and Grays Lake NWRs, Market Lake and Mud Lake WMAs, and Oxford Slough Waterfowl Production Area.

HABITAT & ECOLOGY

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

Description: As the only gull that nests exclusively in marshes, Franklin's Gulls breed in large areas with fairly open emergent vegetation (particularly bulrush/cattail marshes) and deep water. Nests are formed on floating mats built on the water's surface, on muskrat lodges, or on floating debris, and are constructed of dead marsh plants. This species forages in marshes, irrigated agricultural fields, pastures, and other field habitats, preying on grasshoppers, earthworms, grubs, insects, and seeds and other vegetable matter.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Given the behavioral nature of Franklin's Gulls to nest in large colonies in remote areas, and to shift colony locations depending on water conditions, determining population trend is quite difficult and BBS trend data likely are inappropriate. Nevertheless, BBS data suggest

Appendix F. Species Conservation Status Assessments. Continued.

declines in the west and in Idaho during the period 1966–2013 (-7% and -4.4% per year, respectively) and 2003–2013 (-2.9% and -5% per year, respectively). In contrast, colony counts indicate that Franklin's Gulls increased substantially in Idaho between 1993 (approximately 9,000 breeding pairs) and 2010 (62,000 breeding pairs). Idaho trends are therefore uncertain at this time.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Agricultural conversion to center-pivot from flood irrigation is the biggest threat to this species in Idaho. Over 40% of Idaho's breeding population resides at Market Lake and Mud Lake WMAs. The surrounding landscape is rapidly losing flood-irrigated habitats that are used by Franklin's Gulls for foraging. The colony at Mud Lake WMA is also threatened by rapid water level fluctuations that result in nest flooding and significant colony failure in some years. Decreased water levels in some locations, like Oxford Slough Waterfowl Production Area, result in increased access to nesting colonies by predators and significant nesting failure.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended actions include working with the Natural Resource Conservation Service, private landowners and land managers to identify opportunities to restore natural wetlands suitable for foraging, maintaining flood-irrigated agricultural fields near nesting colonies, and working with water managers to develop and implement water level management recommendations that reduce nest loss while meeting irrigation needs.

ADDITIONAL COMMENTS

None.

Information Sources: Moulton C, Carlisle J, Brenner K, Cavallaro R. 2013. Assessment of foraging habitats of White-faced Ibis near two important breeding colonies in eastern Idaho. Boise (ID): Idaho Department of Fish and Game; Cavitt JF, Jones SL, Wilson NM, Dieni JS, Zimmerman TS, Doster RH, Howe WH. 2014. Atlas of breeding colonial waterbirds in the interior western United States. Denver (CO): US Fish and Wildlife Service; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Ring-billed Gull

Larus delawarensis

Class: Aves

Order: Charadriiformes

Family: Laridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

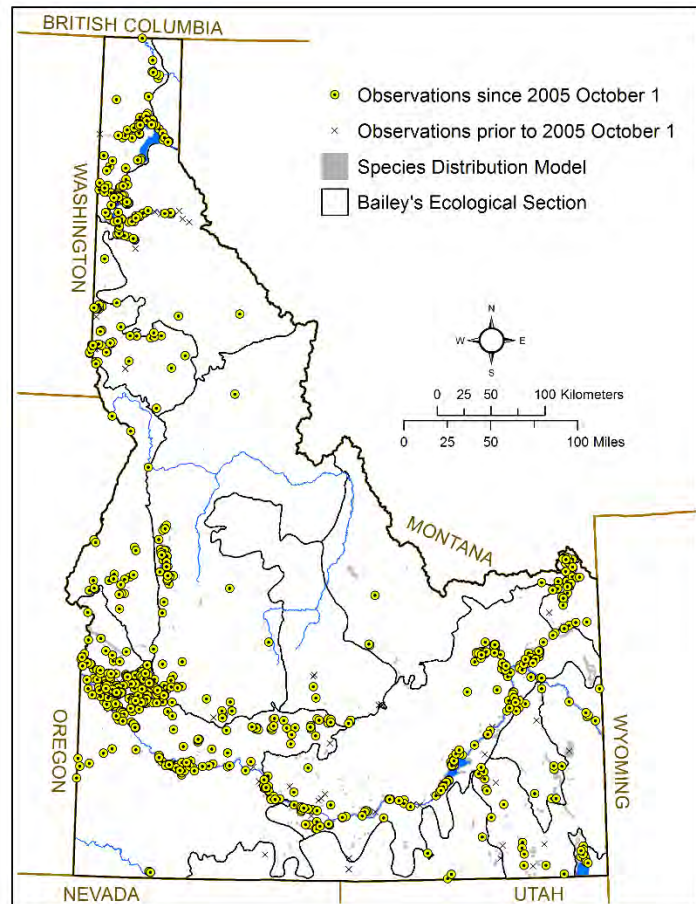
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2B, S2N

SGCN TIER: 3

Rationale: Breeding population only, substantial population declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 161,400 km² (~62,300 mi²)

Key Ecological Sections: Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 10,000–100,000

Description: Ring-billed Gulls breed from coastal Newfoundland, west to south-central British Columbia, south to southeast Québec, western New York State, southern Michigan, northern South Dakota, southern Wyoming and northeast California/northwest Nevada. There are an estimated 1.7 million Ring-billed Gulls breeding in North America. In the interior western US, there are approximately 15,000 breeding pairs. In the 1990s, approximately 6,000 pairs bred in Idaho at American Falls, Mormon and Magic Reservoirs, and Market Lake and Ted Trueblood WMAs. Currently, there are 2,500 pairs nesting in Idaho at three locations: Blackfoot and Island Park Reservoirs, and Market Lake WMA.

HABITAT & ECOLOGY

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

Description: Ring-billed Gulls breed almost exclusively on barren or sparsely-vegetated islands in natural lakes, reservoirs, and rivers. In Idaho, they are generally found nesting with California Gulls and/or Double-crested Cormorants. Nest scrapes are formed on the ground and typically lined with sticks, grasses, leaves, or moss and nests are occasionally reused from year to year. Ring-billed Gulls will use a wide variety of fairly open habitats for foraging, including reservoirs, lakes, irrigation canals, weirs, garbage dumps, feed lots, irrigated agricultural fields, and pastures. This species is highly opportunistic, and will feed on just about any food items that are

Appendix F. Species Conservation Status Assessments. Continued.

possible to consume, although it prefers live animal prey. Ring-billed Gulls will occasionally steal food items from other species, and eat eggs from other nests in the colony.

POPULATION TREND

Short-term Trend: Decline 50–70%

Long-term Trend: Unknown

Description: Patchy distribution of colony sites in the US likely obscures any potential geographically large-scale trends. North American Breeding Bird Survey data do not indicate any significant changes in US, western, or Idaho populations. However, colony surveys conducted in Idaho indicate that the population of breeding adults has declined significantly in the past 10 years, as nesting islands have become unsuitable for nesting because of low water and exposure to predators. As of 2014, only one of five historic colonies was still active (at Market Lake WMA), although two new sites have become colonized (at Blackfoot and Island Park Reservoirs). Combined, these three locations contained only 25% of the 2006 Idaho population. Since 2006, 1 new colony has been documented in southern Ada County. This colony is associated with artificial ponds.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Low water levels, particularly in the IDFG Magic Valley Region, are the most significant threat to Ring-billed Gulls in Idaho. Low water levels in nesting reservoirs has resulted in land-bridging at several nesting islands. Land-bridging results in high predation rates on young and adults, if gulls attempt to nest at these sites at all. Three historic nesting islands are no longer active because of land-bridging. In addition, the nesting colony at Blackfoot Reservoir is subject to human disturbance, and one alternative in a current Bureau of Reclamation water storage study in the Henrys Fork Basin is to raise the level of the Island Park Reservoir. This action, if implemented, would likely flood out this colony, as well as many other colonial nesting birds.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, they include working with water managers to develop and implement water level management guidelines during the breeding season that balance irrigation and wildlife needs, working with land managers to restore or create new nesting locations that will not be subject to low water level concerns in the foreseeable future, minimizing human disturbance of nesting colonies to the extent possible, and exploring potential for fencing access routes for land-bridged islands.

ADDITIONAL COMMENTS

None.

Information Sources: Pollet IL, Shutler D, Chardine J, Ryder JP. 2012. Ring-billed Gull (*Larus delawarensis*), The Birds of North America Online (A Poole, Editor). Ithaca (NY): Cornell Lab of Ornithology; Cavitt JF, Jones SL, Wilson NM, Dieni JS, Zimmerman TS, Doster RH, Howe WH. 2014. Atlas of breeding colonial waterbirds in the interior western United States. Denver (CO): US Fish and Wildlife Service; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; IDFG unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Scott JM, Peterson CR, Karl JW, Strand E, Svancara LK, Wright NW. 2002. A Gap Analysis of Idaho: Final Report. Moscow (ID): Idaho Cooperative Fish and Wildlife Research Unit.

California Gull

Larus californicus

Class: Aves

Order: Charadriiformes

Family: Laridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

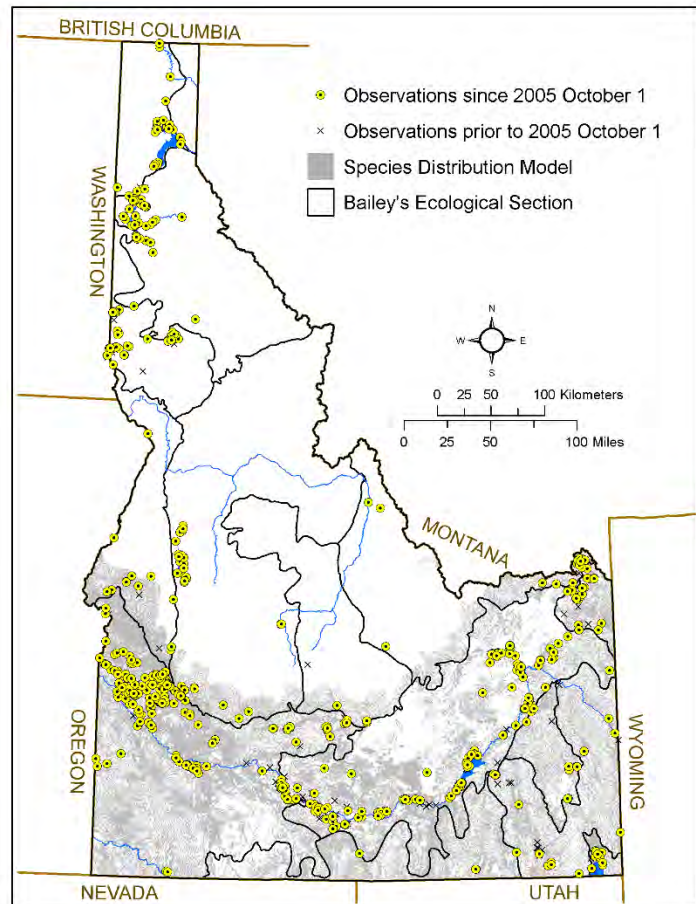
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3B, S2N

SGCN TIER: 2

Rationale: Breeding population only, substantial population declines



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bear Lake, Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

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

Description: California Gulls breed in scattered locations throughout the Great Basin, northwest Great Plains, and south-central taiga of North America. There are an estimated 414,000 adult California Gulls breeding in North America. In the interior western US, there are approximately 80,000 breeding pairs. In the 1990s, approximately 32,000 pairs bred in Idaho at American Falls, Blackfoot, Mormon and Magic Reservoirs, Bear Lake, Deer Flat, and Minidoka NWRs, and Ted Trueblood WMA. Currently, there are 8,000 pairs nesting in Idaho at four locations: American Falls, Blackfoot, and Island Park Reservoirs, and Minidoka NWR.

HABITAT & ECOLOGY

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

Description: California Gulls breed almost exclusively on barren or sparsely-vegetated islands in natural lakes, reservoirs, and rivers. In Idaho, they are generally found nesting with Ring-billed Gulls and/or Double-crested Cormorants. Nest scrapes are formed on the ground and lined with vegetation, bones, and feathers, and nests are occasionally reused from year to year. This species may travel up to 60 km (37 mi) from the colony to forage. California Gulls will use a wide variety of fairly open habitats for foraging, including reservoirs, lakes, irrigation canals, weirs, garbage dumps, feed lots, irrigated agricultural fields, and pastures. This species is highly opportunistic and will feed on just about any food items that are possible to consume (although

Appendix F. Species Conservation Status Assessments. Continued.

it prefers live animal prey), will occasionally steal food items from other species, and commonly eat eggs from other nests in the colony.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Unknown

Description: Patchy distribution of colony sites in the US likely obscures any potential geographically large-scale trends. Nevertheless, BBS data suggest declines during the period 1966–2013 in the US (-1.9% per year), western BBS region (-1.5% per year), and Idaho (-7.5% per year), as well as declines in Idaho during the period 2003–2013 (-6.5% per year). Colony surveys conducted in Idaho indicate that the population of breeding adults has declined significantly in the past 10 years, as nesting islands have become unsuitable for nesting because of low water and exposure to predators. As of 2014, only four of eight historic colonies were still active, and contained 41% of the 2006 Idaho population. There is a fifth, recently-established colony in the Owyhee Uplands within a fenced industrial settling pond in shrubsteppe habitat. This colony is likely not viable, however, due to severe mortality from heavy truck traffic, malnutrition, and predation.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Low water levels, particularly in the IDFG Magic Valley Region, are the most significant threat to California Gulls in Idaho. Low water levels in nesting reservoirs has resulted in land-bridging at several nesting islands. Land-bridging results in high predation rates on young and adults, if gulls attempt to nest at these sites at all. Two historic nesting islands are no longer active because of land-bridging, and colony size is declining rapidly at a third because of predation resulting from land-bridging. In addition, the nesting colony at Blackfoot Reservoir is subject to human disturbance, and one alternative in a current Bureau of Reclamation water storage study in the Henrys Fork Basin is to raise the level of the Island Park Reservoir. This action, if implemented, would likely flood out this colony, as well as many other colonial nesting birds.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, they include working with water managers to develop and implement water level management guidelines during the breeding season that balance irrigation and wildlife needs, working with land managers to restore or create new nesting locations that will not be subject to low water level concerns in the foreseeable future, minimizing human disturbance of nesting colonies to the extent possible, and exploring potential for fencing access routes for land-bridged islands.

ADDITIONAL COMMENTS

None.

Information Sources: Cavitt JF, Jones SL, Wilson NM, Dieni JS, Zimmerman TS, Doster RH, Howe WH. 2014. Atlas of breeding colonial waterbirds in the interior western United States. Denver (CO): US Fish and Wildlife Service; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; IDFG unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Caspian Tern

Hydroprogne caspia

Class: Aves

Order: Charadriiformes

Family: Laridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

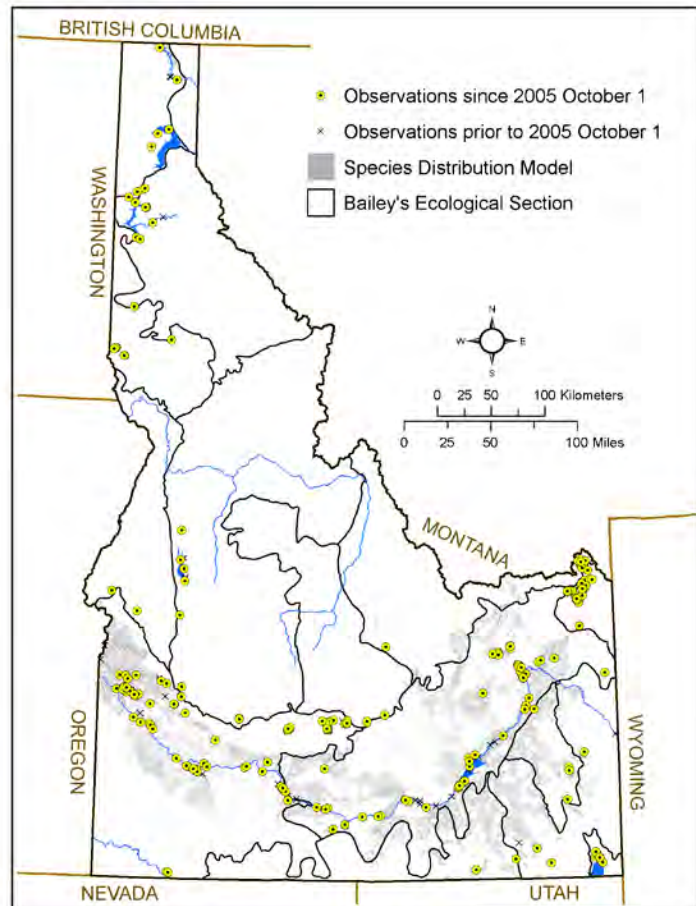
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S1B

SGCN TIER: 2

Rationale: Breeding population only, low population size, population declines, high-impact threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 82,800 km² (~32,000 mi²)

Key Ecological Sections: Bear Lake, Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: 50–250

Description: Caspian Terns breed in widely scattered locations along the Pacific Coast, central Canada, the Intermountain West, the Great Lakes, the Gulf Coast, and along the Atlantic Coast. There are an estimated 68,000 adults breeding in North America. In the interior western US, there are approximately 280 breeding pairs. Of these, approximately 75 pairs currently breed at Island Park Reservoir in Idaho—this is now the only nesting location in the state. As recently as 2007, this species also nested at Blackfoot, Magic, and Mormon Reservoirs, and Bear Lake and Minidoka NWRs—in 2015, however, none of these locations were known to support nesting populations of Caspian Terns.

HABITAT & ECOLOGY

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

Description: In the western interior, Caspian Terns generally nest on open, fairly flat islands or islets of lakes, reservoirs, and rivers. In Idaho, this species appears to always nest in mixed-species colonies, particularly colonies with California Gulls. Nests are placed on either bare ground or in shallow scrapes, and lined with pebbles, grasses, mosses, and other vegetation. This species forages over lakes, reservoirs, rivers, and sloughs and preys almost exclusively on fish.

POPULATION TREND

Appendix F. Species Conservation Status Assessments. Continued.

Short-term Trend: Decline 70–80%

Long-term Trend: Unknown

Description: Patchy distribution of colony sites in the US likely obscures any potential geographically large-scale trends. North American Breeding Bird Survey data indicate no statistically significant changes in the US, or western BBS survey region during the period 1966-2013. BBS data do suggest a decline in Idaho during the period 1966-2013 and 2003-2013 of 6.9% and 6.2% per year, respectively. However, because of small sample sizes, this decline is not statistically significant. Colony surveys conducted in Idaho indicate that the population of breeding adults has declined by 30% in the past 10 years, and the breeding distribution has contracted to a single colony at Island Park Reservoir.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Low water levels, particularly in the IDFG Magic Valley Region, are the most significant threat to Caspian Terns in Idaho. Low water levels in nesting reservoirs has resulted in land-bridging at two historic nesting locations. This species appears to have low tolerance to land-bridging and has abandoned these two nesting islands. One alternative in a current Bureau of Reclamation water storage study in the Henrys Fork Basin is to raise the level of the Island Park Reservoir. This action, if implemented, would likely flood out this colony, as well as many other colonial nesting birds. Caspian Terns are also impacted by human disturbance to nesting colonies and are typically at a competitive disadvantage when nesting with other colonial species, such as California Gulls and American White Pelicans. They initiate nesting later than these other colonial species, and may be unable to initiate nesting because of lack of space, or they are subject to high predation pressure from the gulls who are often already feeding chicks.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, they include working with water managers to develop and implement water level management guidelines during the breeding season that balance irrigation and wildlife needs, working with land managers to restore or create new nesting locations that will not be subject to low water level concerns in the foreseeable future, minimizing human disturbance of nesting colonies to the extent possible, and creating areas on nesting islands for late breeding initiation.

ADDITIONAL COMMENTS

None.

Information Sources: Cavitt JF, Jones SL, Wilson NM, Dieni JS, Zimmerman TS, Doster RH, Howe WH. 2014. Atlas of breeding colonial waterbirds in the interior western United States. Denver (CO): US Fish and Wildlife Service; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; IDFG unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Black Tern

Chlidonias niger

Class: Aves

Order: Charadriiformes

Family: Laridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

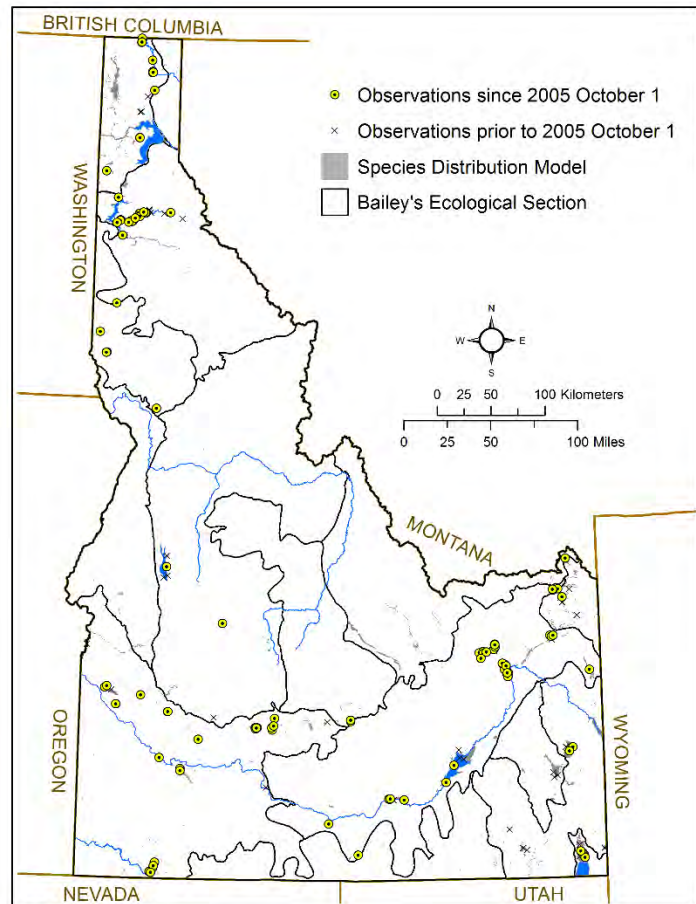
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S2B

SGCN TIER: 2

Rationale: Population declines, threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 68,100 km² (~26,300 mi²)

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Okanogan Highlands, Overthrust Mountains, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 150-250

Description: Black Terns are localized breeders in the northern US through central Canada. Population size of this species in North America is unknown, although the US breeding population is estimated to be in the low hundreds of thousands. In the early 2000s, there were approximately 200 individuals breeding at 5-10 locations in Idaho. Most of the population is located in the northern and southeastern portions of the state. In northern Idaho, Kootenai National Wildlife Refuge and Westmond Lake appear to be consistent nesting locations for 30 and 15 pairs, respectively. Of the known breeding locations, most (>90%) are within National Wildlife Refuge or IDFG Wildlife Management Area boundaries. There may be additional nesting sites in Idaho yet to be discovered.

HABITAT & ECOLOGY

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

Description: Black Terns generally breed semicolonally (clusters of 11–50 nests) in shallow freshwater marshes with emergent vegetation (e.g., margins of lakes, ponds, rivers, islands, or sloughs). As they have low site fidelity, nesting locations can vary widely each year, depending on marsh habitat conditions. Black Terns do not breed prior to their second summer, and some may delay breeding beyond age 2. Reproductive success is relatively low, with less than 1 chick

Appendix F. Species Conservation Status Assessments. Continued.

raised per nest on average. Unlike other North American terns, Black Terns feed predominantly on insects during the breeding season, as well as freshwater fish when available.

POPULATION TREND

Short-term Trend: Decline 50–70%

Long-term Trend: Unknown

Description: Black Terns experienced a 61% decline during the 30-year period between 1966 and 1996, followed by more recent stabilization or slight increases. This is also reflected in BBS data, which indicate sharp declines during the period 1966–1979 in the US (-10.1% per year) and a short-term increase of 3.4% per year during the period 2003-2013. In contrast, BBS data indicate significant, continued declines of -3.5% per year in the western BBS region during the period 2003-2013. No trend information is available for Idaho because of low detections for this species on BBS routes.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to Black Terns in Idaho is loss of marsh habitat resulting from over-extraction of ground water. Drought conditions also have a significant impact on habitat availability and suitability. Disturbance is a potential threat in some locations, although Black Terns appear to be tolerant of nearby human activity provided the colony itself is not entered.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include working with the Pacific Flyway Council's Nongame Technical Committee on a wetland connectivity assessment, restoring and protecting key marsh habitats, and determining current distribution and abundance.

ADDITIONAL COMMENTS

None.

Information Sources: Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Scott JM, Peterson CR, Karl JW, Strand E, Svancara LK, Wright NW. 2002. A Gap Analysis of Idaho: Final Report. Moscow (ID): Idaho Cooperative Fish and Wildlife Research Unit.

Yellow-billed Cuckoo

Coccyzus americanus

Class: Aves
Order: Cuculiformes
Family: Cuculidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: Sensitive

BLM: Type 1

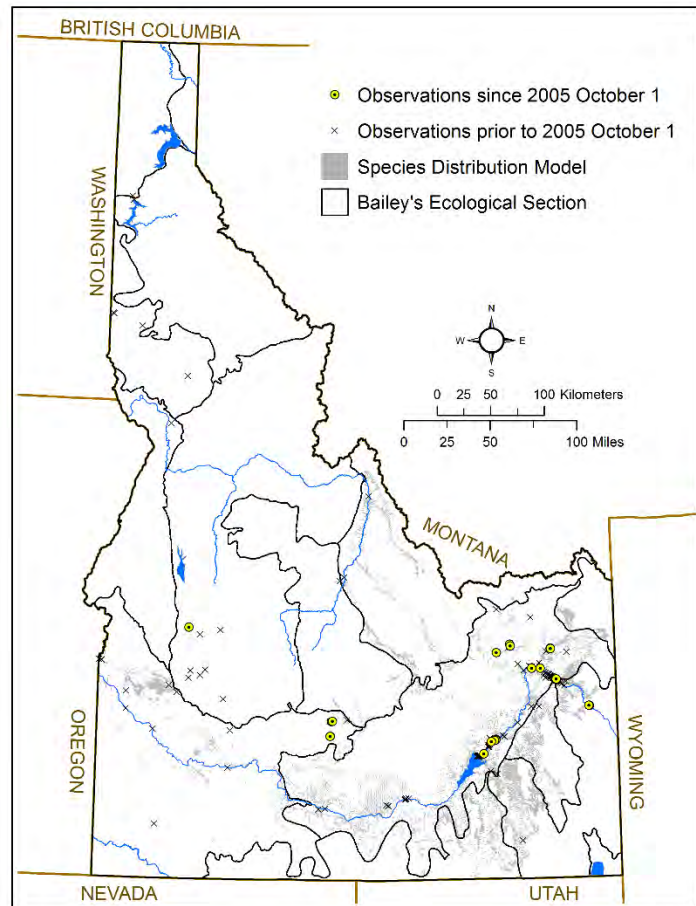
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S1B

SGCN TIER: 1

Rationale: Western US Distinct Population Segment listed as Threatened under ESA, rangewide declines, low population size, multiple threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 21,900 km² (~8,500 mi²)

Key Ecological Sections: Overthrust Mountains, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 1–50

Description: The Yellow-billed Cuckoo is a neotropical migrant that breeds in increasingly disjunct fragments of riparian habitat from California, Idaho, and Montana south to northwestern Mexico and winters in South America east of the Andes. The most important breeding habitat in Idaho is relatively pristine cottonwood forest found on the South Fork of the Snake River between Palisades Dam and the confluence with the Henrys Fork River, the lower Henrys Fork River from St. Anthony to the Highway 33 bridge, Deer Parks Wildlife Mitigation Unit along the main stem Snake River between Menan and Roberts, and the main stem of the Snake River between Blackfoot and American Falls Reservoir. The species is extremely rare; surveys in eastern Idaho from 2010–2012 and 2015 documented only 18 observations at 10 sites during the breeding season.

HABITAT & ECOLOGY

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

Description: This species nests in low-elevation multistoried cottonwood riparian forest with a densely layered high canopy and a moderately dense and heterogeneous understory. The presence of point bars and low woody vegetation are important features of nesting habitat, indicating healthy river hydraulics and active habitat succession. Occupancy increases with patch size (> 40 hectares) and when surrounded by native habitats. Pairs are nonterritorial, arrive in late May, and share nest construction, incubation, and brood rearing duties. Breeding is correlated with insect abundance, which peaks from mid-June to early August. Nests consist of

Appendix F. Species Conservation Status Assessments. Continued.

a loose, flat platform of twigs lined with leaves constructed in trees or large shrubs. The nesting cycle is extremely short, lasting 17 days from the start of incubation to fledging. The species is an occasional brood parasite, laying eggs in other Yellow-billed Cuckoo nests. Its diet consists of large insects including caterpillars, katydids, cicadas, grasshoppers, and crickets.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: No population trend data are available for Idaho because the population is too low to make valid statistical conclusions. That said, populations have probably declined and become more restricted based on habitat loss such that this species is now extremely rare.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threat to Yellow-billed Cuckoo is the loss and degradation of riparian habitat associated with synthetic features that alter watercourse hydrology (e.g., dams, water diversions, stream flow management that differs from natural hydrologic patterns, channelization, flood control levees, and other forms of bank stabilization). These modifications restrict the natural floodplain dynamics from meandering stream channels to narrow riparian corridors that lack periodic flooding needed for cottonwood reproduction and establishment. Climate changes, particularly drought conditions, can affect river flow, snow packs, and temperature, favoring species better adapted to nondisturbance and the invasion of nonnative vegetation. Residential, recreational, and agricultural developments fragment suitable habitat and further constrain water flow management. In agricultural areas, pesticides can directly poison cuckoos and reduce the insect prey base. Improper livestock grazing management can remove important vegetation structure, compact soils, degrade streambanks, and introduce invasive plants, all decreasing riparian habitat value for nesting. Mortality occurs as a result of collisions with communication towers, wind turbines, and transmission lines during migration.

CONSERVATION ACTIONS

Work with the Bureau of Reclamation and Idaho water users to implement ecologically-based systems management (e.g., allowing periodic large-volume water releases from dams to mimic natural spring flooding events and maintaining appropriate base flows) to minimize impacts to aquatic systems and restore native riparian habitat. Participate in planning efforts to improve recharge to rivers to benefit fish and wildlife resources. Seek partnerships and funding to acquire (fee title or easement), protect, restore, and manage cottonwood forests. Introduce buffer zones, exclusion fencing, and manage grazing to protect riparian habitat. Participate in coordinated monitoring and evaluate causes of population decline to make informed land management decisions. Reduce the use of neonicotinoids and assess the level of impacts on insectivorous birds at a watershed scale.

ADDITIONAL COMMENTS

The western population of this species was listed as a Threatened species under the ESA in 2014.

Information Sources: Hughes JM. 2015. Yellow-billed Cuckoo (*Coccyzus americanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca(NY): Cornell Lab of Ornithology; Poff B, Koestner KA, Neary DG, Henderson V. 2011. Threats to riparian ecosystems in western North America: an analysis of existing literature. Journal of the American Water Resources Association 1–14.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; IDFG Upper Snake and Southeast Region surveys; Aycrigg J, Andersen M, Beauvais G, Croff M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model modified by IDFG biologists).

Burrowing Owl

Athene cunicularia

Class: Aves
Order: Strigiformes
Family: Strigidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

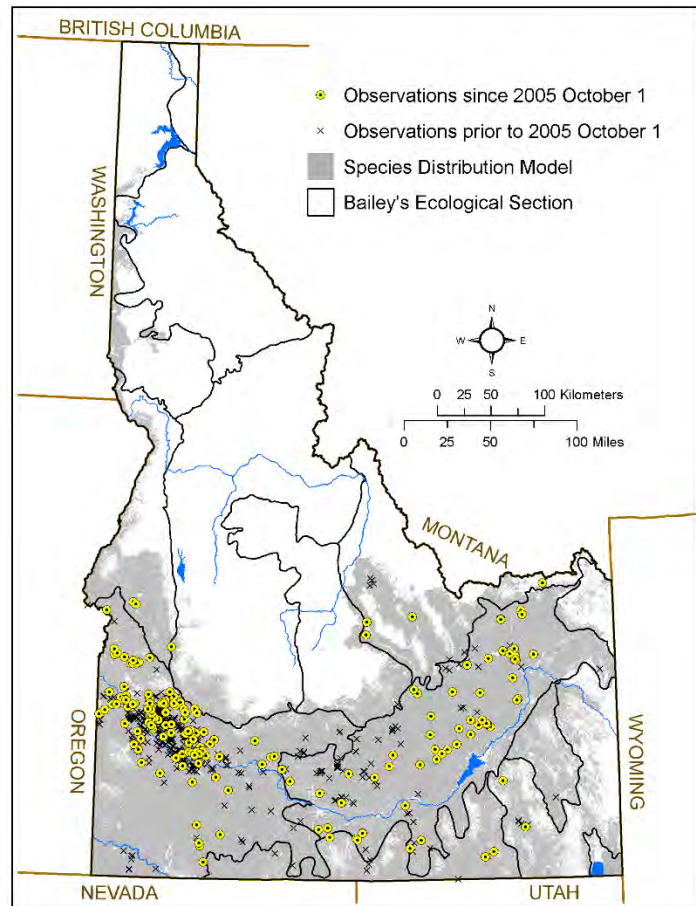
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S2B

SGCN TIER: 2

Rationale: Multiple threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 125,400 km² (~48,400 mi²)

Key Ecological Sections: Blue Mountains, Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts

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

Description: The western population of Burrowing Owls breeds throughout the western half of North America and Canada from as far north as British Columbia east to south-central Manitoba, and as far south as central Mexico. Although assessments of population sizes at small scales have been conducted, the size of the US population is unknown. In Idaho, Burrowing Owls are patchily distributed throughout the southern half of the state, but the population size is unknown.

HABITAT & ECOLOGY

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

Description: This species breeds in open, well-drained grasslands, farmlands, steppes, and airfields. Burrowing Owls typically use natural burrows excavated by American Badgers, and tend to be associated with irrigated agriculture. Burrowing Owls also are responsive to artificial nesting burrows placed in their natural nesting habitats. This species forages in short-grass, mowed or overgrazed pastures, golf courses, airfields, and irrigated agricultural fields. As an opportunist, Burrowing Owls will prey on a wide variety of invertebrates and vertebrates, although most prey items are invertebrates.

POPULATION TREND

Appendix F. Species Conservation Status Assessments. Continued.

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

Long-term Trend: Unknown

Description: Western Burrowing Owls have declined significantly throughout much of their North American range, particularly in Canada. Although local researchers suspect populations are declining in Idaho, BBS data do not indicate statistically significant changes in Idaho or the western BBS region from 1966-2013 or 2003-2013. The lack of a significant trend may be influenced by low detection rates.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: This species is subject to multiple threats. Frequent fires in the sagebrush steppe ecosystem have resulted in substantial habitat degradation, particularly conversion to cheatgrass that concurrently affects prey distribution and may also reduce nest site availability (e.g., with low populations of ground squirrels, low incidence of American Badger burrowing activity). One aspect of this degradation is an increase in Common Ravens, which are becoming a significant nest predator. For example, researchers in the Owyhee Uplands documented visitation by ravens to scavenge prey items deposited by the owls and/or take Burrowing Owl chicks at 66% of studied nests. Idling of agricultural fields tends to remove a significant prey resource for Burrowing Owls. This species uses these fields extensively for both insect and small mammal prey. In addition, shooting or control of American Badger on the landscape removes potential nesting sites for this species. There have been reports of mortality of individual birds due to illegal shooting but there is insufficient information to assess the mortality from a population or productivity context.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies are to work with land managers to restore shrubsteppe habitats in concert with Greater Sage-Grouse conservation activities, work with researchers to assess impact level of Common Raven and develop nonlethal raven predation reduction strategies, and conduct public outreach and hunter education emphasizing native birds are protected species.

ADDITIONAL COMMENTS

None.

Information Sources: Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Belthoff J, Boise State University, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Great Gray Owl

Strix nebulosa

Class: Aves
Order: Strigiformes
Family: Strigidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: Sensitive

BLM: No status

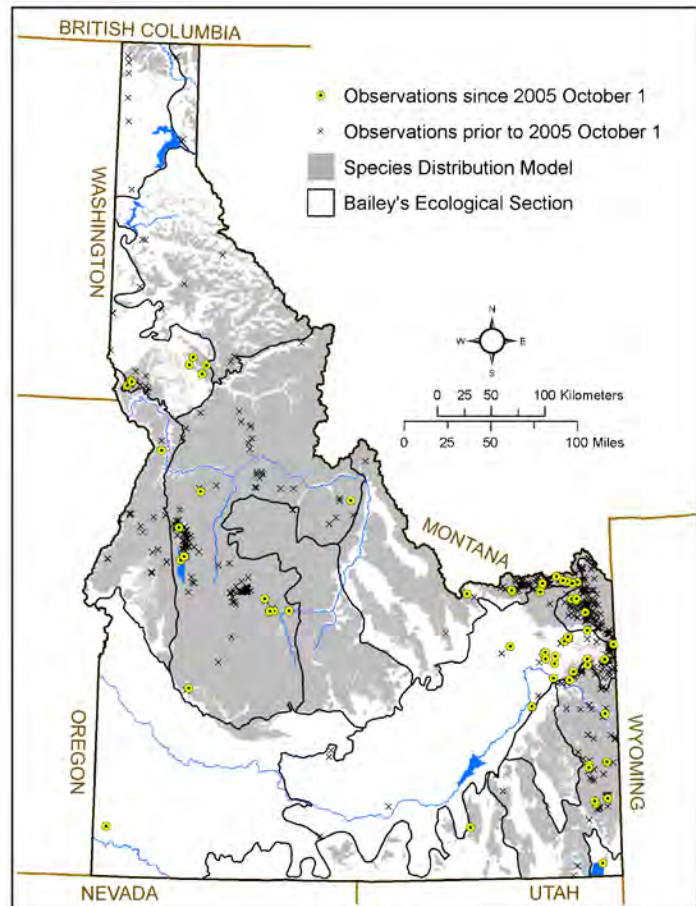
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3

SGCN TIER: 3

Rationale: Data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 168,700 km² (~65,100 mi²)

Key Ecological Sections: Beaverhead Mountains, Challis Volcanics, Idaho Batholith, Overthrust Mountains, Palouse Prairie, Yellowstone Highlands

Population Size in Idaho: Unknown

Description: Great Gray Owls are unevenly distributed throughout a large circumboreal range that extends south along the Northern Rocky Mountains of Idaho, Montana, and Wyoming, the Cascade Mountains in Washington and Oregon, and the Sierra Nevada Mountains in California. In Idaho, Great Gray Owls are known to breed in the northern Panhandle, along the Montana-Wyoming border of eastern Idaho, in west-central Idaho, and in the Frank Church-River of No Return Wilderness. Although they are year-round residents and have been recorded in almost all mountainous areas in the state, they are relatively uncommon. Population size both continentally and in Idaho is unknown.

HABITAT & ECOLOGY

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

Description: In the southern portions of the range, these birds are almost always found associated with mountain meadows in multilayered pine or spruce forests. In Idaho, over 90% of sightings of this species are in the lodgepole pine/Douglas-fir/aspen zone. A rodent specialist (voles in particular), this owl favors areas near bogs, forest edges, montane meadows, and other openings. It is a nocturnal and crepuscular (dawn and dusk) hunter. In some winters, when its prey are scarce, individuals will wander into areas beyond its typical range extent, often in considerable numbers, and always to the delight of birdwatchers. The breeding density of Great

Appendix F. Species Conservation Status Assessments. Continued.

Gray Owls seems limited by both prey and nest site availability. It prefers abandoned nests of other birds of prey, but will nest on the tops of broken trees or on artificial platforms as well. They produce one brood per year.

POPULATION TREND

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

Long-term Trend: Unknown

Description: Population estimates and trends are challenging for this species due to its variable distribution, low density, and detectability. Because of this and the lack of BBS routes in their primary habitats, there are no BBS trend data for this species. Although Christmas Bird Count data indicate relatively stable populations in the last 10 years, declines have been documented in some areas of Idaho (e.g., Long Valley, near McCall).

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Although the primary threats to this species in Idaho have not been fully documented, the greatest potential impact on owl populations appears to be from some timber management practices (e.g., removal of large-diameter trees used for nesting, logging close to meadows) and fire suppression, which may change the landscape habitat mosaic (dense older forest for nesting with scattered meadows for hunting) needed. In addition, as a boreal species at the southern limits of its range in Idaho, Great Gray Owls are projected to be affected by changing climates, particularly increased summer temperatures and changes in preferred habitat. However, some areas of the state may act as refugia for the species. Recreational disturbance, particularly from birders and photographers, is a concern in some locations.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include restoring meadow habitat adjacent to nesting habitat where conifer encroachment is reducing meadow size, restoring disturbance regimes, increasing nest site availability, and educating birders and photographers about sensitivity of nesting owls.

ADDITIONAL COMMENTS

Great Gray Owls can accurately detect rodent prey under snow by ear, plunging through the surface to grab the unsuspecting vole beneath. It has been reported to break through snow crust thick enough to support the weight of a 175-pound person.

Information Sources: Bull EL, Duncan JR. 1993. Great Gray Owl (*Strix nebulosa*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/041>. doi:10.2173/bna.41; National Audubon Society (2010). The Christmas Bird Count Historical Results [Online]. Available <http://www.christmasbirdcount.org> [Accessed: 12/14/2015]; Lankford-Bingle AJ, Svancara LK, Vierling K. 2015. A new framework for spatio-temporal climate change impact assessment for terrestrial wildlife. *Environmental Management* 56(6):1514–1527.; Munts M, Powers LR. 1991. Observations on the occurrence and nesting of the great gray owl (*Strix nebulosa*) in Valley County, Idaho. *Journal of Idaho Academy of Science* 27:37–44.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Short-eared Owl

Asio flammeus

Class: Aves
Order: Strigiformes
Family: Strigidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

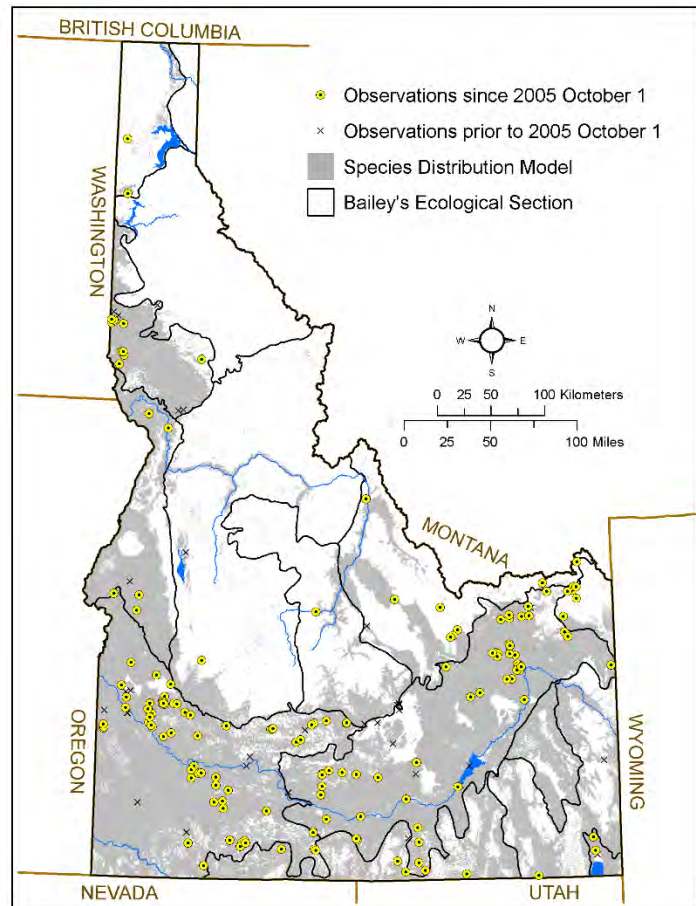
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3

SGCN TIER: 3

Rationale: Multiple threats to habitat



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bear Lake, Beaverhead Mountains, Blue Mountains, Northwestern Basin and Range, Owyhee Uplands, Palouse Prairie, Snake River Basalts

Population Size in Idaho: 2,615

Description: The Short-eared Owl is a confirmed breeder across nearly all of Idaho, and there are winter records in the northern and southern portions of the state. Because Short-eared Owl reproduction and population dynamics are closely associated with the density of its primary prey, small mammals, there is often considerable local variation in abundance. In addition, the species is often nomadic because of this association. Miller et al. (In Press) estimated 2,615 adults in Idaho during the breeding season in 2015. This was the first standardized survey of Short-eared Owls in Idaho.

HABITAT & ECOLOGY

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

Description: Short-eared Owls are associated with open landscapes such as marshes, grasslands, shrubsteppe, and agricultural lands (e.g., pastures, stubble fields, and hayfields). They may also use wooded environments during winter. Breeding habitats typically support sufficient vegetation (primarily grasses and forbs) to provide ground nesting and roosting cover and are in close proximity to productive and open hunting areas with abundant supplies of small mammals. This species can be solitary or communal during the nonbreeding season, but often forms loose colonies during the breeding season. Short-eared Owls can initiate breeding in their first year, and typically have just one brood per year. They may lay replacement clutches if the

Appendix F. Species Conservation Status Assessments. Continued.

initial clutch is lost. Short-eared Owls feed almost exclusively on small mammals with voles making up the bulk of their diet.

POPULATION TREND

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

Long-term Trend: Unknown

Description: This species' nomadic lifestyle makes assessing population status of the Short-eared Owl difficult. However, the North American Bird Conservation Initiative identified this species as one of 33 common bird species in steep decline, and all available data suggest significant declines throughout its range. North American Breeding Bird Survey data in particular suggest a decline in the western BBS region and Idaho from 1966–2013 (-1.8% and -2.7% per year, respectively) and 2003–2013 (-1.4% and -3%, respectively). There are deficiencies in the data sets used to calculate these estimates (primarily low sample size and extremely low relative abundance for this species since they are only sporadically detected using standard BBS protocols), so any lack of statistical significance in these trend estimates should be interpreted with caution.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Because it relies on large expanses of grasslands and specializes on unpredictable small mammal prey that can dramatically fluctuate in abundance across space and time, this species is vulnerable to habitat degradation. Its nesting habits (ground nesting, often in loose colonies), also make it vulnerable to human disturbance. As a result of the difficulty in studying such a nomadic species, the degree of decline and causal factors are currently unknown.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies are to work with land managers to restore shrubsteppe habitats in concert with Greater Sage-Grouse conservation activities and to work with the Pacific Flyway Council's Nongame Technical Committee and partners to develop a coordinated monitoring project that will be used to target habitat conservation efforts for this species.

ADDITIONAL COMMENTS

None.

Information Sources: Booms TL, Holroyd GL, Gahbauer MA, Trefry HE, Wiggins DA, Holt DW, Johnson JA, Lewis SB, Laron MD, Keyes KL, Swengel S. 2014. Assessing the status and conservation priorities of the Short-Eared Owl in North America. *Journal of Wildlife Management* 78:772–778; North American Bird Conservation Initiative, US Committee. 2014. The state of the birds 2014 report. Washington (DC): US Department of Interior; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Miller RA, Paprocki N, Stuber M, Moulton CE, Carlisle JD. In Press. Short-eared Owl (*Asio flammeus*) surveys in the North American Intermountain West: utilizing citizen scientists to conduct long-term monitoring. *Avian Conservation and Ecology*.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Common Nighthawk

Chordeiles minor

Class: Aves

Order: Caprimulgiformes

Family: Caprimulgidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

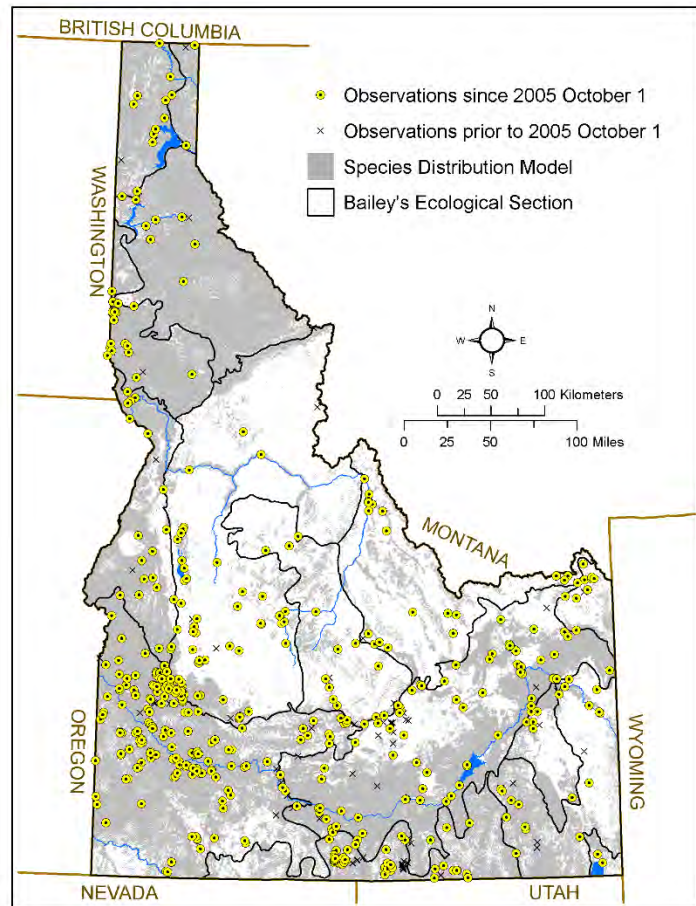
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S4B

SGCN TIER: 3

Rationale: Data deficient, population declines



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: 150,000–250,000

Description: Common Nighthawks breed throughout North America and winter in South America. They are found throughout most of Idaho. There are an estimated 15 million individuals in North America. Approximately 200,000 of them occur in Idaho during the breeding season.

HABITAT & ECOLOGY

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

Description: Although considered the most studied nightjar species, there is still a lot unknown about Common Nighthawks. They typically nest in sagebrush and grassland habitat, open forests, logged or slashburned areas of forest, woodland clearings, and rock outcrops. Prior to changes in how roofs of buildings are typically constructed, this species was well known for its tendency to nest on flat gravel roofs, especially in cities. Whether nesting on roofs or natural sites, it makes no nest per se, usually laying its eggs directly on the ground. The Common Nighthawk is a crepuscular (dawn and dusk) forager that feeds on flying insects such as moths, beetles, and caddisflies. This species may forage in large groups.

POPULATION TREND

Appendix F. Species Conservation Status Assessments. Continued.

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

Long-term Trend: Decline 50-70%

Description: Common Nighthawks continue to experience significant declines throughout their range. In Canada, this species has declined by 50% since 1996 and was listed as Threatened in Canada in 2007. North American Breeding Bird Survey data reveal statistically significant long-term (1966-2013) and short-term (2003-2013) declines in the western BBS Region (-2.3% and -1.7% per year, respectively), Great Basin (-1.2% and -1.1% per year, respectively), and numerous individual states, including Idaho (-1.8% and -0.9% per year, respectively). These declines contributed to the North American Bird Conservation Initiative's decision to designate the Common Nighthawk as a Common Birds in Steep Decline.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Reasons for decline are currently unknown. Population declines appear to coincide with nonselective pesticide spraying programs for mosquito control. As such, there is increasing concern that Common Nighthawks, along with other aerial insectivores, may be impacted by chemical control of insect populations. Developed in the 1990s, neonicotinoids are the most widely used insecticide on earth. They are used on crops, pet collars, home and garden products, and as seed coatings, to name a few. They are often used pre-emptively, as in the case of seed coatings. Although they are much less acutely toxic to farm workers, they are highly toxic to wildlife. This genre of insecticides is suspected to play a part in the significant decline of insectivorous birds, but more research is needed. Declines in some areas may also be due to reforestation.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies include reducing use of neonicotinoids on the landscape and promoting cooperation and collaboration with the Western Working Group of Partners in Flight and the Pacific Flyway Council's Nongame Technical Committee to assess causes of decline.

ADDITIONAL COMMENTS

None.

Information Sources: Brigham RM, Ng J, Poulin RG, Grindal SD. 2011. Common Nighthawk (*Chordeiles minor*). The Birds of North America Online (A Pool, Ed). Ithaca (NY): Cornell Lab of Ornithology; Mineau P, Palmer C. 2013. The impact of the nation's most widely used insecticides on birds. American Bird Conservancy report; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed 10 Dec 2015; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Black Swift

Cypseloides niger

Class: Aves
Order: Apodiformes
Family: Apodidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: No status

BLM: Type 2

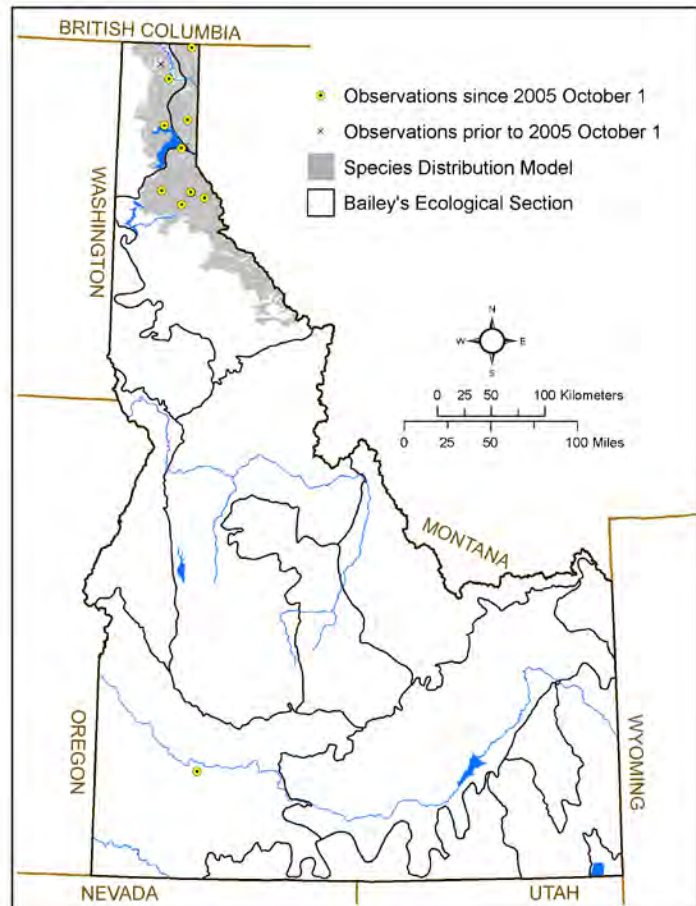
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S1B

SGCN TIER: 2

Rationale: Restricted distribution, low population size, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 15,000 km² (~5,800 mi²)

Key Ecological Sections: Bitterroot Mountains, Flathead Valley, Okanogan Highlands

Population Size in Idaho: 1,000

Description: The Black Swift breeding range extends from British Columbia south to Mexico, from the coast eastward to Colorado, but its distribution is scattered and nowhere is it considered abundant. Winter range is poorly known, but presumed to include portions of Central and South America. Based on recent Black Swift surveys in the Idaho Panhandle National Forest (12 locations and 16 waterfalls in 2013), there are 6 confirmed nesting sites (Shadow Falls, Fern Falls, Char Falls, Wellington Creek Falls, Johnson Falls, and Copper Falls) and two suspected breeding areas (Myrtle Falls and Granite Falls, Washington, just west of the state line). Many waterfalls have not been surveyed, and thus, knowledge of distribution and abundance is incomplete.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: In Idaho, Black Swifts are closely associated with mountain waterfalls. They nest in cool, dark, and damp sites with flowing surface water, cliffs that are inaccessible from ground predators, rock faces with ledges or pockets, and unobstructed flyways. Where adequate space allows, nesting is often colonial. Nests are made of mud and moss and are placed on rock ledges or in shallow caves, usually near or behind waterfalls with abundant spray. Nests are commonly reused in subsequent years. Black swifts lay a single egg and raise not more than one brood per season. If nesting failure occurs early in the season, a replacement clutch may be laid. Nestling growth is slow with young leaving the nest 47-50 days after hatching. Black swifts

Appendix F. Species Conservation Status Assessments. Continued.

are aerial insectivores and forage widely in forests and open areas (winged ants are an important food source). Swifts make 2 foraging trips a day, once briefly in the early morning and a longer foray from early to late afternoon. Black Swifts are long-lived; maximum longevity records are >15 years.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: The population trend in Idaho is not known. Statistically significant declines are reported for the western BBS region from 1966-2013 (-6.7% per year), but due to limited coverage, BBS trends are unreliable in many areas. Surveys in the Southern Rocky Mountains of Colorado and New Mexico from 1997-2005 suggest populations have been relatively stable since the 1950s.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Given a lack of information on distribution, survival, and reproduction, it is difficult to assess relevant threats. Colony and nest site availability and abundant food resource are thought to be the most important factors affecting reproduction. Sustained water flow during mid and late summer correlates with insect abundance and is important for maintaining moist conditions at the nest. Therefore, factors that affect water availability in the summer (e.g., water diversion, forest management, drought, and shifts in precipitation patterns from climate change) have the potential to impact populations. Broad-scale reductions in aerial insect abundance due to habitat loss and use of pesticides on the breeding and wintering grounds are also a concern. Waterfalls are popular destinations for hikers, cave explorers, rock climbers, and waterfall enthusiasts and may disturb nesting birds at relatively accessible sites (e.g., Shadow Falls).

CONSERVATION ACTIONS

Conservation actions are discussed in the relevant section plans. In summary, strategies include developing and implementing a systematic survey to determine the current distribution, abundance, and status of nesting Black Swifts and increasing knowledge of factors that limit populations.

ADDITIONAL COMMENTS

Surveys timed during the final 2 hours of daylight are useful for counting local residents and discovering nest locations, as food delivery rates to young increase and adults return to the colony to roost. Daytime assessments are useful for gathering site-specific information (e.g., precise nest locations and habitat features) relevant to land management decisions.

Information Sources: Lowther PE, Collins CT. 2002. Black Swift (*Cypseloides niger*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Miller RA, deKramer KE, Carlisle JD. 2013. Black Swift Surveys Within and Around the Idaho Panhandle National Forest 2013. Boise (ID): Idaho Bird Observatory; Levad RG, Potter KM, Schultz CW, Gunn C, Doerr JG. 2008. Distribution, abundance, and nest-site characteristics of Black Swifts in the southern Rocky Mountains of Colorado and New Mexico. The Wilson Journal of Ornithology 120(2):331–338; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ Jr, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Lewis's Woodpecker

Melanerpes lewis

Class: Aves
Order: Piciformes
Family: Picidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

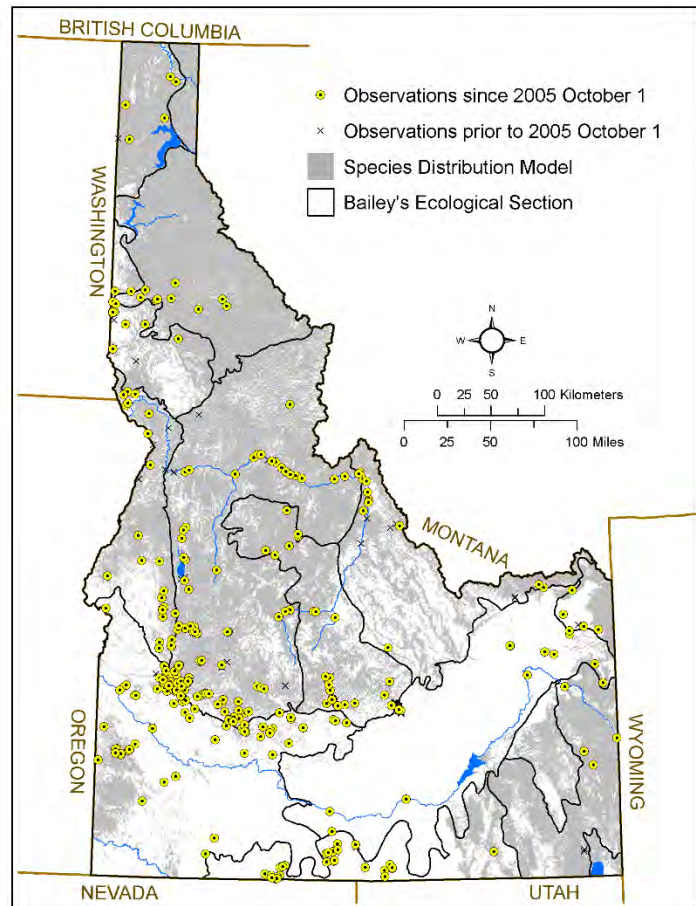
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S3B

SGCN TIER: 2

Rationale: Multiple threats



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Idaho Batholith, Palouse Prairie

Population Size in Idaho: 2,500 – 5,500

Description: Lewis's Woodpeckers primarily occur in the western US and closely follow the distribution of ponderosa pine. This species breeds as far north as southern British Columbia and south through Washington state into California. From the west coast, the breeding range extends as far east as Colorado and the Black Hills, South Dakota. Lewis's Woodpeckers breed throughout Idaho except in the southeastern portion of the state. There are an estimated 4,000 individuals in Idaho.

HABITAT & ECOLOGY

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

Description: Lewis's Woodpecker is a somewhat atypical woodpecker in that it flycatches during the breeding season and stores mast (e.g., acorns and corn) during the winter. Breeding sites generally occur in burned ponderosa pine forests, cottonwood riparian forests, and aspen groves. This species appears to prefer nesting in large diameter, well-decayed snags in relatively open forests with a well-developed understory. Nests are sited in natural cavities or abandoned nest hold of primary excavators. This species exploits superabundant food sources and is generally considered to be nomadic.

POPULATION TREND

Appendix F. Species Conservation Status Assessments. Continued.

Short-term Trend: Increase 10–25%

Long-term Trend: Unknown

Description: North American Breeding Bird Survey data indicate statistically significant declines during the period 1966-2013 in the US and western BBS region of -3.2% and -2.7% per year, respectively. Declines in Idaho (0.8% per year) during that time period were not statistically significant. In contrast, more recent data (2003-2013) suggest an increasing trend of 1.7% per year. However, these trends are also not statistically significant.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Habitat loss and degradation are the 2 major issues of concern for this species. Declines of up to 90% of the historic pine forests and deciduous riparian habitats in western states have been documented, and these are two of the major breeding habitats for Lewis's Woodpecker. Fire suppression and timber harvest have changed conditions in many forest stands, particularly those outside wilderness areas. Forest understories have become overgrown with dense thickets of smaller-diameter trees, canopy cover is higher, and large-diameter trees and snags are less abundant. The resulting habitats are typically unsuitable for Lewis's Woodpecker, as they primarily rely upon large snags in relatively open habitats.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include using prescribed fires to maintain desired conditions, designing and implementing silvicultural prescriptions that simulate natural disturbance regimes, and implementing Best Management Practices for riparian systems.

ADDITIONAL COMMENTS

None.

Information Sources: Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model modified by IDFG biologists).

White-headed Woodpecker

Picoides albolarvatus

Class: Aves
Order: Piciformes
Family: Picidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: Sensitive

Region 4: Sensitive

BLM: Type 2

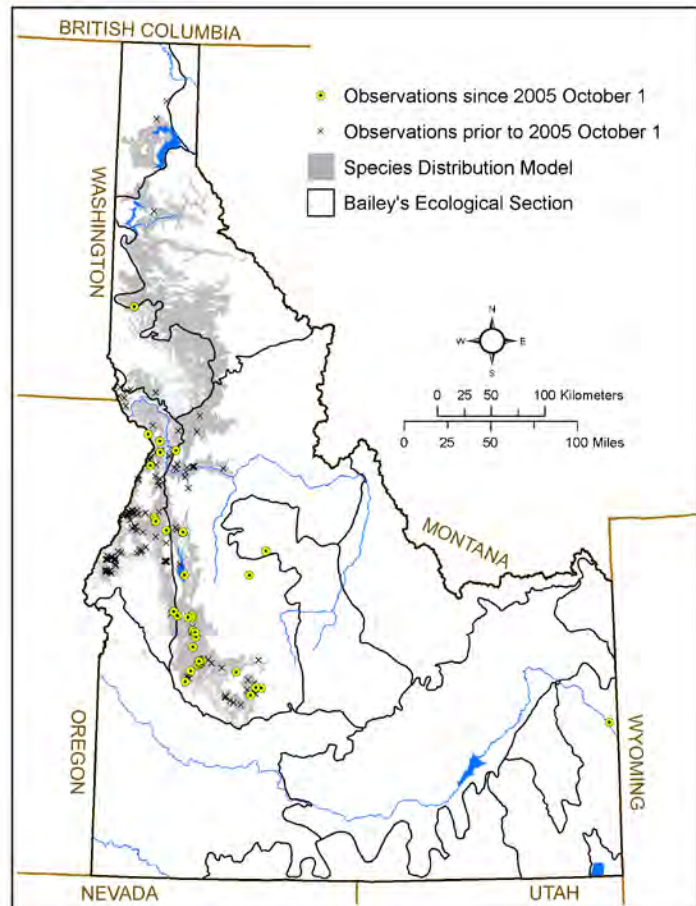
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S2

SGCN TIER: 3

Rationale: Population decline, low population size, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 48,500 km² (~18,700 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith, Palouse Prairie

Population Size in Idaho: 250-500

Description: The White-headed Woodpecker occurs throughout montane coniferous forests of the West—chiefly east of the Cascade summit in the Pacific Northwest—and is resident from south-central British Columbia, eastern Washington, western Idaho, eastern Oregon, and west-central Nevada, south through the Sierra Nevada, Coast Ranges, and highest mountains of southern California. Some individuals may migrate to lower elevations during winter months. Because of complex topography and localized suitable coniferous forest habitat, populations are considerably more fragmented than mapped. Population size for this species in Idaho is estimated at approximately 320 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The White-headed Woodpecker is endemic to pine-dominated (*Pinus* spp.) forests in the mountainous regions of the West. In its northernmost range, this species typically inhabits dry coniferous forests dominated by ponderosa pine. Stands are typically multistoried and open-canopied mature and old-growth ponderosa pine. This species' status is an indicator of the quality of large-diameter ponderosa pine habitats, which are used for breeding, roosting, and foraging. Throughout its range, the dominant requisite habitat components are the abundance of large-diameter pines (with large cones and abundant seed production), relatively open canopy (50–70%), and availability of snags and stumps (mostly high-cut) for nest cavities. These

Appendix F. Species Conservation Status Assessments. Continued.

birds opportunistically use recently burned or cut areas provided that large standing trees remain.

POPULATION TREND

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

Long-term Trend: Decline 30–50%

Description: No Idaho-specific trend data exist for this species. Like other woodpeckers, White-headed Woodpecker is not well-suited for population trend monitoring by BBS because its breeding season (when birds are most vocal) occurs in the spring before BBS surveys commence and its habitat is underrepresented by existing routes. However, analysis during the Interior Columbia Basin Ecosystem Management Project indicated that White-headed Woodpecker was one of 97 species analyzed associated with severe loss of habitat ($>60\%$ decline from historical conditions), indicating the likelihood of significant long-term population declines. More recent work on the Payette National Forest indicates low, but stable, occupancy rates.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Habitat loss, specifically the reduction of large-diameter (≥ 53 cm) live and dead ponderosa pine, and habitat degradation through changes in historical fire regimes, pose the greatest threat to White-headed Woodpecker in its northern range. Much once suitable habitat has been rendered unsuitable either through silvicultural practices or stand conversions (as a result of fire suppression) to Douglas-fir and true fir. Old-growth ponderosa pine forests in the northern Rocky Mountains, Intermountain West, and eastside Cascades represent some of the most imperiled major forest types (85–98% decline) in US.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include using prescribed fire to maintain desired conditions, promoting retention and maintenance of large tree size classes and open canopy stands of ponderosa pine, working with partners to incorporate snag retention guidelines and legacy tree guidelines into timber projects, and designing and implementing silvicultural prescriptions that simulate natural disturbance regimes.

ADDITIONAL COMMENTS

None.

Information Sources: Oliver WW, Ryker RA. 1990. *Pinus ponderosa* Dougl. ex Laws. Ponderosa Pine, p. 413–424. In Burns RM, Honkala BH [eds.], *Silvics of North America: vol. 1. Conifers*. Agric. Handb. 654. Washington (DC): USDA Forest Service; Langston N. 1995. *Forest dreams, forest nightmares: the paradox of old growth in the Inland West*. Seattle (WA): University of Washington Press; Noss RF, LaRoe ET, Scott JM. 1995. *Endangered ecosystems of the United States: a preliminary assessment of loss and degradation*. Biological Report 28. Washington (DC): US Department of the Interior, National Biological Service; Wisdom MJ, Holthausen RS, Wales BC, Hargis CD, Saab VA, Lee DC, Hann WJ, Rich RD, Rowland MM, Murphy WJ, Earnes MR. 2000. *Source habitats for terrestrial vertebrates of focus in the interior Columbia basin: broad-scale trends and management implications*. Portland (OR): US Forest Service, Pacific Northwest Research Station. [accessed 2015 Jun 01]. 3 vol. PNW–GTR–485. <http://www.fs.fed.us/pnw/pubs/gtr485/>; Dixon RD. 2010. *Status and conservation of White-headed Woodpecker (*Picoides albolarvatus*) in the Interior West, USA: a metapopulation approach*. Dissertation. Moscow (ID): University of Idaho; Saab V, US Forest Service, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. *Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report*. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Olive-sided Flycatcher

Contopus cooperi

Class: Aves
Order: Passeriformes
Family: Tyrannidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

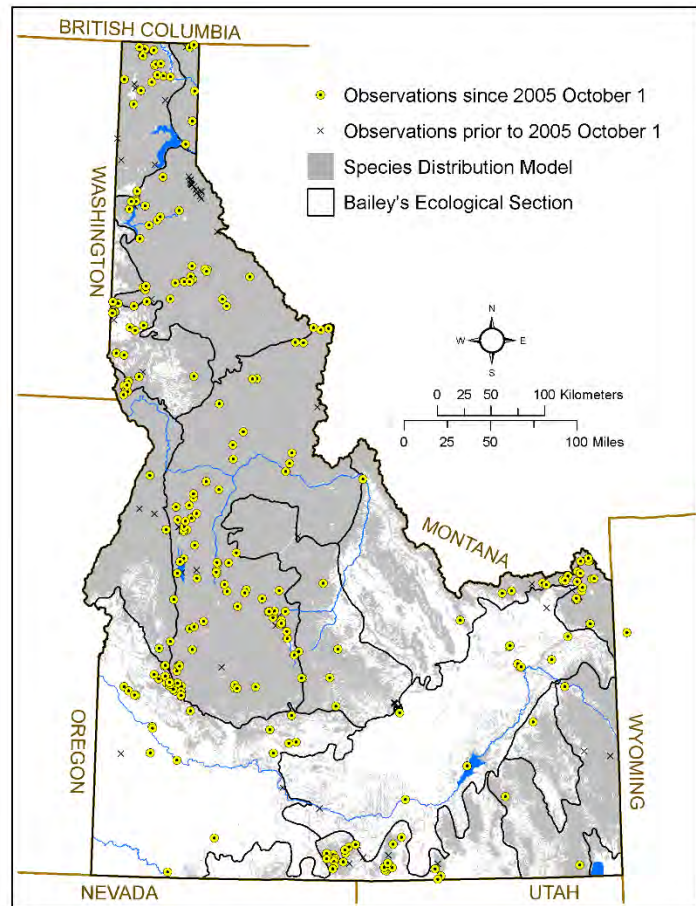
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S3B

SGCN TIER: 3

Rationale: Rangewide declines, threats related to insecticides, IUCN Near Threatened



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 198,200 km² (~76,500 mi²)

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

Population Size in Idaho: 30,000-50,000

Description: Olive-sided Flycatchers breed throughout Canada south through western US along the Cascades and Rocky Mountains from sea level to 3,350 m (11,000 ft). This flycatcher undergoes one of the longest migrations of all northern-breeding migrants, wintering primarily in Panama and the Andes Mountains of South America. In Idaho, Olive-sided Flycatchers breed throughout the northern half of the state. There are an estimated 840,000 individuals in the US. Approximately 40,000 of them are in Idaho during the breeding season.

HABITAT & ECOLOGY

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

Description: Olive-sided Flycatchers typically breed in mid- to high-elevation mixed conifer forests along forest edges and openings, including burns and clear-cuts. They require tall, prominent trees and snags, which serve as singing and foraging perches, and unobstructed air space for hunting. Nesting territories are relatively large for a passerine bird—1 pair may defend up to 40–45 ha (100–110 acres). The Olive-sided Flycatcher is monogamous and produces 1 brood per year. It will renest if it experiences early nest failure. This species preys almost exclusively on flying insects, especially bees. Olive-sided Flycatcher abundance is often higher in

Appendix F. Species Conservation Status Assessments. Continued.

forest recently burned by stand-replacing wildfire, and is considered by some to be a burn specialist.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Olive-sided Flycatcher has experienced significant declines throughout its range. North American Breeding Bird Survey data reveal statistically significant long-term (1966-2013) and short-term (2003-2013) declines in the US (-2.8% and -2.1% per year, respectively), Northern Rockies (-3.2% and -2.6% per year, respectively), and numerous individual states, including Idaho (-3.4% and 3.9% per year, respectively). These declines contributed to the North American Bird Conservation Initiative's decision to designate this species as a Yellow Watch List species.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Reasons for decline are currently unknown. Fire suppression and timber harvest have changed conditions in many forest stands, particularly those outside wilderness areas. Forest understories have become overgrown with dense thickets of smaller-diameter trees, canopy cover is higher, and large-diameter trees and snags are less abundant. The resulting habitats are unsuitable for Olive-sided Flycatchers, as they primarily rely upon relatively open habitats. There is increasing concern that this species, along with other aerial insectivores, may be impacted by chemical control of insect populations. Developed in the 1990s, neonicotinoids are the most widely used insecticide on earth. They are used on crops, pet collars, home and garden products, and as seed coatings, to name a few. They are often used pre-emptively, as in the case of seed coatings, and are highly toxic to wildlife. This genre of insecticides is suspected to play a part in the significant decline of insectivorous birds, but more research is needed.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies include using prescribed and natural fires to maintain desired conditions, designing and implementing silvicultural prescriptions that simulate natural disturbance regimes, reducing use of neonicotinoids on the landscape, and promoting cooperation and collaboration with the Western Working Group of Partners in Flight to fill knowledge gaps and mitigate threats.

ADDITIONAL COMMENTS

Often diving for insects from high, prominent perches at the tops of snags or dead tips or uppermost branches of live trees, the Olive-sided Flycatcher has been described as “the Peregrine of flycatchers”. This behavior, along with its distinctive loud and resounding song—quick, THREE BEERS!—makes this SGCN one of our more recognizable forest migrants.

Information Sources: Altman B, Sallabanks R. 2012. Olive-sided Flycatcher (*Contopus cooperi*), The Birds of North America Online (A. Poole, Ed.), Ithaca (NY): Cornell Lab of Ornithology; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed 9 Dec 2015; Mineau P, Palmer C. 2013. The impact of the nation's most widely used insecticides on birds. American Bird Conservancy report; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Pinyon Jay

Gymnorhinus cyanocephalus

Class: Aves
Order: Passeriformes
Family: Corvidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

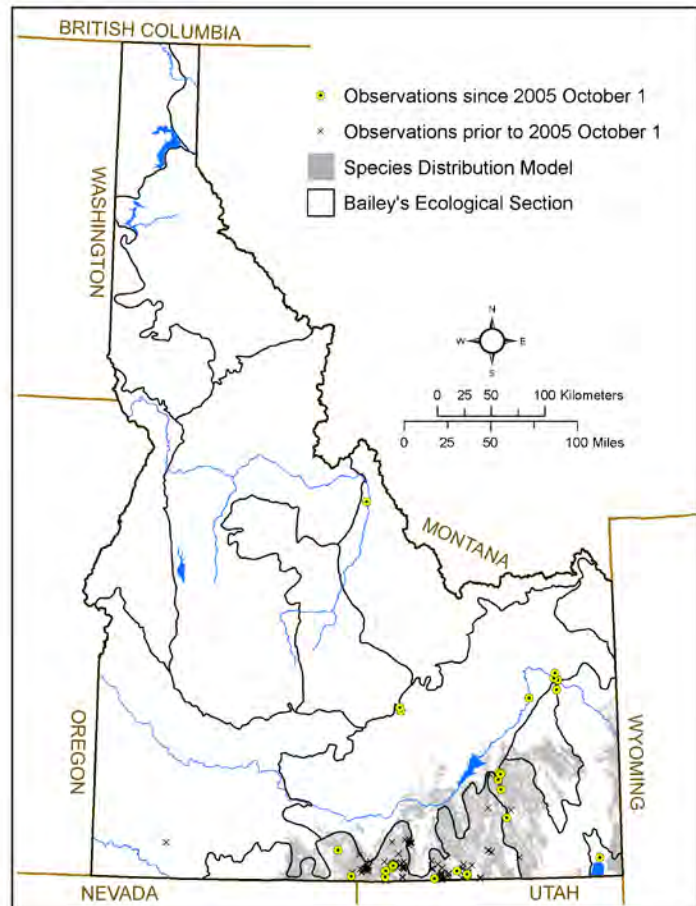
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3

SGCN TIER: 2

Rationale: Rangewide declines, multiple threats, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 24,600 km² (~9,500 mi²)

Key Ecological Sections: Northwestern Basin and Range

Population Size in Idaho: 1,000–2,500

Description: The Pinyon Jay is found in the western and southwestern US. It is a resident in southeastern Idaho. Generally winters in the breeding range, but when pine-cone crop fails, may irrupt into northern Idaho. The Pinyon Jay is locally common in southeastern Idaho where the population size is estimated to be about 1,700 individuals. It is found almost exclusively in the Northwestern Basin and Range Ecological Section.

HABITAT & ECOLOGY

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

Description: The Pinyon Jay is a highly social, seed-caching, cooperative-breeder that is closely tied to pinyon-juniper woodlands. It may also breed in sagebrush and ponderosa pine forests. This species prefers more mature stands of pinyon as older trees tend to produce more seeds. The Pinyon Jay has a complex social organization, with permanent flocks that may contain more than 500 individuals. Many birds spend their entire lives in their natal flocks. They nest colonially and young from multiple nests will gather in crèches, which may contain hundreds of individuals. Individuals that do disperse—mostly females before they are one year of age—generally travel short distances. Pinyon Jays may live 16 years. If habitat conditions are good, a flock may occupy the same home range for decades. In years when cone crops fail, individuals may disperse far from their normal range, making them one of the truly “irruptive” bird species of North America.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: The Pinyon Jay has experienced significant declines throughout its range. North American Breeding Bird Survey data reveal statistically significant long-term (1966-2013) and short-term (2003-2013) declines in the US (-4.4% and -3.6% per year, respectively), western BBS region (-4.3% and -3.6% per year, respectively), Great Basin (-4.7% and -3.6% per year, respectively), and numerous individual states. These declines contributed to the North American Bird Conservation Initiative's decision to designate the Pinyon Jay as a Yellow Watch List species. No trend data are available for Idaho due to low detection rates.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threat to Pinyon Jay is land management policy to eradicate pinyon-juniper woodlands because of concern about encroachment into sagebrush communities. Juniper has been managed as an invasive species on public and private lands for more than 60 years and large areas have been eradicated to promote grasslands and shrublands. Increasing fire frequency and severity in pinyon-juniper habitats is also a concern, which is exacerbated by drought and climate change. Nesting colonies are also sensitive to human disturbance.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Northwestern Basin and Range Section plan. In short, recommended strategies include retaining patches of mature pinyon or pinyon-juniper, retaining large trees (which are the most prolific cone-producers), protecting old growth pinyon-juniper stands from fire, and developing appropriate fire suppression plans.

ADDITIONAL COMMENTS

Pinyon Jays have excellent spatial memories that enable them to accurately recover hidden food stores months after caching, even beneath snow.

Information Sources: Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed 9 Dec 2015; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Clark's Nutcracker

Nucifraga columbiana

Class: Aves
Order: Passeriformes
Family: Corvidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

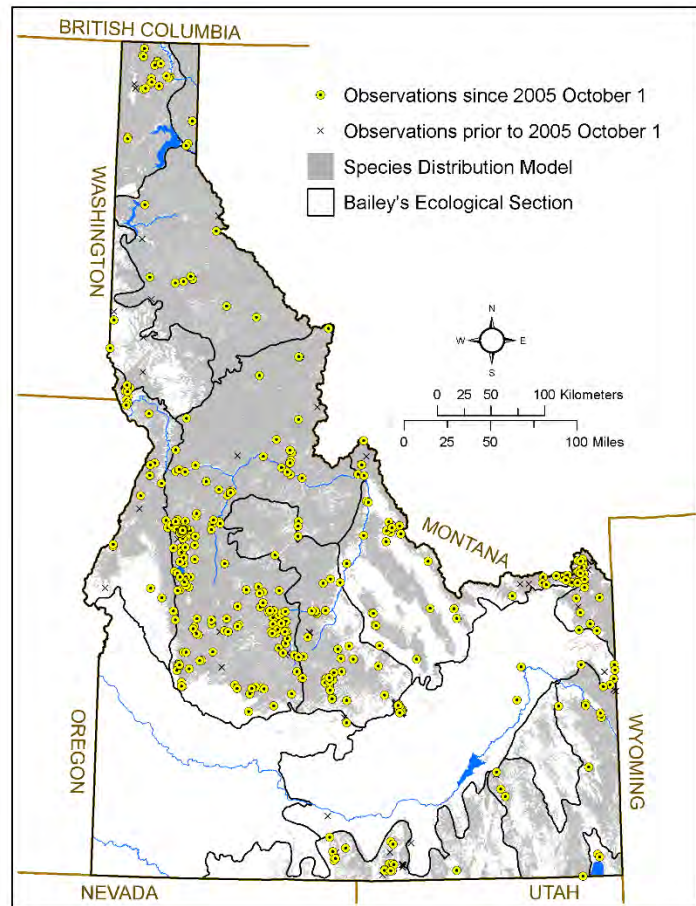
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2

SGCN TIER: 3

Rationale: Multiple threats to habitat and food source



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 158,600 km² (~61,200 mi²)

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

Population Size in Idaho: 12,000

Description: The Clark's Nutcracker inhabits montane regions of the western US and Canada. In Idaho, observations are broadly distributed in northern, central and southeastern portions of the state. Idaho's breeding population is estimated at 12,000 birds, or about 5% of the US population.

HABITAT & ECOLOGY

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

Description: The Clark's Nutcracker breeds in open coniferous forests from montane to subalpine zones. It generally nests at lower elevations and moves upslope to subalpine forests later in summer, particularly where whitebark and/or limber pine occurs. It specializes on seeds of masting conifer species and relies on cached seeds for overwintering and breeding. Nesting begins in January and February. Pairs construct platform nests on outer, horizontal branches, sheltered from wind and close to food stores. Females lay a clutch of 2-5 eggs in March or April, and young typically fledge in April or May. In late spring, family groups and nonbreeding individuals migrate to higher elevations to retrieve seed stores made available by snowmelt. Their diet shifts to fresh seeds once the new seed crop is ripe, at which time most juveniles become independent and forage for themselves. The Clark's Nutcracker is a keystone species in North America because it plays an important role in forest regeneration and seed dispersal for

Appendix F. Species Conservation Status Assessments. Continued.

many conifer species. Whitebark pine, in particular, germinates almost exclusively from Clark's Nutcracker seed caches that are not retrieved before snowmelt and summer rains. Seed caching begins in late summer and continues through fall. In the event of simultaneous cone crop failures, large numbers of birds will leave their home region and irrupt into areas where they are not typically found. This species is known to live up to 17 years.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Unknown

Description: Populations fluctuate from year to year, primarily based on food availability. North American Breeding Bird Survey data in Idaho suggest both a long-term decline (-0.4% per year from 1966-2013) and an even steeper short-term decline (-5.1% per year from 2003-2013). However, neither trend was statistically significant, likely because of a limited number of BBS routes in suitable habitat.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: High-elevation whitebark pine forests are declining because of a rapid expansion of a nonnative pathogen that causes white pine blister rust, native Mountain Pine Beetle outbreaks, and altered fire regimes. Decades of fire suppression has advanced the development of late successional stands that are generally more shade-tolerant, fire-intolerant, and structurally more dense and homogenous. Warming temperatures and broad-scale changes in precipitation patterns are likely to increase the extent and severity of stand-replacing wildfires, disease outbreaks, and insect infestations. From 2009-2013, the Greater Yellowstone Ecosystem Clark's Nutcracker population failed to breed in 2 of 5 years following fall seasons with low whitebark pine cone crops and high snowpack in early spring. Although this breeding strategy may maximize long-term survival and allow birds to exploit unpredictable environments, it can also expedite population-level impacts if pine seed crop failures are prolonged.

CONSERVATION ACTIONS

Conservation actions are described in the appropriate section plans. In summary, strategies include actively managing high-elevation forests to increase resiliency to disturbance and climate change, increasing the diversity of stand age, size classes, and tree species, retaining and restoring rust-resistant whitebark pine communities, and engaging forest collaboratives to develop and implement forest restoration projects.

ADDITIONAL COMMENTS

None.

Information Sources: Tomback DF. 1998. Clark's Nutcracker (*Nucifraga columbiana*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Schaming TD. 2015. Population-wide failure to breed in the Clark's Nutcracker (*Nucifraga columbiana*). PLoS ONE 10(5): e0123917. Doi:10.1371/journal.pone.0123917; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ Jr, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbp.org/pifpopestimates>. Accessed 16 Dec 2015; Barringer LE, Tomback DF, Wunder MB, McKinney ST. 2012. Whitebark pine stand condition, tree abundance, and cone production as predictors of visitation by Clark's Nutcracker. PLoS ONE 7(5): e37663. doi:10.1371/journal.pone.0037663.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Sage Thrasher

Oreoscoptes montanus

Class: Aves
Order: Passeriformes
Family: Mimidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

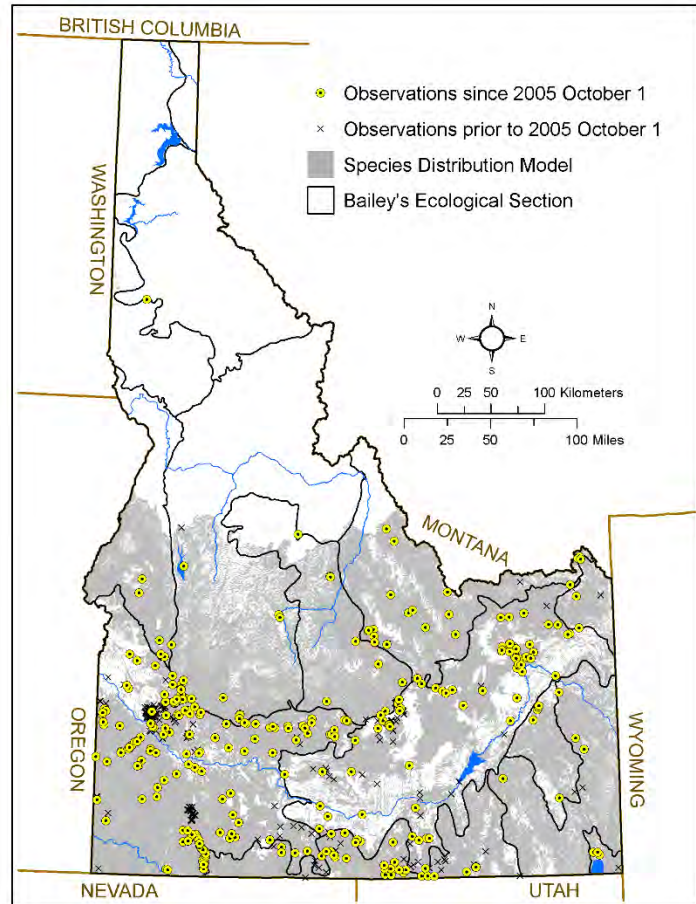
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3B

SGCN TIER: 2

Rationale: Declining populations, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 150,000 km² (~57,900 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: 300,000–600,000

Description: Sage Thrashers breed from valleys to above 2,000m (6,500 ft) throughout the Intermountain West. In Idaho they can be found in the southern half of the state, tightly associated with sagebrush-steppe habitats. This species typically winters in the southwestern US and Mexico, but can stray towards the Atlantic Coast. Rangewide, there are an estimated 5.9 million individuals. Approximately 400,000 of them are in Idaho during the breeding season.

HABITAT & ECOLOGY

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

Description: The Sage Thrasher is a sagebrush-obligate species dependent on large patches of sagebrush steppe for successful breeding. Throughout the main portion of the breeding range, this species nests most commonly in big sagebrush and three-tip sagebrush, and occasionally uses other species, such as low sagebrush and rabbitbrush. For nesting, it shows a strong preference for tall (>70 cm [28 in]) shrubs. Sage Thrashers breed as second-year birds (first year after hatching), and annually thereafter. Typical of thrashers, this species is elusive when disturbed, frequently running on the ground rather than taking flight. It is known to reject cowbird eggs. Sage Thrashers feed mostly on insects on the ground, but they will also take berries. This species tends to wander during migration, with individuals occasionally showing up as far East as the Atlantic seaboard.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Decline 50-70%

Description: The Sage Thrasher has experienced declines throughout its range. North American Breeding Bird Survey data reveal statistically significant long-term (1966-2013) and short-term (2003-2013) declines in the US (-1.4% and -1.2% per year, respectively), Great Basin (-1.6% and -1.0% per year, respectively), and Idaho (-1.6% and -1.4% per year, respectively). Populations are mostly stable where suitable shrubsteppe habitat remains intact in large patches. However, some populations have been dramatically reduced in size, and even locally extirpated, where there has been conversion of sagebrush to grassland.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Currently, the loss of shrub steppe habitat resulting primarily from post-wildfire invasion of cheatgrass is the main concern for Sage Thrasher. In the past, broadscale mechanical, chemical, and burning methods to remove big sagebrush and increase grasses and forbs for livestock grazing probably had significant impact on the species' distribution, productivity, and long-term population trends.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies include supporting long-term strategies for the restoration of sagebrush-steppe ecosystems, protecting Wyoming big-sagebrush from destruction by wildfire, implementing actions to reduce spread of invasive plants, and implementing large-scale experimental activities to remove cheatgrass and other invasive annual grasses.

ADDITIONAL COMMENTS

None.

Information Sources: Reynolds TD, Rich TD, Stephens DA. 1999. Sage Thrasher (*Oreoscoptes montanus*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbio.org/pifpopestimates>. Accessed 14 Dec 2015; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Sagebrush Sparrow

Artemisiospiza nevadensis

Class: Aves
Order: Passeriformes
Family: Emberizidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

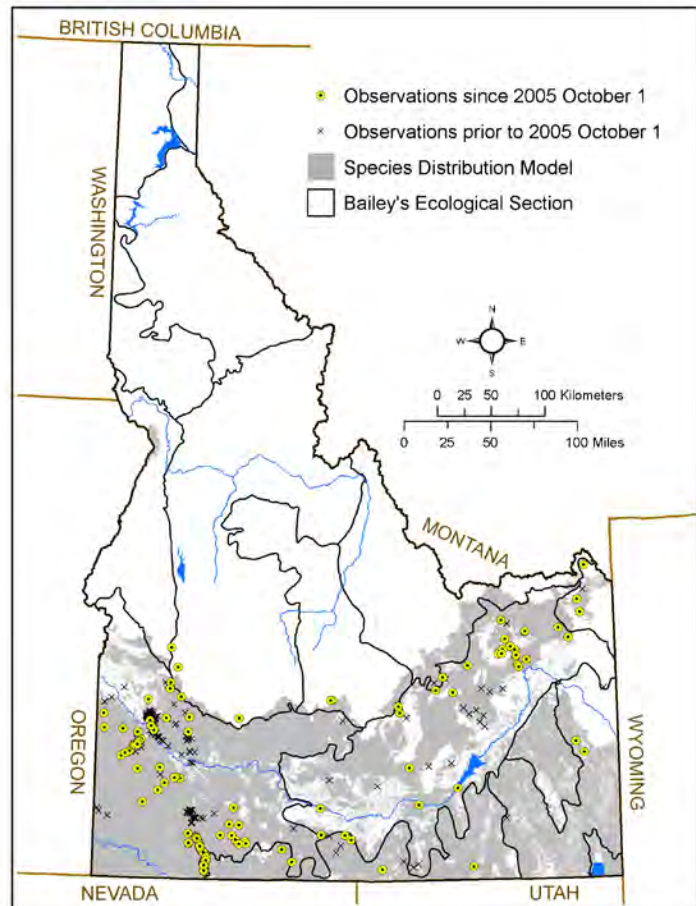
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3B

SGCN TIER: 2

Rationale: Declining populations, threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 96,200 km² (~37,100 mi²)

Key Ecological Sections: Beaverhead Mountains, Blue Mountains, Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: 40,000–60,000

Description: The Sagebrush Sparrow is a widespread breeder in shrubsteppe habitats throughout much of the Great Basin east of the Cascades and Sierra Nevadas and west of the Rockies. It has a scattered distribution throughout southern Idaho. Due to a recent taxonomic split (Sage Sparrow [*Artemisiospiza belli*] was split into 2 species: Sagebrush Sparrow and Bell's Sparrow [*A. belli*]), the current population for this species is unknown. Approximately 50,000 individuals are in Idaho during the breeding season.

HABITAT & ECOLOGY

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

Description: Sagebrush Sparrows prefer semiopen habitats with evenly spaced shrubs 1–2 m (3–6 ft) high. Vertical structure, habitat patchiness, and vegetation density may be more important in habitat selection than specific shrub species, but this sparrow is closely associated with big sagebrush throughout most of its range. In Idaho, it prefers big sagebrush, in either pure stands or interspersed with bitterbrush, rabbitbrush, or greasewood. It is rarely found in mixed sagebrush-juniper, except in ecotones adjacent to shrubsteppe habitat. It usually breeds below 1,700 m (5,500 ft), but has been found above 2,400 m (7,800 ft). This species is often missing from what appears to be suitable habitat, so other unknown habitat characteristics may be important. Most nests are found within or under shrubs, and the nest shrub is generally higher than the

Appendix F. Species Conservation Status Assessments. Continued.

average height of surrounding vegetation. The Sagebrush Sparrow is categorized as a ground-foraging omnivore during the breeding season, and as a ground-gleaning granivore during nonbreeding periods. Foods taken during the breeding season include adult and larval insects, spiders, seeds, small fruits, and succulent vegetation.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Decline >90%

Description: North American Breeding Bird Survey data indicate significant long-term (1966-2013) and short-term (2003-2013) declines in Idaho (-5.1% and -4.8%, respectively). These are the largest declines for this species anywhere within its range.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Loss of shrubsteppe habitat, primarily resulting from post-fire invasion of cheatgrass, is the main concern for this species. Habitat loss throughout the Great Basin and other shrub-dominated ecosystems by mechanical, chemical, and burning methods to remove big sagebrush and increase grasses and forbs for livestock grazing has probably had an impact on Sagebrush Sparrow distribution, productivity, and long-term population trends.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended actions include supporting long-term strategies for the restoration of sagebrush-steppe ecosystems, protecting Wyoming big-sagebrush from destruction by wildfire, implementing best management practices to reduce spread of invasive plants, and implementing large-scale experimental activities to remove cheatgrass and other invasive annual grasses.

ADDITIONAL COMMENTS

None.

Information Sources: Martin JW, Carlson BA. 1998. Sage Sparrow (*Artemisospiza belli*). The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/326>. doi:10.2173/bna.326; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed on 12/14/2015; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Grasshopper Sparrow *Ammodramus savannarum*

Class: Aves
Order: Passeriformes
Family: Emberizidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

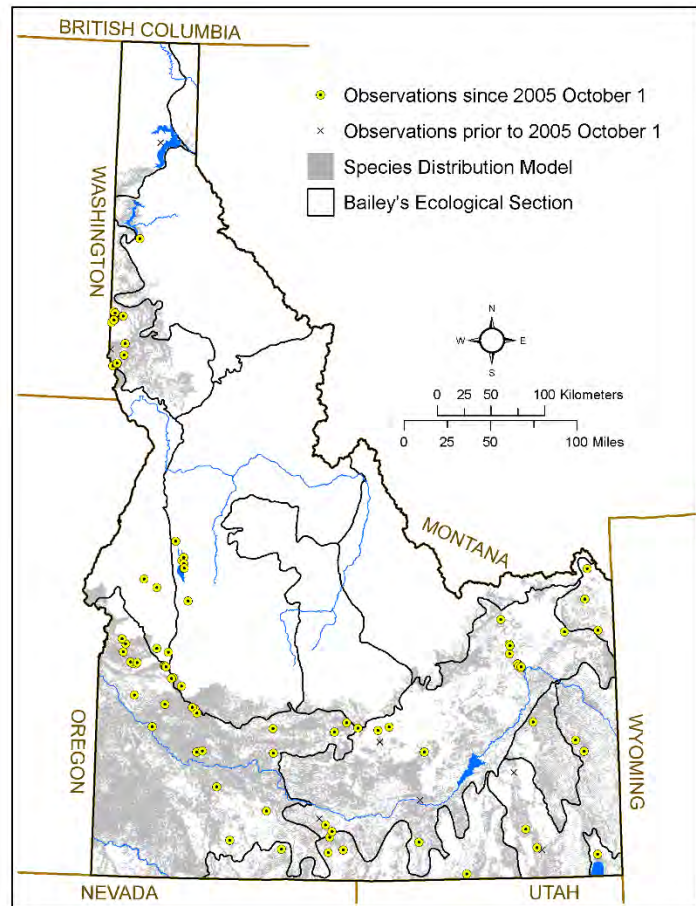
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S3B

SGCN TIER: 3

Rationale: Limited distribution, rangewide population declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 113,300 km² (~43,700 mi²)

Key Ecological Sections: Blue Mountains, Northwestern Basin and Range, Owyhee Uplands, Palouse Prairie, Snake River Basalts

Population Size in Idaho: 130,000

Description: The Grasshopper Sparrow breeds in temperate grassland habitats throughout much of the US, southern and southeastern Canada, and northern Mexico. Despite this wide extent, it is locally distributed and even uncommon and rare in parts of its range. In Idaho, the species is locally abundant in suitable habitat in the Palouse Prairie and the Snake River Plain. Winter range includes the southern US, Mexico, Central America, and the Caribbean.

HABITAT & ECOLOGY

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

Description: The Grasshopper Sparrow is a small, inconspicuous grassland bird that breeds in a broad array of open grasslands of intermediate stature and age, including native prairie, pastures, hayfields, planted grasslands (e.g., crested wheatgrass), recently burned sites, and open sagebrush steppe. In the West, this species prefers drier sites with intermediate grass height, patchy bare ground for foraging, and sparse shrub cover, and is more likely to occupy large tracts of habitat than small fragments. In the Columbia Basin, Grasshopper Sparrows were most abundant in perennial bunchgrass grasslands, and to a lesser extent in sagebrush-bunchgrass habitat, and least abundant in degraded sagebrush with an annual understory dominated by cheatgrass. Nests are hidden at the base of clumps of grass or other vegetation and consist of a grass cup nest with a domed-shape overhang and side entrance. If conditions allow, pairs may

Appendix F. Species Conservation Status Assessments. Continued.

raise 2 broods per season. Average clutch size is 4-5 eggs. Its diet consists primarily of insects (mostly grasshoppers) as well as seeds. Its song is weak and insect-like, making this species difficult to detect during the breeding season.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: According to BBS, Grasshopper Sparrow populations have declined over 70% in the US (-2.8% per year) and 67% in the western BBS region (-2.3% per year) from 1966-2013. In Idaho, populations declined 68% (-2.4% per year) from 1966-2013 and 22% (-2.5% per year) from 2003-2013; however, neither trend was statistically significant, likely because of a limited number of BBS routes within Grasshopper Sparrow habitat.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Habitat loss, fragmentation, and degradation are primary reasons for Grasshopper Sparrow declines rangewide. Threats include the conversion of native grasslands to agricultural land (e.g., on the Palouse Prairie), conversion of hayfields and pastures to intensive agriculture (facilitated by center-pivot irrigation), and residential development. Energy development can lead to direct mortality from collisions and indirect impacts from infrastructure, such as increasing edge habitat, predators and nest parasites, human disturbance, and the spread of noxious weeds. Improperly managed grazing can reduce floristic and structural diversity, ground nest cover, and interrupt fire cycles, while some prescriptive grazing can have site-specific benefits. The invasion of cheatgrass and other nonnative annual grasses has fundamentally altered fire regimes, resulting in the loss and degradation of preferred habitat. Elsewhere, fire suppression and reduced fuel loads from grazing has decreased fire frequency and led to the encroachment of native shrubs and trees. Early season mowing of hayfields and agricultural grasslands can cause direct mortality, nest failure, and reduced site fidelity. Drought and changes in precipitation patterns due to climate change can negatively impact insect abundance, productivity, and exacerbate threats. Pesticide use can directly poison birds and reduce food resources.

CONSERVATION ACTIONS

Conservation actions are described in the appropriate section plans. Recommended strategies include maintaining intermediate grasslands in various stages of succession by supporting proper livestock grazing (manage timing and intensity), fire management (including prescribed burning without significantly reducing shrub cover), mowing practices compatible with Grasshopper Sparrow nesting phenology, and promoting grassland protection and restoration on private lands using federal Farm Bill programs.

ADDITIONAL COMMENTS

None.

Information Sources: Vickery PD. 1996. Grasshopper Sparrow (*Ammodramus savannarum*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ Jr, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Ruth JM. 2015. Status Assessment and Conservation Plan for the Grasshopper Sparrow (*Ammodramus savannarum*). Version 1.0 U.S. Lakewood (CO): US Fish and Wildlife Service.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Bobolink

Dolichonyx oryzivorus

Class: Aves
Order: Passeriformes
Family: Icteridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

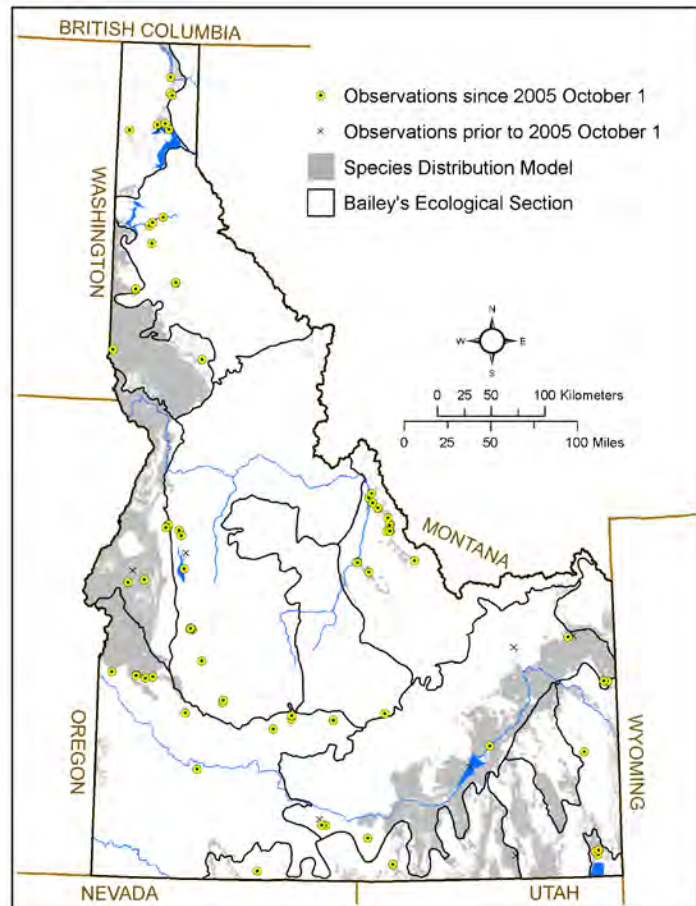
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2B

SGCN TIER: 2

Rationale: Population declines, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 107,000 km² (~41,300 mi²)

Key Ecological Sections: Beaverhead Mountains, Yellowstone Highlands

Population Size in Idaho: 12,000

Description: The Bobolink is a neotropical migrant that breeds in grasslands of the US and Canada (generally between 39° and 50° latitude) and winters in the southern interior of South America. Idaho is on the western edge of its breeding range, where populations are generally patchily distributed. Bobolinks are known to occur in relatively small aggregations in suitable habitat. There is uncertainty regarding the Idaho population size due to low relative abundance and limited coverage of the species in BBS.

HABITAT & ECOLOGY

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

Description: Bobolinks are ground-nesting birds that breed in native prairie, wet meadows, and surrogate grasslands in nonforested landscapes. Private agricultural lands, including irrigated forage crops and pastures, compose a high proportion of nesting habitat in Idaho. Bobolinks prefer moist grasslands with forbs for nest concealment, thermal cover, and abundant prey items (especially caterpillars). Bobolinks are area sensitive; both occupancy and abundance increases with habitat patch size. Territorial males are known for elaborate songs and ritualized displays, and may pair with multiple females. Adults typically raise one brood per season. If conditions allow, pairs may renest if a nesting attempt fails. Bobolinks feed on invertebrates (exclusive nestling food source), weed seeds, and grains. Adults of both sexes show high fidelity to breeding sites, influenced by previous reproductive success.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 30-50%

Long-term Trend: Unknown

Description: Historically, Bobolinks nested in tall-grass and mixed-grass prairie habitats of the Midwest, but expanded both east and westward because of surrogate grassland habitats created by low-intensity agriculture. However, populations have declined significantly through much of the breeding range since the 1960s. Based on BBS data, there were statistically significant long-term declines from 1966–2013 in the US (–1% per year), the western BBS region (–2.9% per year), and in Idaho (–6.9% per year). Since 2003, the Idaho trend was –6.6% per year, although not statistically significant. There is some uncertainty regarding the Idaho trends due to a small sample size.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Bobolinks are susceptible to direct mortality and nest failure from hay cutting. Successful breeding on working lands, therefore, depends on hay cutting regimes that are compatible with the Bobolink's nesting phenology. Suitable nesting habitat is lost to more intensely-farmed crops (facilitated by center-pivot irrigation), subdivision, and development. Bobolinks are susceptible to pesticides and intentionally poisoned in rice fields on the wintering grounds to control seed predation. Because of potential toxicity to pollinators and birds, neonicotinoid-based products are a concern on both the breeding and wintering grounds. Climate change has the potential to exacerbate these threats. Warming temperatures may accelerate plant growth and lead to earlier and more frequent cutting. Warming temperatures and increasing water demands may also lead to a conversion of irrigated hayfields to more drought-resistant croplands unsuitable for nesting.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are detailed in the Beaverhead Mountains Section plan. Recommended strategies include working with Natural Resources Conservation Service, other relevant agencies, and hay producers to develop incentives to keep working lands in hay and pasture production (hay growers producing for beef-cattle tend to cut at later dates largely compatible with nesting), and studying population-level impacts of pesticide use.

ADDITIONAL COMMENTS

Bobolinks travel about 12,500 miles round-trip every year – one of the longest migrations of any songbird in the New World.

Information Sources: Renfrew R, Strong AM, Perlut NG, Martin SG, Gavin TA. 2015. Bobolink (*Dolichonyx oryzivorus*), The Birds of North America Online (A. Poole, Ed.). Ithaca (NY): Cornell Lab of Ornithology; Wittenberger JF. 1978. The breeding biology of an isolated bobolink population in Oregon. *Condor* 80:355–371; Bollinger EK. 1995. Successional changes and habitat selection in hayfield bird communities. *The Auk* 112:720–730; Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ Jr, Link WA. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2013. Version 01.30.2015. Laurel (MD): USGS Patuxent Wildlife Research Center; Partners in Flight Science Committee 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed 2015 Dec 8.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer distribution model).

Black Rosy-Finch

Leucosticte atrata

Class: Aves
Order: Passeriformes
Family: Fringillidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

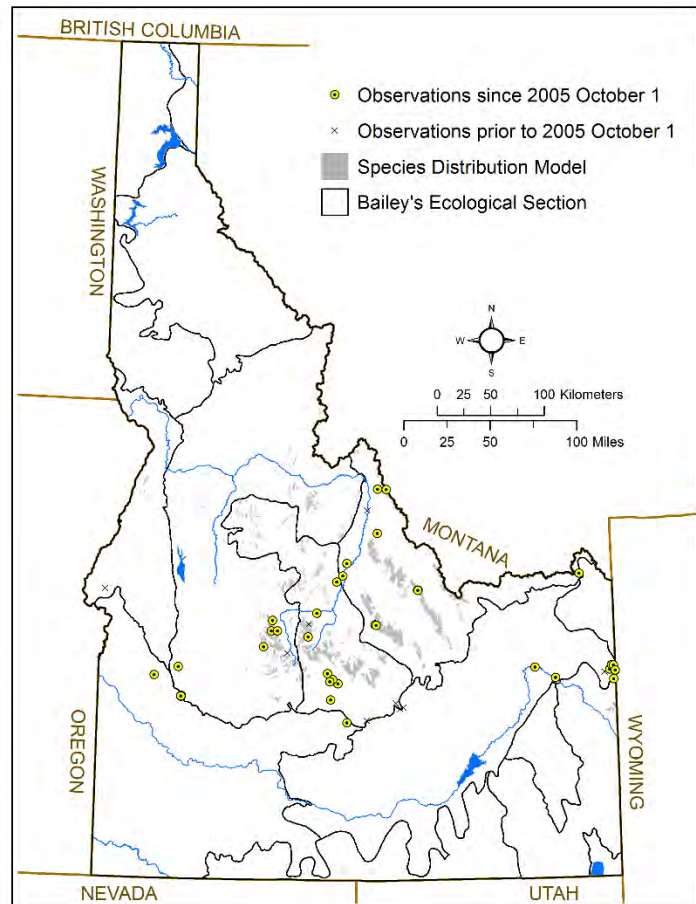
IDAPA: Protected Nongame Species

G-rank: G4

S-rank: S2

SGCN TIER: 3

Rationale: Restricted distribution, low population size



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 168,800 km² (~65,200 mi²)

Key Ecological Sections: Beaverhead Mountains, Challis Volcanics, Idaho Batholith

Population Size in Idaho: 250–1,000

Description: The Black Rosy-Finch is found breeding above treeline in suitable habitat in central Idaho, including within the Beaverhead, Lemhi, Lost River, Salmon River, and Sawtooth ranges, and Boulder and White Cloud mountains. Winter range for this species includes its breeding range, either on alpine tundra and open slopes just below treeline when snow levels are high, or lower in intermountain valleys when snow levels are lower and upper slopes are snowbound. In Idaho, this includes the intermountain valleys of east-central Idaho, where Black Rosy-Finch are observed in large mixed flocks with more abundant Gray-crowned Rosy-Finch during local Christmas Bird Counts. Winter range also extends southward throughout southern Idaho with records existing for both Boise and Pocatello. No population estimates exist for the Black Rosy-Finch, primarily because of the lack of BBS data for this species.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Nests above timberline throughout its range, wherever cliffs and rock slides provide nest sites with protection from falling rocks and hail, and where there are adequate feeding grounds on tundra, fellfields, rock slides, snowfields, and glaciers within flying distance of nests. In Idaho, nests have been found at 2,620 m (8,600 ft) in the Seven Devils Mountains, typically on north-facing cliffs overlooking snowfields. During migration and in winter, also found in open habitats, fields, cultivated lands, brushy areas, lower montane conifer forests, and around

Appendix F. Species Conservation Status Assessments. Continued.

human habitation. The Black Rosy-Finch eats seeds in winter and seeds and insects on breeding grounds. Is one of only three species known to nest exclusively in alpine habitats in Idaho; the others are the Gray-crowned Rosy-Finch and American Pipit.

POPULATION TREND

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

Long-term Trend: Unknown

Description: There are no BBS trend data available for the Black Rosy-Finch because of the remoteness (high elevation) of breeding sites for this species. Winter population estimates also are lacking due to the nomadic behavior of winter flocks in response to changing weather and snow depth. As a result, there is currently no information on population trend for this species, either throughout its range in general or in Idaho specifically.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Alpine habitat is limited in Idaho, and is expected to become scarcer in light of climate change. Long-term changes in habitat, including snow depth and snowline as a result of a warming climate, may be the largest threat to Black Rosy-Finch. Work is needed to determine what impacts these changes may have on this species and what could be done to mitigate for them. There is also a need to identify other potential stressors, which may exacerbate any effects of climate change. For example, research in the Sierras indicates that stocking fish in high alpine lakes results in a trophic cascade (loss of mayfly prey) that negatively impact Gray-crowned Rosy-Finches. Whether Black Rosy-Finches are similarly impacted by fish stocking is unknown.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the appropriate section plans. In short, recommended strategies are to determine current distribution and abundance, work with partners to identify temperature associations and limits, assess tundra phenology and how it relates to occupancy, and assess potential impacts of fish stocking in high mountain lakes.

ADDITIONAL COMMENTS

None.

Information Sources: Epanchin PN, Knapp RA, Lawler SP. 2010. Nonnative trout impact on alpine-nesting bird by altering aquatic-insect subsidies. *Ecology* 91(8):2406–2415.; Johnson RE. 2002. Black Rosy-finch (*Leucosticte atrata*). In *The Birds of North America*, No. 678 (A. Poole and F. Gill, eds.). Philadelphia (PA): The Birds of North America, Inc.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted summer, winter, and year-round distribution models).

Red Crossbill (South Hills popn.)

Loxia curvirostra

Class: Aves

Order: Passeriformes

Family: Fringillidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

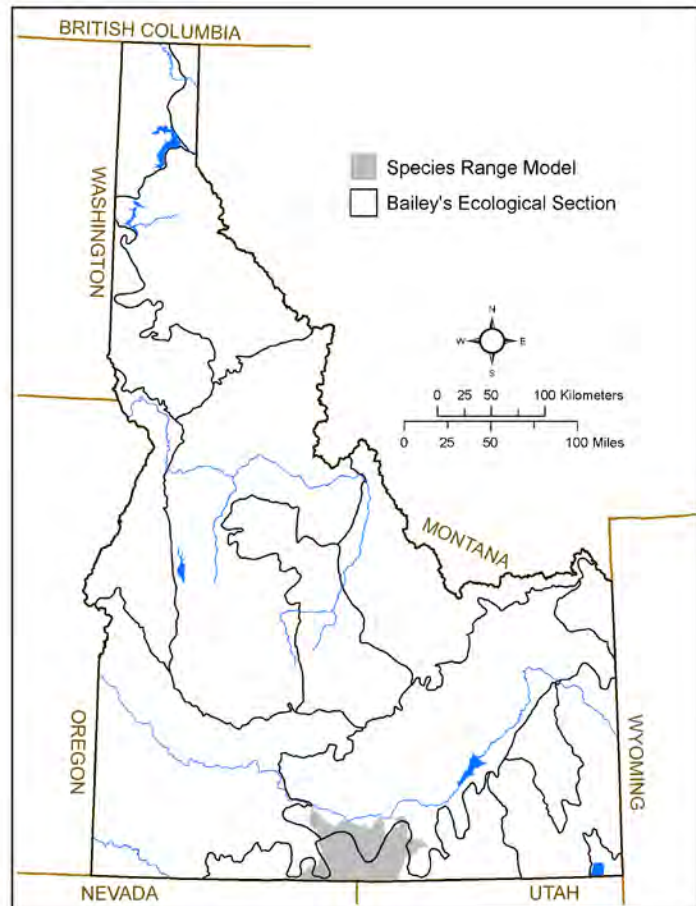
IDAPA: Protected Nongame Species

G-rank: GNR

S-rank: S1

SGCN TIER: 2

Rationale: Disjunct population, endemic



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 4,900 km² (~1,900 mi²)

Key Ecological Sections: Northwestern Basin and Range

Population Size in Idaho: 500-2,500

Description: Red Crossbills are found in parts of North America, Europe, Asia and northern Africa. In North America, they inhabit conifer forests from Alaska to Newfoundland south through much of the western US, portions of the eastern US, and portions of Mexico and Central America. There are 9 distinct types of Red Crossbills. The South Hills form of Red Crossbill, hereafter referred to as the South Hills Crossbill, is found only in the South Hills and Albion Mountains, an isolated mountain range in south-central Idaho. This subtype of Red Crossbill has been proposed as a separate species, but thus far has not been recognized as such by the American Ornithologists' Union. There are currently approximately 1,800 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: South Hills Crossbills are medium-sized finches with crossed mandibles that allow them to pry open conifer cone scales to access the seeds within. In the South Hills and Albion mountains, lodgepole pine have evolved in the absence of red squirrels, often a primary predispersal predator of their seeds, for 10,000–12,000 years and instead, crossbills fill this role. As a result of coevolution, cone structure of the lodgepole pines and bill morphology (and other traits) of Red Crossbills in this region differ from that of other populations of lodgepoles and crossbills elsewhere. This coevolution and the resultant specialized diet and morphology of the South Hills Crossbill intimately links these birds to lodgepole pine-dominated stands within the

Appendix F. Species Conservation Status Assessments. Continued.

South Hills and Albion Mountains. In fact, because their bills are specialized for foraging on the seeds of lodgepole pines in these ranges, South Hills Crossbills are year-round residents (nonmigratory) and would be at a competitive disadvantage in most other lodgepole pine forests (and in stands of other types of conifers). Crossbills have responded to the extreme variability in conifer seed crops (their preferred food) in a number of ways, including variable age of first breeding and multiple broods per year. This species is apparently monogamous and there is little evidence of territoriality within populations. Females construct bulky, loosely-built cup nests of twigs, grasses, and other materials, typically within conifers and built on horizontal branches away from the trunk. Only females incubate eggs and brood chicks, while both parents feed nestlings.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Because of their restricted distribution, there are no BBS trend data available for the South Hills Crossbill. After remaining relatively stable between 1998-2003, C. Benkman reports that this species declined by 80% between 2003 and 2011, to a low of approximately 370 individuals. This collapse appears to have been associated with hot summer days and low seed crops. Since 2011, the population has rebounded and is approaching pre-decline levels.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to South Hills Crossbills may be the loss of lodgepole pine forage availability due to increasing temperatures. Population change in this species appears to be linked to the number of hot summer days in the four years immediately preceding the change. Hot summer days cause the serotinous cones to open early, releasing seeds prematurely in late summer and making fewer seeds available the rest of the year. This resulted in declines in adult survival. In addition, climate change projections suggest that there will be little new recruitment in lodgepole pine forests within 160 km (100 mi) of the South Hills and Albion Mountains. Given the close relationship between South Hills Crossbill and the form of lodgepole pine in the South Hills and Albion Mountains, a lack of lodgepole recruitment would likely adversely affect the South Hills Crossbill population. The potential for wildfire is also a concern as catastrophic wildfire could reduce the already limited amount of lodgepole pine in these mountain ranges, which could rapidly precipitate subsequent declines in crossbill numbers.

CONSERVATION ACTIONS

Conservation issues and management actions are detailed in the Northwestern Basin and Range Section plan. In short, recommended strategies include preserving remaining stands of late-seral forest that are in excellent ecological condition and ensuring that management actions intended to mitigate forest losses from severe wildfire are consistent with existing fire regimes.

ADDITIONAL COMMENTS

None.

Information Sources: Benkman C, Smith JW, Keenan PC, Parchman TL. 2009. A new species of the Red Crossbill (Fringillidae: Loxia) from Idaho. *Condor* 111:169-176.

Map Sources: Developed by IDFG biologists based on description in Benkman et al. (2009) following Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. *Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report*. Moscow (ID): USGS, Gap Analysis Program predicted distribution model methodology.

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

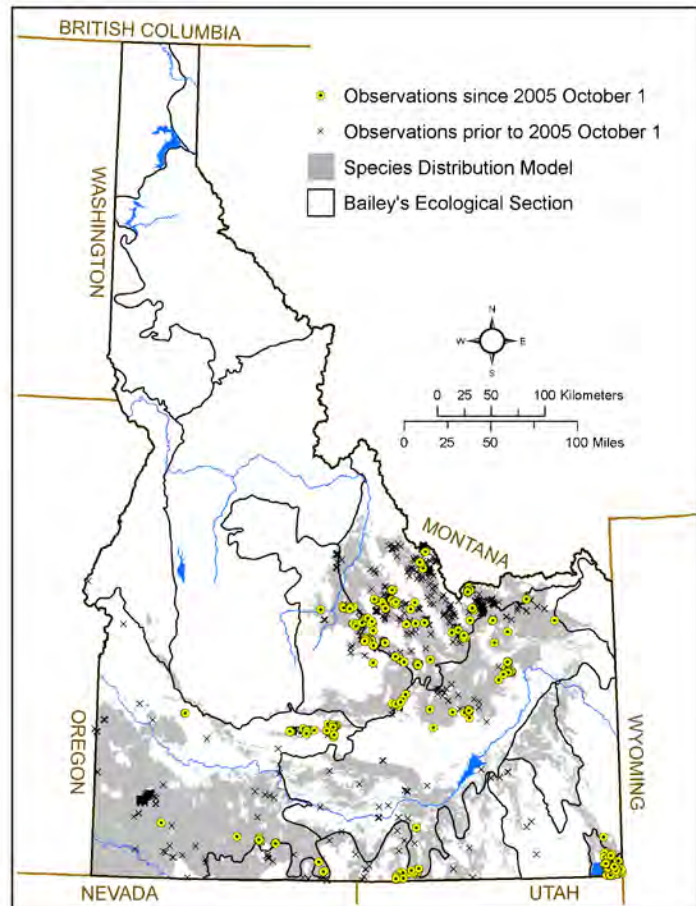
IDAPA: Upland Game Animals

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

Appendix F. Species Conservation Status Assessments. Continued.

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 FWS determined the Pygmy Rabbit did not warrant protection under the ESA.

Information Sources: Larrucea ES, Brussard PF. 2008. Shift in location of pygmy rabbit (*Brachylagus idahoensis*) habitat in response to changing environments. *Journal of Arid Environments* 72:1636–1643; Price AJ, Rachlow JL. 2011. Development of an index of abundance for pygmy rabbit populations. *Journal of Wildlife Management* 75:929–937; Shipley LA, Davila TB, Thines NJ, Elias BA. 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. *Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report*. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

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

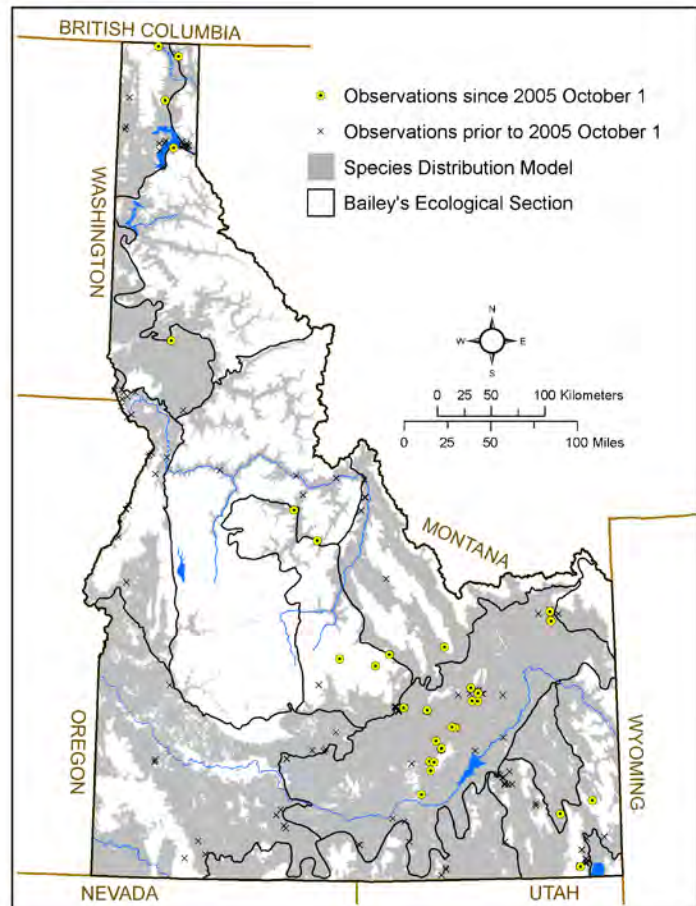
IDAPA: Protected Nongame Species

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 synthetic 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.

Appendix F. Species Conservation Status Assessments. Continued.

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, Wackenhut MC, Altenbach JS, Bradley P, Call P, Genter DL, Harris CE, Keller BL, Lengus B, Lewis L, Luce B, Navo KW, Perkins JM, Smith S, Welch L. 1999. Species conservation assessment and strategy for Townsend's big-eared bat (*Corynorhinus townsendii townsendii* and *Corynorhinus townsendii pallescens*). 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Silver-haired Bat

Lasiorycteris 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

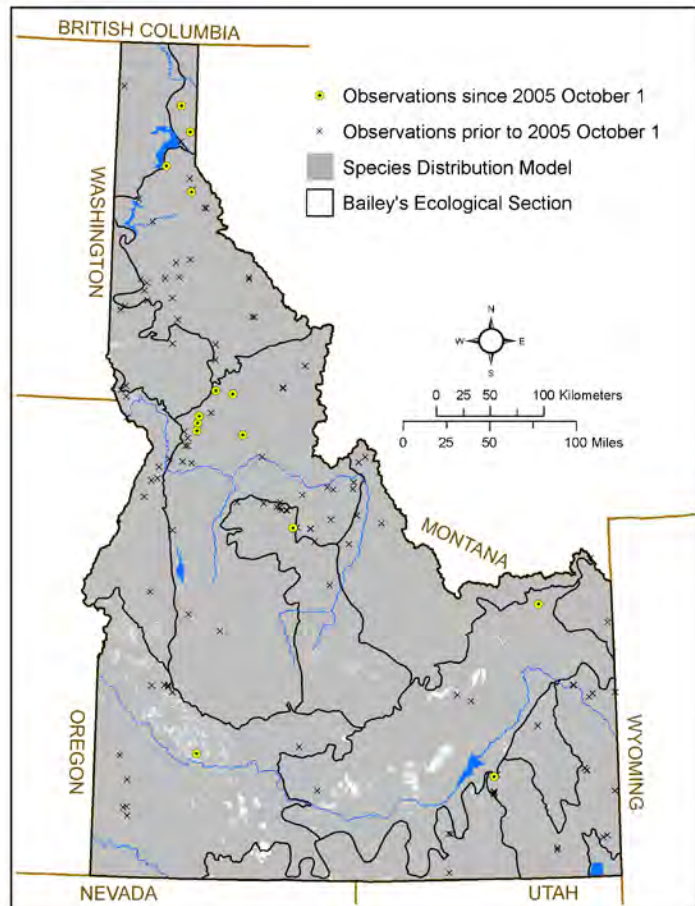
IDAPA: Protected Nongame Species

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. Nonreproductive 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,

Appendix F. Species Conservation Status Assessments. Continued.

and over open meadows. In northern Idaho, hibernating single individuals have been found in mine adits. Silver-haired Bats may congregate 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 and in Washington state, however no mortality 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 JK. 2014. Region 1 acoustic bat inventory: National Wildlife Refuges in Eastern Oregon, Eastern Washington, and Idaho. Portland (OR): US Fish and Wildlife Service; Western Bat Working Group. 2015. Western Species Accounts: *Lasiorycteris 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

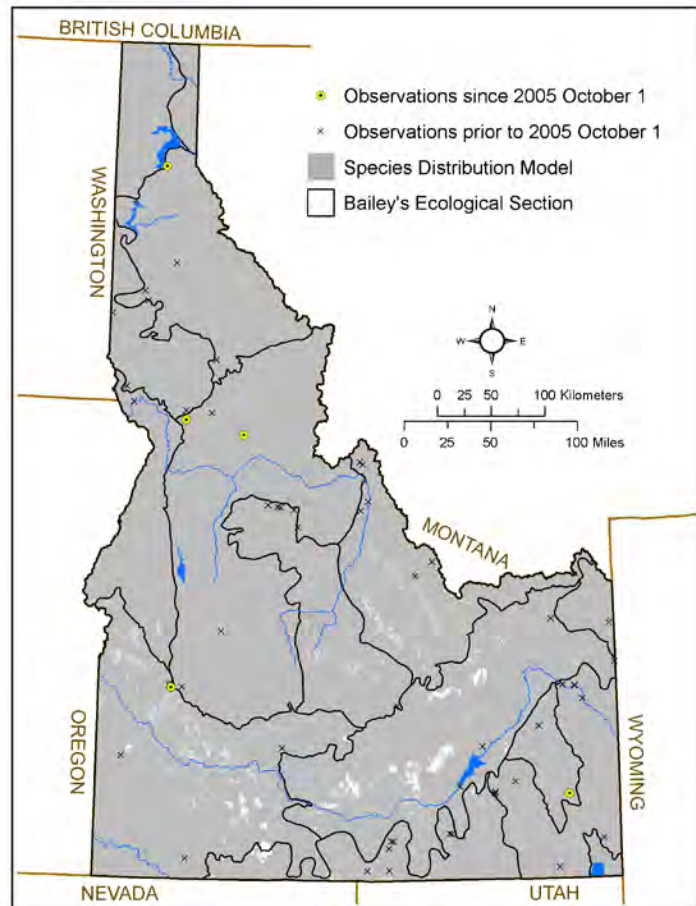
IDAPA: Protected Nongame Species

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).

Appendix F. Species Conservation Status Assessments. Continued.

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 JK. 2014. Region 1 acoustic bat inventory: National Wildlife Refuges in Eastern Oregon, Eastern Washington, and Idaho. Portland (OR): US Fish and Wildlife Service; Western Bat Working Group. 2015. Western Species Accounts: *Lasiurus cinereus*. Available at: <http://wbwg.org/western-bat-species/>. Accessed 9 December 2015; Cryan PM, Bogan MA, Rye RO, Landis GP, Kester CL. 2004. Stable hydrogen isotope analysis of bat hair as evidence for seasonal molt and long-distance migration. *Journal of Mammalogy* 85:995–1001.; 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

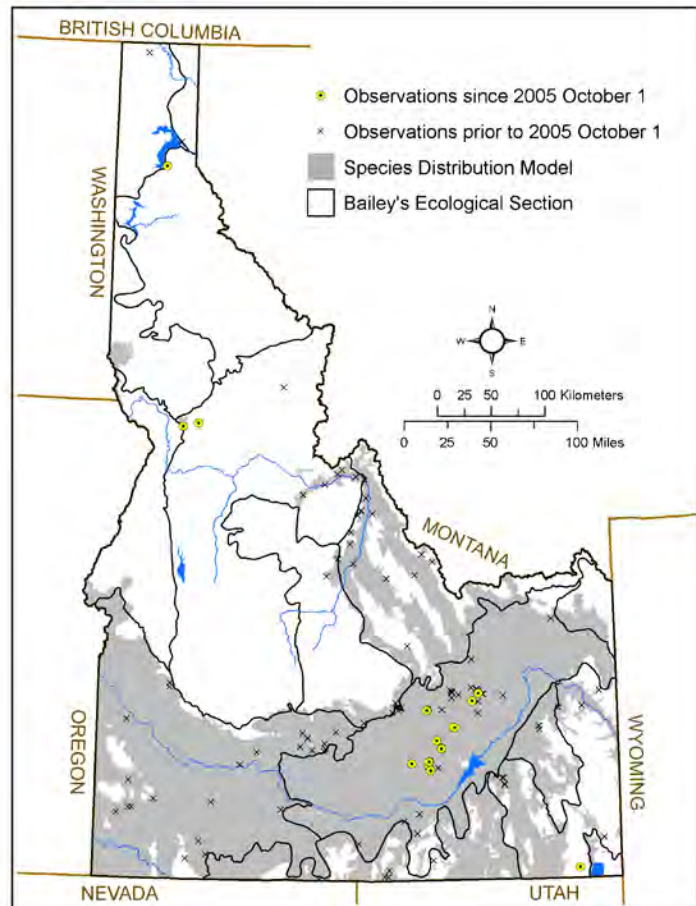
IDAPA: Protected Nongame Species

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 semiarid 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

Appendix F. Species Conservation Status Assessments. Continued.

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). Although 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 GL, Barclay RMR. 2001. *Myotis ciliolabrum*. Mammalian Species 670, *Myotis ciliolabrum*: 1–5; Western Bat Working Group. 2015. Western Species Accounts: *Myotis ciliolabrum*. Accessed at: <http://wbbwg.org/western-bat-species/>. Accessed 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

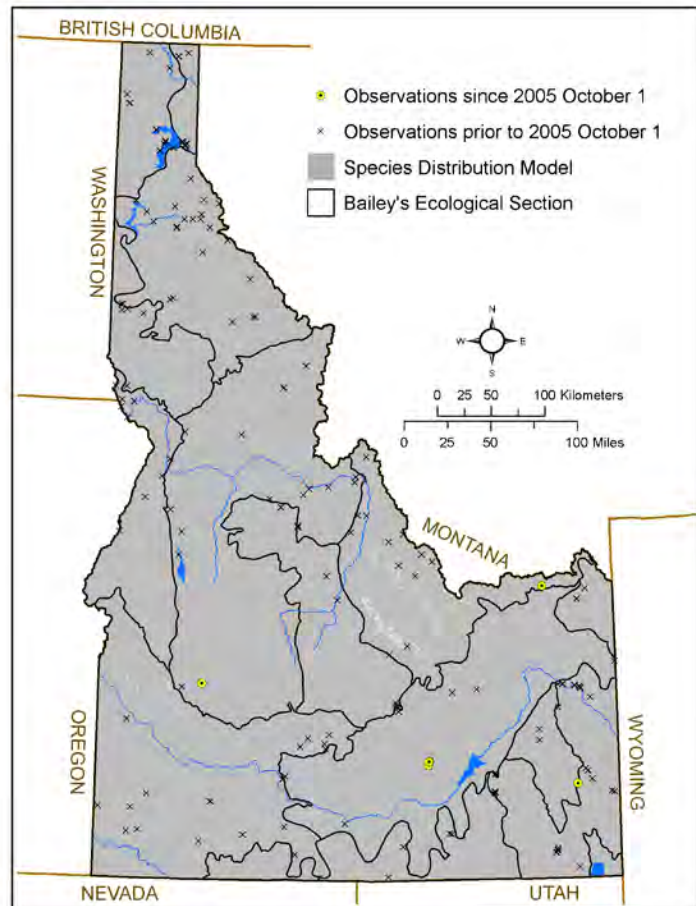
IDAPA: Protected Nongame Species

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

Appendix F. Species Conservation Status Assessments. Continued.

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 rangewide 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 29 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: Fenton MB, Barclay RMR. 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. Portland (OR): US Fish and Wildlife Service; Vonhof MJ, Russell AL, Miller–Butterworth CM. 2015. Range-wide genetic analysis of Little Brown Bat (*Myotis lucifugus*) populations: Estimating the risk of spread of white-nose syndrome. PLoS ONE DOI:10.1371/journal.pone.0128713.; Frick WF, Pollock JF, Hicks A, Langwig K, Reynolds DS, Turner GG, Butchowski C, Kunz TH. 2010. A once common bat faces rapid extinction in the northeastern United States from a fungal pathogen. Science 329:679–682.; Kunz TH, Richard JD. 2010. 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 (MA): Boston University.; IDFG unpublished data.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonkeker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

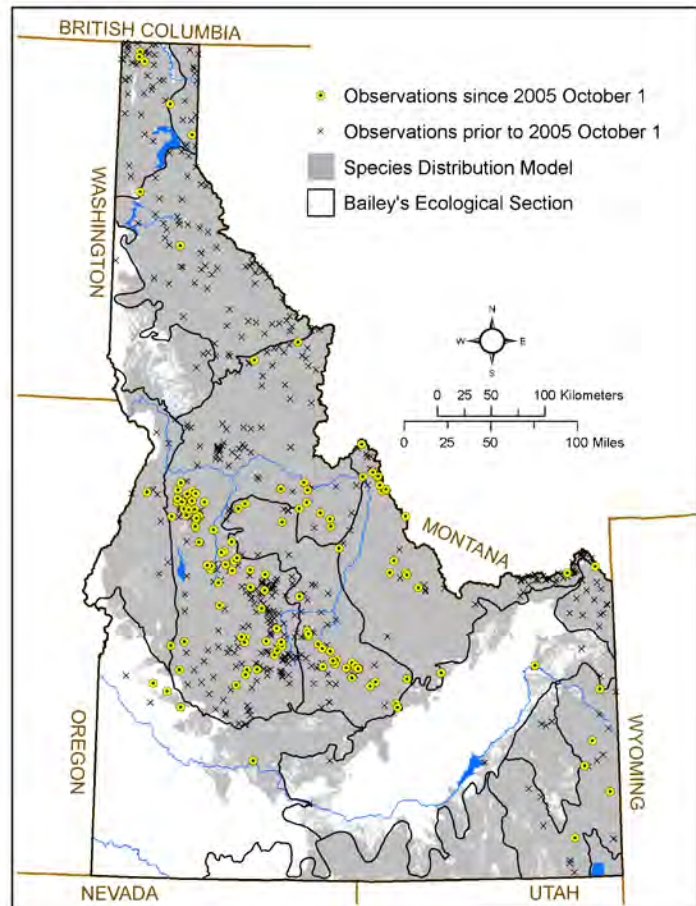
IDAPA: Protected Nongame Species

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: 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 presently occur in most, if not all, historically occupied habitat in the state. Important subpopulations 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 Selway-Bitterroot Wilderness Area suggest a subpopulation in that area, 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

Appendix F. Species Conservation Status Assessments. Continued.

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. Although 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 are 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 about the effects of various threats to the population and its habitat, including climate change, connectivity, and human interactions such as snow-sports recreation, infrastructure, and incidental trapping.

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, predicting potential overlap of wolverine and high levels of snow-sports recreation, and educating trappers about techniques to minimize incidental trapping of nontarget species, including Wolverine.

ADDITIONAL COMMENTS

Although previously a candidate for listing as Endangered or Threatened under the ESA, the FWS 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: IDFG. 2014. Management plan for the conservation of wolverines in Idaho. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

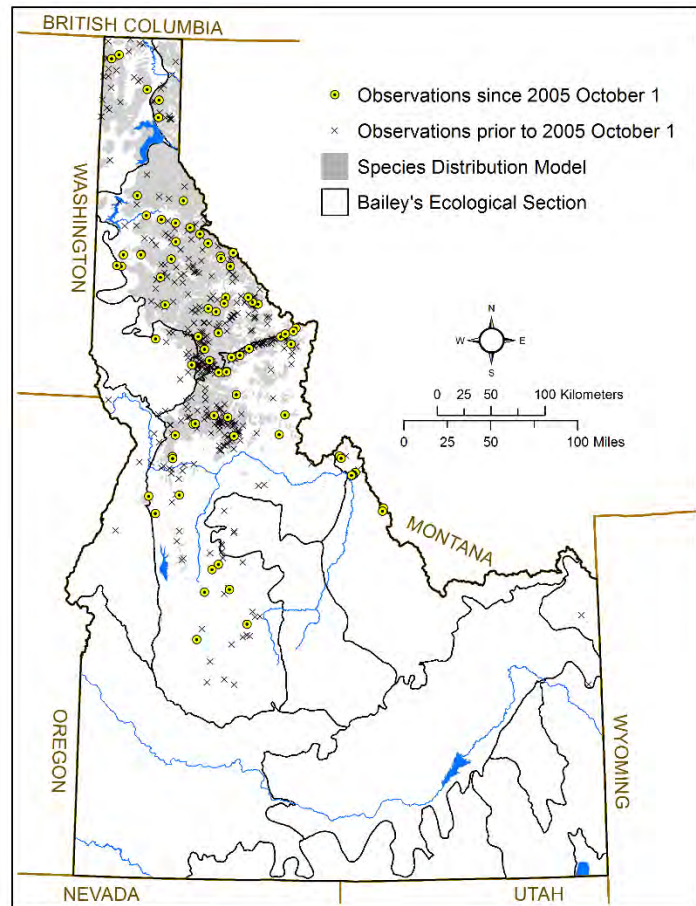
IDAPA: Furbearing Animals

G-rank: G5

S-rank: S2

SGCN TIER: 2

Rationale: Limited population, multiple stressors



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 65,600 km² (~25,300 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 483 km (300 mi) to the area around Cascade. However, the Nez Perce–Clearwater and St Joe National Forests compose the core of quality Fisher habitat in the state. There is no formal estimate of the number of Fishers in Idaho.

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)

Appendix F. Species Conservation Status Assessments. Continued.

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. IDFG attempted translocation of Fishers from Canada in the 1960s. Current population trends have not been documented.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: Because Fishers are associated with mature forest characteristics, timber management and timber harvest activities may affect the species' abundance and distribution. Trapping seasons for Fishers were closed in the 1930s, but Fishers are incidentally trapped during regulated seasons for other furbearers. Information gaps about Fisher ecology and population dynamics limit our ability to draw conclusions about the population effects of potential threats. Due to interactions among rising temperatures, drought, water stress, insect and disease occurrence, and fire, indirect effects of climate change in forest habitat 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 timber harvest strategies, expanding the current knowledge of the species distribution, abundance, and habitat requirements and educating trappers about techniques to minimize incidental trapping of nontarget species, including Fishers.

ADDITIONAL COMMENTS

Fishers were petitioned for listing under the ESA in 2000, determined by the FWS to be warranted but precluded, and placed on a candidate list in 2004. In 2011, the FWS 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. The species was petitioned for listing again in 2013 and is currently under review.

Information Sources: Williams RM. 1962. Completion report for trapping and transplanting project, W 75-D-9, fisher transplant segment, Federal Aid in Wildlife Restoration.; Schwartz MK, DeCesare NJ, Jimenez BS, Copeland JP, Melquist WE. 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 JD, Rachlow JL. 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 LE, Sauder JD, Albrecht NM, Vinkey RS, Cushman SA, Schwartz MK. 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 JD, Rachlow JL. 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].; Sauder JS. 2014. Chapter 4: Integrating habitat selection information across scales: mapping habitat for fishers (*Pekania pennanti*) across the Rocky Mountains of Idaho and Montana. In *Landscape Ecology of Fisher (Pekania pennanti) in North-Central Idaho*. Dissertation. Moscow (ID): University of Idaho. The modeling extent of Sauder (2014) was based on the minimum hydrologic boundaries that contained all the fisher occurrences collected by hair snaring in Idaho and Montana between 2007 and 2011, plus harvest data from Montana (n=47) from 1980 to 2010.

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

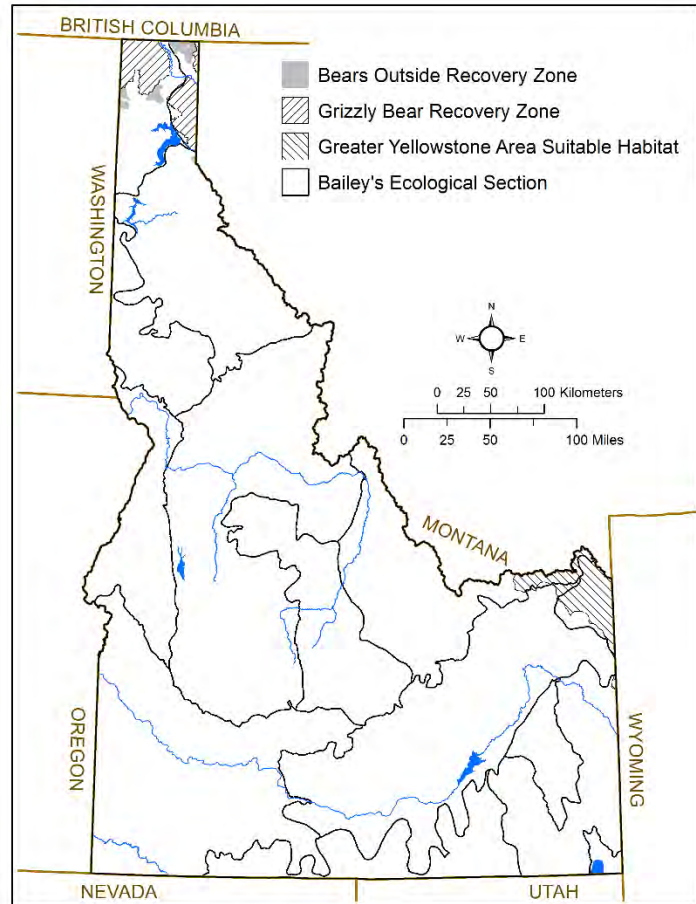
IDAPA: Big Game Animals

G-rank: G4

S-rank: S2

SGCN TIER: 1

Rationale: Listed Threatened



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,900 km² (~2,700 mi²)

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

Population Size in Idaho: Selkirk (25–30), Cabinet–Yaak (<15), Yellowstone (40–50)

Description: Grizzly Bears occur from Alaska through western Canada south to Idaho, Montana, Wyoming and extreme northern Washington. Grizzly Bears are present in 3 recovery zones in Idaho: the Selkirk and Cabinet–Yaak recovery zones in the north and the Yellowstone recovery zone in the southeast. The Selkirk recovery zone includes portions of northwestern Idaho, northeastern Washington, and southern British Columbia. The Cabinet–Yaak recovery zone includes portions of northeastern Idaho, northwestern Montana, and southern British Columbia. The Yellowstone recovery zone is centered in the Greater Yellowstone Ecosystem and includes portions of northeastern Wyoming, southern Montana, and eastern Idaho.

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, corns, 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.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

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

Long-term Trend: Unknown

Description: Grizzly Bears in the Selkirk and Yellowstone recovery zones are stable to increasing both in size and distribution. The Cabinet–Yaak recovery zone appears to be stable at this time.

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.

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.

ADDITIONAL COMMENTS

The Idaho Fish and Game Commission fully supports the State of Idaho Yellowstone Grizzly Bear Management Plan and the 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, 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 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 WL, WF Kasworm. 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; FWS Grizzly Bear Recovery page; FWS. 2011. Grizzly Bear (*Ursus arctos horribilis*) 5-Year Review: Summary and Evaluation. FWS, Missoula, Mt; Schwartz CC, Gude PH, Landenburger L, Haroldson MA, 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.; Kendall KC, Macleod AC, Boyd KL, Boulanger J, Royle JA, Kasworm WF, Paetkau D, Proctor MF, Annis K, Graves TA. 2016. Density, distribution, and genetic structure of grizzly bears in the Cabinet–Yaak Ecosystem. *Journal of Wildlife Management* 80:314–331.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Idaho Panhandle National Forest. 2013. Grizzly Bear Recovery Zone. <http://www.fs.usda.gov/main/ipnf/landmanagement/gis#wild> [Accessed February 17, 2016]; Idaho Panhandle National Forest. 2013. Bears Outside Recovery Zone. <http://www.fs.usda.gov/main/ipnf/landmanagement/gis#wild> [Accessed February 17, 2016]; FWS. 2005. Suitable Grizzly Bear Habitat in the Yellowstone Ecosystem. <https://www.sciencebase.gov/catalog/item/554ceb27e4b082ec54129da3> [Accessed February 18, 2016].

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

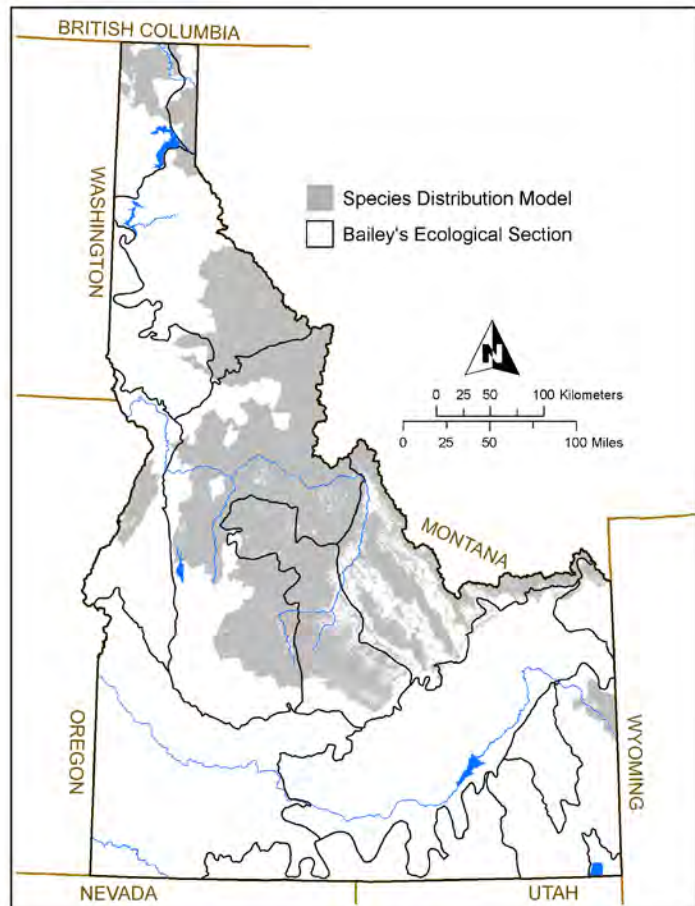
IDAPA: Big Game Animals

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

Appendix F. Species Conservation Status Assessments. Continued.

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: IDFG. 2013. Mountain Goat Statewide Report. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

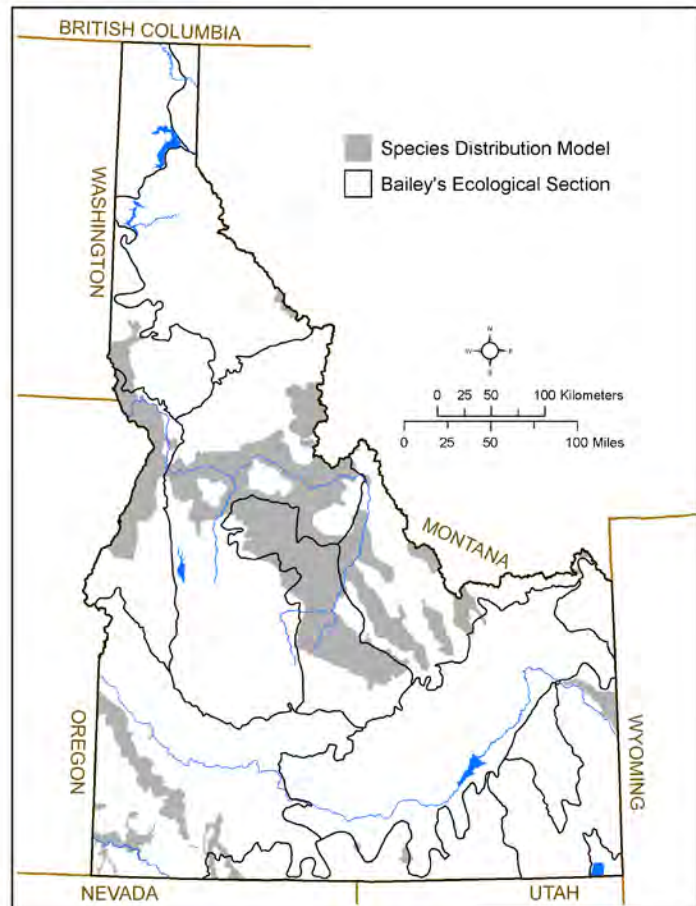
IDAPA: Big Game Animals

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

Appendix F. Species Conservation Status Assessments. Continued.

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

Long-term Trend: Decline 80–90%

Description: Bighorn Sheep were widely distributed and one of the most abundant game animals 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 1,000 individuals in 1920 to about 5,000 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: IDFG. 2010. Bighorn Sheep management plan 2010. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. 2010. Bighorn Sheep management plan 2010. Boise (ID): Idaho Department of Fish and Game.

Caribou

Rangifer tarandus

Class: Mammalia
Order: Artiodactyla
Family: Cervidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Endangered

USFS:

Region 1: No status

Region 4: No status

BLM: Type 1

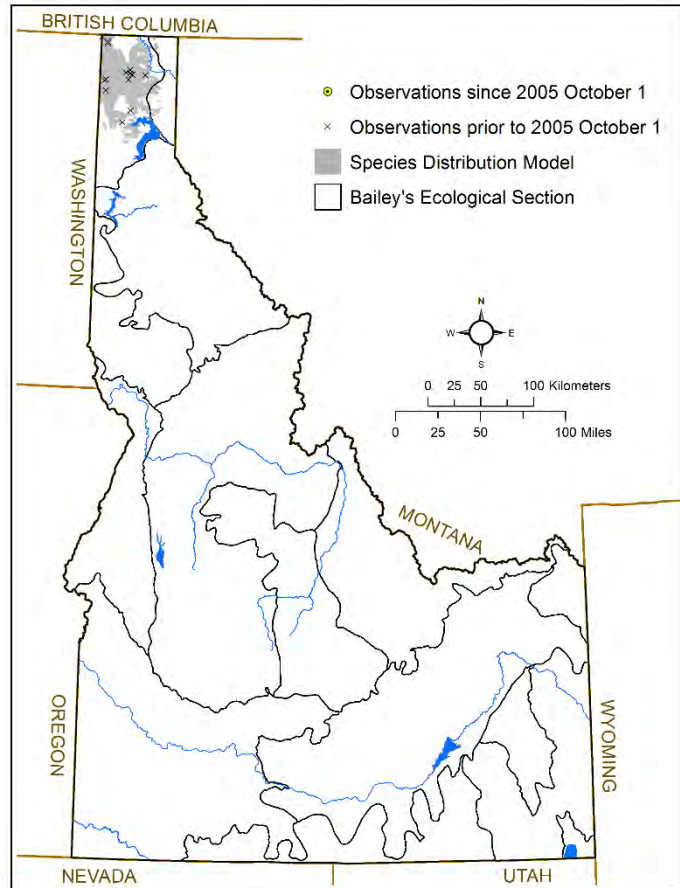
IDAPA: Endangered Species

G-rank: G5T4

S-rank: S1

SGCN TIER: 1

Rationale: ESA listed, low population size, population declines, range restricted, culturally significant



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,000 km² (~1,200 mi²)

Key Ecological Sections: Okanogan Highlands

Population Size in Idaho: <14

Description: Caribou are circumboreal in distribution, occurring in the tundra and boreal zones of Europe, Asia, and North America. The only Caribou that exist in the contiguous US use the Selkirk Mountains in southeastern British Columbia, northern Washington, and northern Idaho. These Caribou are a subpopulation of the South Mountain Caribou Designatable Unit as defined by the Committee on the Status of Endangered Species in Canada (COSEWIC). The FWS designated recovery zone for the South Selkirk subpopulation includes an area of approximately 5,700 km² (2,200 mi²), of which 53% lies in the US.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The South Selkirk subpopulation inhabits mature forests dominated by subalpine fir and Engelmann spruce in areas that experience deep snowfall. Individuals migrate to lower elevations (~1,500 m [4,900 ft]) in December and January and return to higher elevations (~1,900 m [6,200 ft]) after the snow has consolidated in late January. During the summer, individuals forage on small wood browse and forbs. During the winter, individuals rely almost entirely on arboreal lichens, a trait that distinguishes them from other Caribou Designatable Units. The Caribou breeds during September or early October and females move to high elevation ridges to calve in late April to May. Females generally have their first calf at 3 years of age and usually produce single calves although twins do occur rarely.

Appendix F. Species Conservation Status Assessments. Continued.

POPULATION TREND

Short-term Trend: Decline 50%

Long-term Trend: Decline 60–70%

Description: Historically, the South Mountain Caribou were relatively widespread and occurred in large subpopulations. By 2000, about 30% of the early 1900s range was no longer occupied. The South Selkirk subpopulation, in particular, declined >70% from 1995 to 2015. Augmentation efforts occurred in 1987-1990 and again in 1996-1998 and from 2002-2011 the population appeared to be relatively stable at 35-45 individuals. However, census counts since 2012 have documented < 30 individuals, with only 14 individuals counted in 2015.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threats for this population of Caribou include predation by Mountain Lions, Bears and Wolves, highway mortalities, synthetic and natural habitat changes, and increasing levels of human recreation.

CONSERVATION ACTIONS

Conservation issues and management actions are being detailed by the Southern Caribou International Technical Working Group (SCITWG). SCITWG is currently evaluating threats from avalanches, climate change, fire and fire suppression, forest insects and diseases, hunting, timber harvest, parasites, predation, recreational activities, and roads and other linear features. Historically, predation, highway mortalities, and large-scale habitat alterations have impacted Caribou. These three issues are currently being addressed through predation management, coordination with B.C. Ministry of Transportation, and land management plans in Canada and the US.

ADDITIONAL COMMENTS

The Selkirk Mountain population was listed as Endangered under the ESA in 1983, a recovery plan was published in 1994, and critical habitat was designated in 2012. In 2014, the population was proposed for downlisting from Endangered to Threatened.

Information Sources: Ray JC, Cichowski DB, St-Laurent MH, Johnson CJ, Petersen SD, Thompson ID. 2015. Conservation status of caribou in the western mountains of Canada: Protections under the Species At Risk Act, 2002-2014. *Rangifer* 35:49-80.; Kinley TA, Apps CD. 2007. Caribou habitat modeling for the South Selkirk Mountains Ecosystem including habitat assessments for the Priest Lake endowment lands.; Wakkinen WL, Slone JB. 2010. Selkirk Ecosystem Woodland Caribou Movement Analysis. Idaho Department of Fish and Game, Boise, ID.; COSEWIC. 2011. Designatable Units for Caribou (*Rangifer tarandus*) in Canada. Ottawa (Ontario): Committee on the Status of Endangered Wildlife in Canada.; DeGroot, L. 2015. 2015 Caribou Census. South Selkirk Mountains. Nelson (British Columbia): Ministry of Forest, Lands, and Natural Resource Operations.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

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

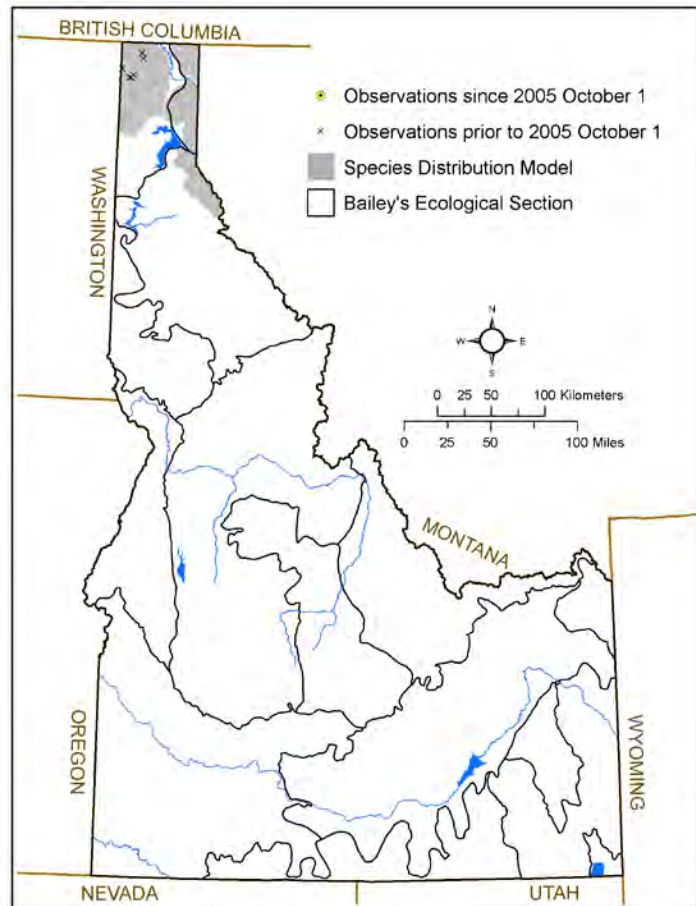
IDAPA: Unprotected Wildlife

G-rank: G5

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.

Appendix F. Species Conservation Status Assessments. Continued.

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 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 FWS 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, Yensen E. 1989. Rediscovery of the northern bog lemming (*Synaptomys borealis*) in Idaho. Northwest Naturalist 70:14–15; Groves CR. 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 CR, Butterfield B, Lippincott A, Csuti B, Scott JM. 1997. Atlas of Idaho's Wildlife: Integrating Gap Analysis and Natural Heritage Information. Boise (ID): Idaho Department of Fish and Game.; Boggs JR, Woods S. 2004. Northern bog lemmings and rare plants in the Panhandle of Idaho. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

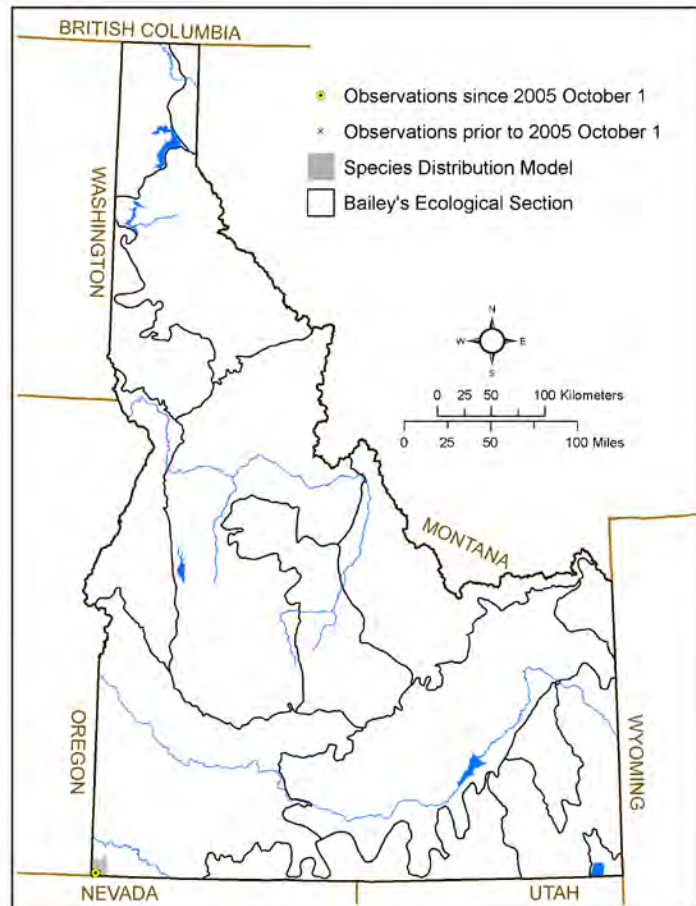
IDAPA: Unprotected Wildlife

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. Most 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.

Appendix F. Species Conservation Status Assessments. Continued.

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 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 JC, Upham NS, Reddington E, Torres CW. 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 JC, Upham NS. 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 JJ, Portnoy DS, Hafner JC, Light JE. 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

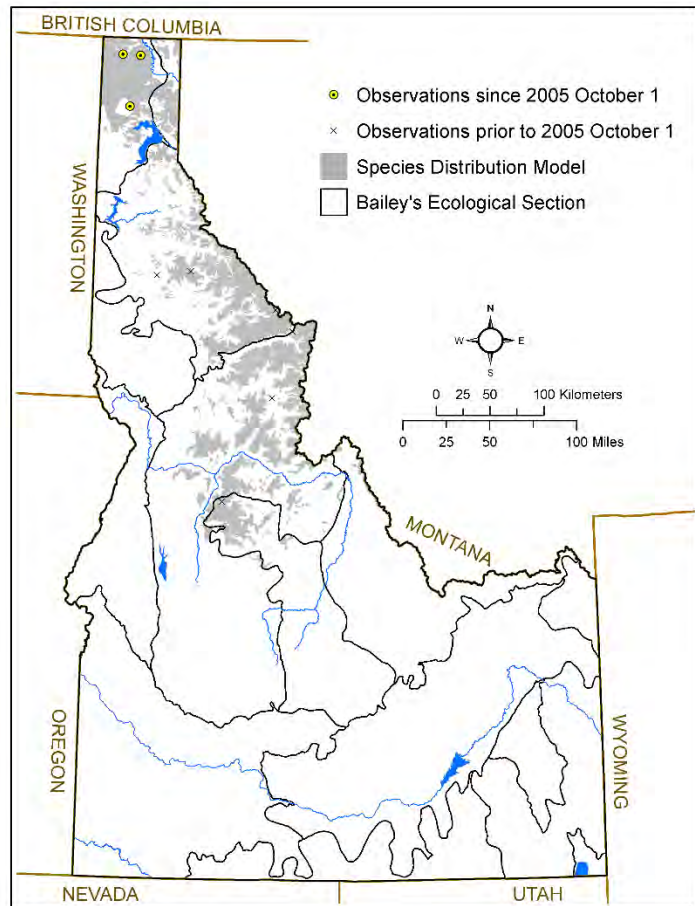
IDAPA: Unprotected Wildlife

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

Appendix F. Species Conservation Status Assessments. Continued.

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 AV, Hammerson G. 2008. *Marmota caligata*. The IUCN Red List of Threatened Species. Version 2014.2. www.iucnredlist.org. Downloaded on 14 October 2014; Braun JK, Eaton TS Jr., Mares MA. 2011. *Marmota caligata* (Rodentia: Sciuridae). *Mammalian Species* 43:155–171; Patil VP. 2010. The interactive effects of climate, social structure, and life history on the population dynamics of hoary marmots (*Marmota caligata*). MS Thesis. Edmonton (Alberta): University of Alberta.; Patil VP, Morrison SF, Karels TJ, Hik DS. 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): 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

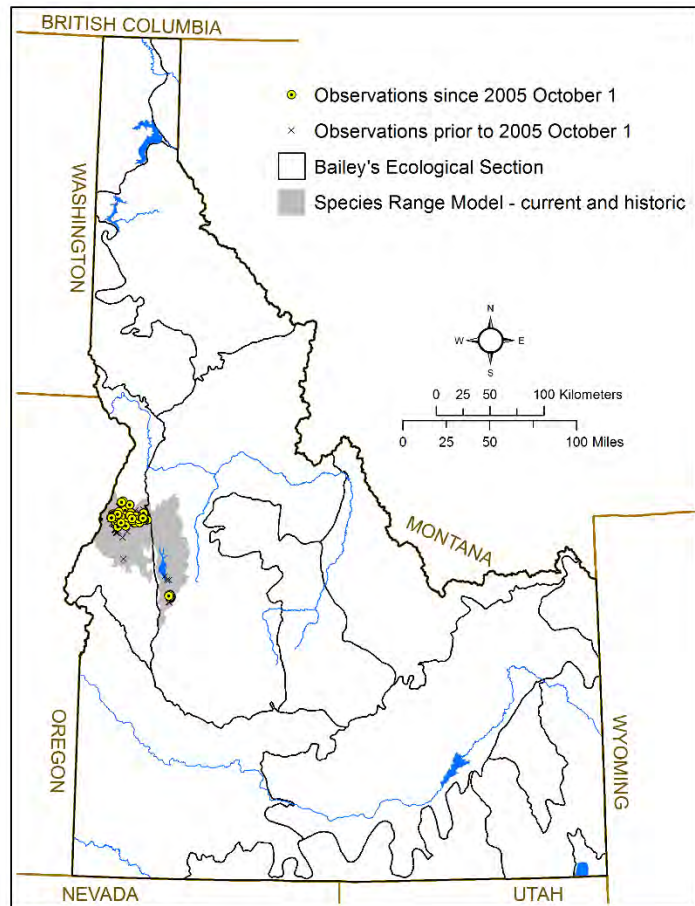
IDAPA: Threatened Species

G-rank: G2

S-rank: S2

SGCN TIER: 1

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



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: 2,757

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 Section. Colonies are distributed in the Bear Creek, Lick Creek, Lost Creek, Weiser River, and Mud Creek drainages. A disjunct population occurs in Round Valley in Valley County. Using a new long-term monitoring sampling design, the baseline estimated population size in 2015 was 1,461–2,007 individuals with an adjusted index to abundance of 2,757 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%

Appendix F. Species Conservation Status Assessments. Continued.

Description: Over the long term, the species has declined from the 1980s estimate of 5,000 to <1,000 when it was listed in 2000. However, recent population trends are improving. Standardized survey methods from 2005-2012 increased the number of known occupied sites and estimates of overall population size. A new long-term population monitoring strategy, first implemented in 2014, indicated an increase from 2014 to 2015 and an estimated abundance in 2015 of 2,757 individuals.

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 including occasional illegal or misidentified shooting, but the population effects are largely unknown.

CONSERVATION ACTIONS

Conservation issues and management actions for this species are detailed in the FWS 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*. Caldwell (ID): Albertson College of Idaho; 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*). Portland (OR): US Fish and Wildlife Service.; Evans Mack D, Baker C. 2015. Long-term population monitoring of Northern Idaho Ground Squirrel: 2015 implementation and population estimates. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).; FWS. 2003. Recovery Plan for the Northern Idaho Ground Squirrel (*Spermophilus brunneus brunneus*). Portland (OR): US Fish and Wildlife Service (probable historic distribution model).

Columbia Plateau (syn. Merriam's) 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

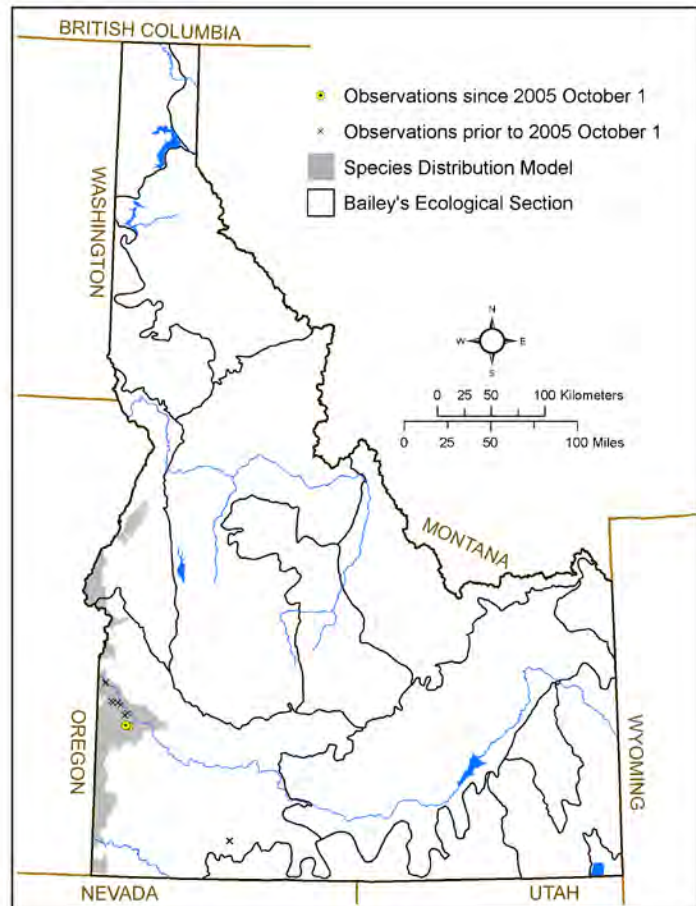
IDAPA: Protected Nongame Species

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 (syn. Merriam's) Ground Squirrel occurs south of the Snake River and west of Reynolds Creek, but the current status of Idaho populations is uncertain. Range limits where the ranges of the Columbia Plateau and Great Basin Ground Squirrels abut 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.

HABITAT & ECOLOGY

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

Description: Habitat characteristics in Idaho have not been described but many historically occupied sites have been converted to agricultural fields. Native habitat comprises sagebrush-dominated shrublands and grassland systems.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Decline 80–90%

Description: Populations appear to have been extirpated from lower-elevation sites in areas converted to tilled agriculture. Records of occurrence in the northern foothills of the Owyhee Mountains are of unverified identification. Recent sightings are uncommon.

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, invasive plants, and wildfire. In addition, mortality of individuals may occur from illegal or misidentified shooting but population and productivity effects are unknown. Populations may face competition with Belding's Ground Squirrel where these species are sympatric. The effects of disease, especially plague, has not been investigated. Plague appeared in Idaho ca. 1940 and may have important consequences for population dynamics of colonial ground squirrels.

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 and status of ground squirrel populations in northwest Owyhee County, which will help with public and hunter education regarding identification of this protected native species. Long-term efforts toward rangeland restoration and management intended to reduce nonnative grasses and restore ecological function of shrub habitats would benefit this species.

ADDITIONAL COMMENTS

None.

Information Sources: Cole FR, Wilson DE. 2009. *Urocitellus canus* (Rodentia: Sciuridae). Mammalian Species 834:1–8; Yensen E, Sherman PW. 2003. Ground-dwelling squirrels of the Pacific Northwest. Caldwell (ID): Albertson College of Idaho.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model modified by IDFG biologists).

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

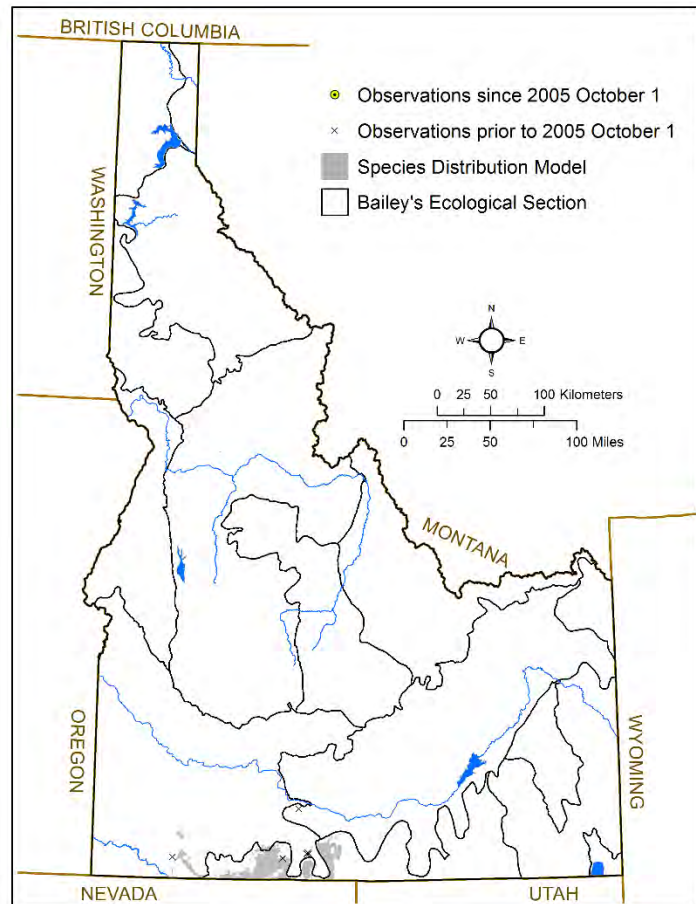
IDAPA: Protected Nongame Species

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. Although 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

Appendix F. Species Conservation Status Assessments. Continued.

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 E. 1998. *Spermophilus elegans* Kennicott 1863, Wyoming ground squirrel. Pp. 45–46 in Hafner DJ, Yensen E, Kirkland GL Jr. (compilers and eds.). North American rodents: Status survey and conservation action plan. IUCN/SSC Rodent Specialist Group. Gland (Switzerland): International Union for the Conservation of Nature, Gland, Switzerland.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database, accessed December 14, 2015; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model modified by IDFG biologists to reflect only the southwest population).

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

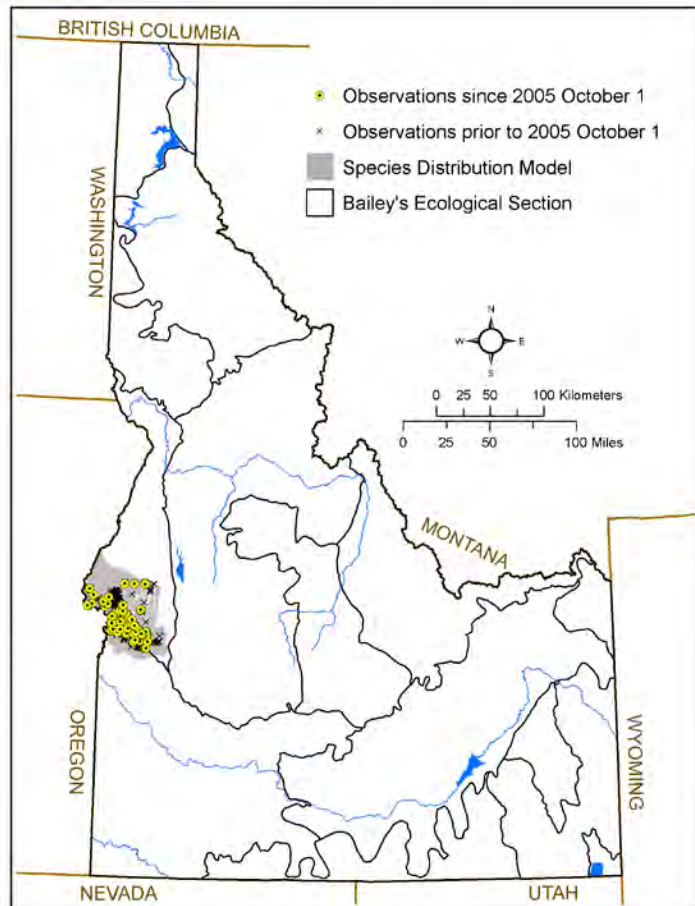
IDAPA: Protected Nongame Species

G-rank: G2T2

S-rank: S2

SGCN TIER: 1

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



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,900 km² (~1,100 mi²)

Key Ecological Sections: Blue Mountains, Owyhee Uplands

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

Description: The Southern Idaho Ground Squirrel is endemic to approximately 291,500 ha (720,300 acres) in Gem, Payette, Washington, and Adams counties. The Snake and Payette rivers are range boundaries to the west and south, respectively, and geologic and edaphic conditions may limit habitat suitability at the northern and eastern extent of the range. Distribution is most extensive and population density greatest in the foothills north of the Payette River from Weiser east to Squaw Butte. Populations in the northeastern portion of the range tend to be widely distributed at relatively low densities.

HABITAT & ECOLOGY

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

Description: This species occurs in a mosaic of shrubland and grassland habitats. Nonnative annual grasses have invaded most ground squirrel habitat and the extent of shrub cover has been reduced from historical levels. Nonnative grasses have displaced native plants and reduced plant diversity, which has implications for forage availability and quality. Habitat conditions in late winter and through spring are most important because individuals hibernate for 7-8 months, having a relatively short active season from mid- to late February through June. The short active period is focused on breeding and accumulation of energy reserves for the dormant period. Nonnative grasses tend to senesce in late spring (e.g., late May through early

Appendix F. Species Conservation Status Assessments. Continued.

June), a period when ground squirrels are completing the accumulation of energy reserves prior to entering estivation in June.

POPULATION TREND

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

Long-term Trend: Decline 10–30%

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 going from 40,000 to 4,000 individuals between 1984 and 2000. Populations have made an apparent recovery from the 1999–2000 population low and now occur throughout their range, often being locally abundant.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threats to Southern Idaho Ground Squirrel habitat include invasive plants and changes in plant composition. Changes in plant composition may reduce forage value and the propensity of nonnative grasses to senesce during the period when squirrels accumulate fat reserves may affect survival through their dormant period. Ground squirrels are susceptible to plague, a disease caused by an introduced pathogen. The effects of plague on small mammal communities is an emerging topic of investigation. Plague has the potential to reduce survival rates, perhaps dramatically in the event of an epizootic disease outbreak, and may also mediate competitive interactions that affect distribution and abundance. Individual squirrel mortality may occur from illegal or misidentified shooting and incidental mortality may occur through control measures for other species; population effects have not been detected.

CONSERVATION ACTIONS

Conservation issues and management actions for the species are detailed in the appropriate section plans. Recommended strategies include determining the effects of evaluating and managing disease, implementing rangeland management and restoration programs to benefit ground squirrel populations, and continuing landowner, public, and hunter education emphasizing proper identification and protected status of these native squirrels.

ADDITIONAL COMMENTS

The Southern Idaho Ground Squirrel was designated a candidate for listing under the ESA in 2001 and was determined to be not warranted for listing 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. Boise (ID): Albertson College of Idaho; 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. Boise (ID): Albertson College of Idaho; 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. Boise (ID): Albertson College of Idaho; Lohr K, Yensen E, Munger JC, Novak SJ. 2013. Relationships between habitat characteristics and densities of southern Idaho ground squirrels. *Journal of Wildlife Management* 77:983–993; Barrett J. 2005. Population viability of the southern Idaho ground squirrel: effects of an altered landscape. MS Thesis. Boise (ID): Boise State University; FWS. 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].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model); IDFG unpublished data.

Great Basin Collared Lizard

Crotaphytus bicinctores

Class: Reptilia
Order: Squamata
Family: Crotaphytidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

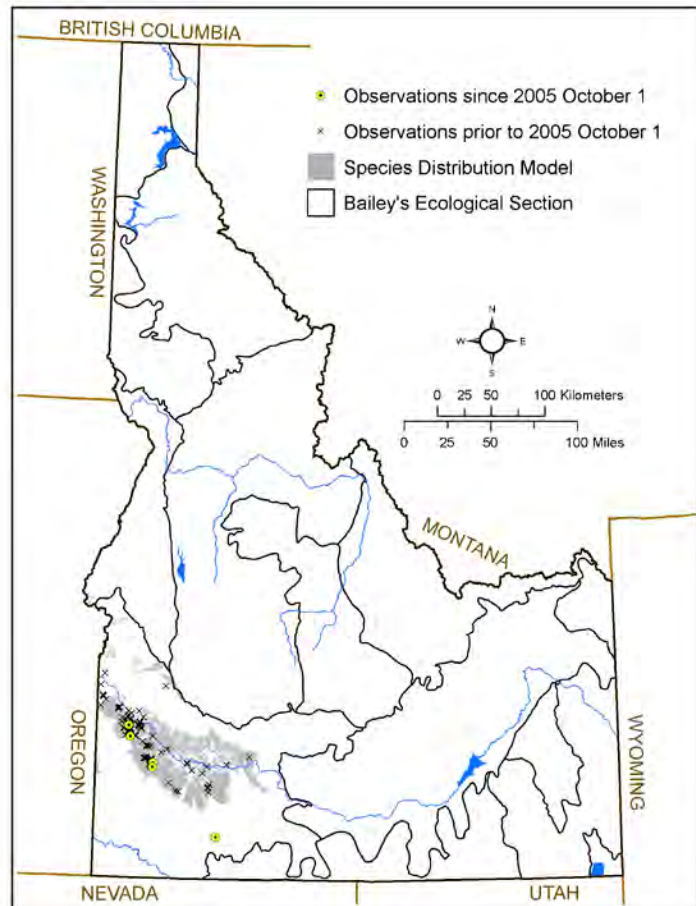
IDAPA: Protected Nongame Species

G-rank: G5

S-rank: S2

SGCN TIER: 3

Rationale: Critical conservation needs,
multiple threats to habitat



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 11,600 km² (~4,500 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Unknown

Description: The Great Basin Collared Lizard occurs from southwest Idaho and eastern Oregon south across the Great Basin to northern Arizona and southeastern California. Idaho populations occur at lower elevations along the Snake River, primarily in Owyhee County south of the Snake River. Individuals are typically sparsely distributed within occupied habitat. Density from 0.27 to 4.47 individuals per hectare has been estimated at four sample sites south of Nampa, Idaho.

HABITAT & ECOLOGY

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

Description: This lizard occurs in rocky, sparsely-vegetated habitat with sagebrush, saltbush and bunchgrasses as dominant cover types. Scattered rocks are a characteristic habitat component. Collared lizard population density increases with rock cover, and rock sizes in occupied habitat are typically 0.25-1.00m in diameter. Prey consists of large arthropods and lizards.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

Appendix F. Species Conservation Status Assessments. Continued.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: The primary threats to this species include loss or alteration of suitable habitat by nonnative plants. Habitat changes may affect physical structure of the habitat (such as availability of open, unvegetated patches) and prey availability. Mortality and displacement by off-road vehicles and commercial and noncommercial collecting for the pet trade are sources of mortality (or removal from the population in the case of collection) that have unknown implications for population viability. Similarly, rock quarrying may affect habitat in some localized areas but has unknown effects on habitat suitability or occupancy.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Owyhee Uplands Section Plan. The management priority for Great Basin Collared Lizard habitat is management of cheatgrass and other invasive plants and noxious weeds. These plants reduce habitat quality because collared lizards are adapted to sparsely-vegetated habitat, but cheatgrass and other invasive annuals tend to grow in dense stands. Invasive annuals may also have negative consequences for prey abundance and affect fire cycles, which has implications for vegetation composition and structure in post-fire regenerated habitat.

ADDITIONAL COMMENTS

None.

Information Sources: Cossel J Jr, Oelrich K, Thoren K, Butler–Dawson J. 2004. Habitat use, home range size and relative abundance of the Great Basin Collared Lizard (*Crotaphytus bicinctores*) in southwestern Idaho. Final Report, WCRP Program, Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed August 14, 2015].; Aycrigg J, Andersen M, Beauvais G, Croft M, Davidson A, Duarte L, Kagan J, Keinath D, Lennartz S, Lonneker J, Miewald T, Ohmann J, eds. 2013. Ecoregional Gap Analysis of the Northwestern United States: Northwest Gap Analysis Project Draft Report. Moscow (ID): USGS, Gap Analysis Program (predicted year-round distribution model).

Harvestman Species Group

Acuclavella Species Group

Class: Arachnida

Order: Opiliones

Family: Ceratolasmatidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

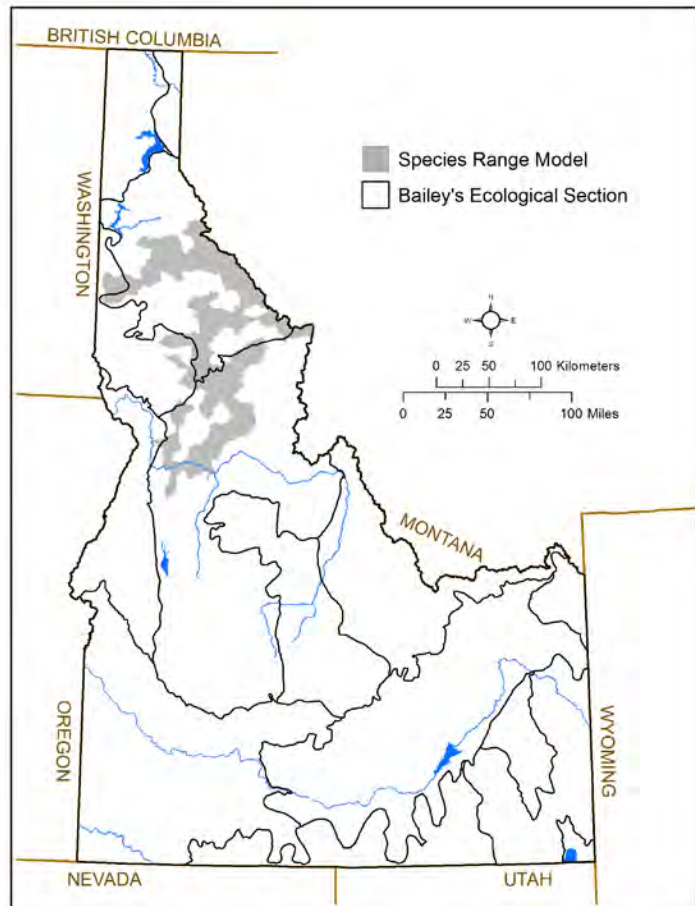
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3Q

SGCN TIER: 3

Rationale: Idaho endemics, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 16,700 km² (~6,400 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: At least 5 *Acuclavella* species, including 4 Idaho endemics (*A. sheari*, *A. quattuor*, *A. merickeli*, *A. shoshone*) and 1 regional endemic (*A. cosmetoides*) occur in the Clearwater region of Idaho. *Acuclavella sheari* is currently known only from an area just south of the Salmon River in Idaho County. *A. quattuor* occurs between the South Fork of the Clearwater River and the Salmon River, but may also occur between the Selway and Lochsa rivers. Known *A. merickeli* populations are all on the Nez Perce National Forest between the Selway River and the South Fork of the Clearwater River. *A. shoshone* is known only from its type locality at Hobo Cedar Grove, Shoshone County. Conversely, *A. cosmetoides* is more widespread ranging from the Clearwater River north to the Coeur d'Alene River with 1 known location in Montana.

HABITAT & ECOLOGY

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

Description: These species are riparian obligate forest-dwellers, typically found in litter, moss, or moist woody debris adjacent to small perennial seeps and headwater streams. Coniferous canopy cover generally includes grand fir, Douglas-fir, Engelmann spruce, western hemlock and/or western redcedar.

POPULATION TREND

Short-term Trend: Unknown

Appendix F. Species Conservation Status Assessments

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Threats to these populations have not been specifically identified but could include any changes to the riparian forest found at known sites.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for these species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate. In addition, further taxonomic work is needed for this genus to support the separation of *A. shoshone* and *A. cosmetoides* as well as the possibility of 2 species in the *A. quattuor* lineage.

ADDITIONAL COMMENTS

None.

Information Sources: Richart CH, Hedin M. 2013. Three new species in the harvestmen genus *Acuclavella* (Opiliones, Dyspnoi, Ischyropsalidoidea), including description of male *Acuclavella quattuor* Shear, 1986. ZooKeys 311:19–68; Shear, W. A. 1986. A cladistic analysis of the Opilionid superfamily Ischyropsalidoidea, with descriptions of the new family Ceratolasmatidae, the new genus *Acuclavella*, and four new species. American Museum Novitates 2844:1-29.

Map Sources: Richart CH, Hedin M. 2013. Three new species in the harvestmen genus *Acuclavella* (Opiliones, Dyspnoi, Ischyropsalidoidea), including description of male *Acuclavella quattuor* Shear, 1986. ZooKeys 311:19–68; Integrated digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

A Cave Obligate Harvestman

Speleomaster lexi

Class: Arachnida

Order: Opiliones

Family: Cladonychiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

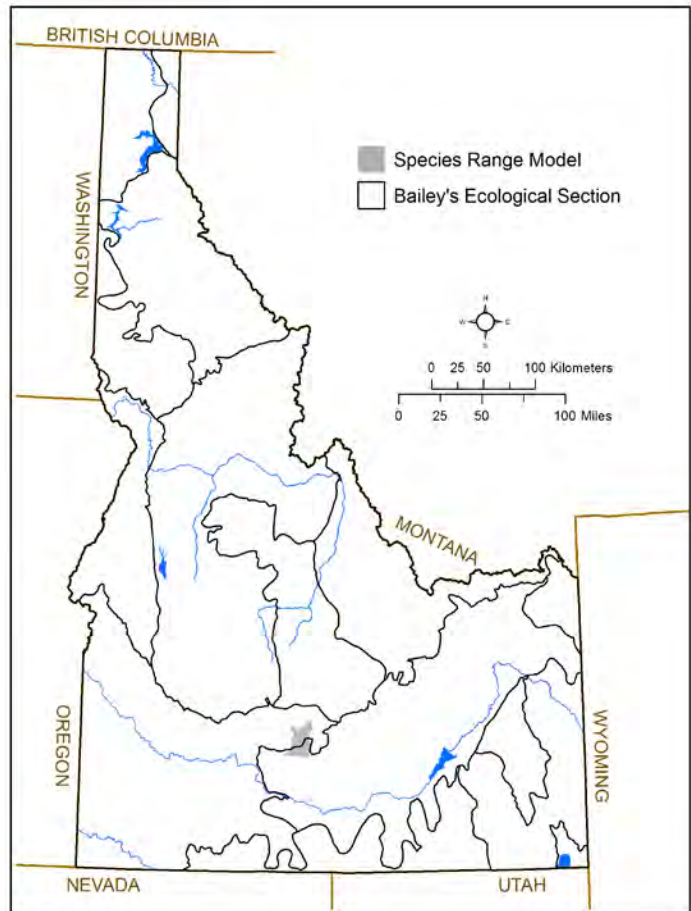
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 600 km² (~200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This cave obligate species is an Idaho endemic known from a single lava-tube cave complex in Lincoln County. The distribution of populations within the complex is not known, but the species may be restricted to a limited area of suitable habitat. Individuals are rarely encountered.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Although specific habitat requirements have not been documented, specimens have all been found in various locations within a single lava-tube cave.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented. The species appears to be reclusive and population estimates are difficult.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Threats are unknown, but any activity that might negatively disrupt the cave environment would be considered a threat.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Briggs TS. 1974. Troglotic harvestmen recently discovered in North American lava tubes (Travuniidae, Eremobastridae, Triaenonychidae: Opiliones). *Journal of Arachnology* 1:205-214.; Riggs J. 1994. Phalangids in the T-maze cave system, Shoshone, Idaho. *Gem State Grotto*, Boise (ID): Boise State University.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Cave Obligate Harvestman

Speleomaster pecki

Class: Arachnida

Order: Opiliones

Family: Cladonychiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

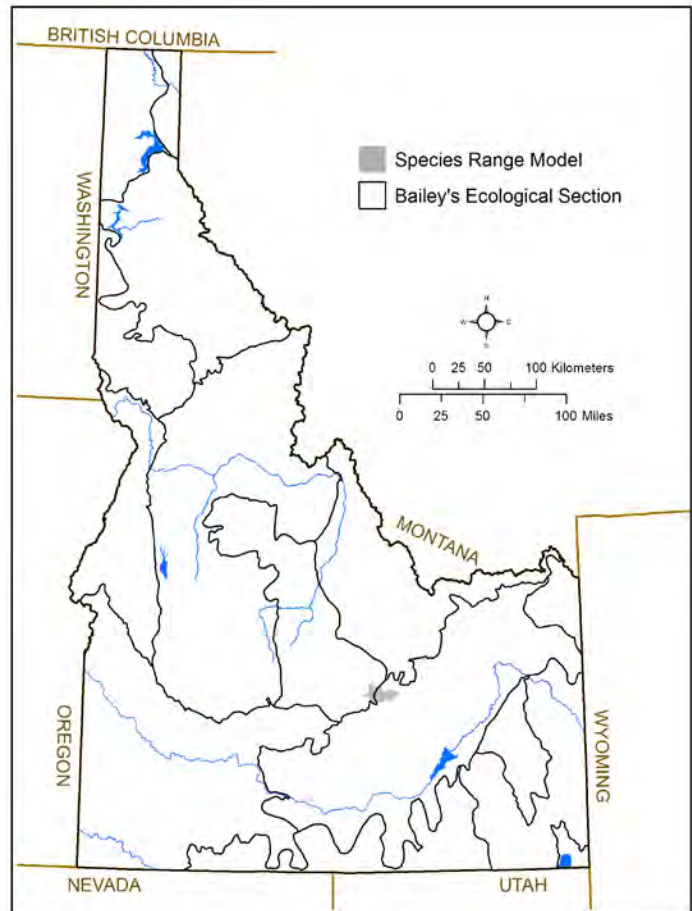
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This cave obligate species is an Idaho endemic known only from a single cave in Craters of the Moon National Monument and Preserve, Butte County.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This harvestman is restricted to habitat found only in a lava-tube cave, and has only been collected near a permanent ice flow.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Threats are unknown, but any activity that might negatively disrupt the cave environment would be considered a threat.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Briggs TS. 1974. Troglolitic harvestmen recently discovered in North American lava tubes (Travuniidae, Eremobastridae, Triaenonychidae: Opiliones). *Journal of Arachnology* 1:205-214.; Riggs J. 1994. Phalangids in the T-maze cave system, Shoshone, Idaho. *Gem State Grotto, Boise (ID): Boise State University.*

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Cave Obligate Mite

Flabellorhagidia pecki

Class: Arachnida
Order: Trombidiformes
Family: Rhagidiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

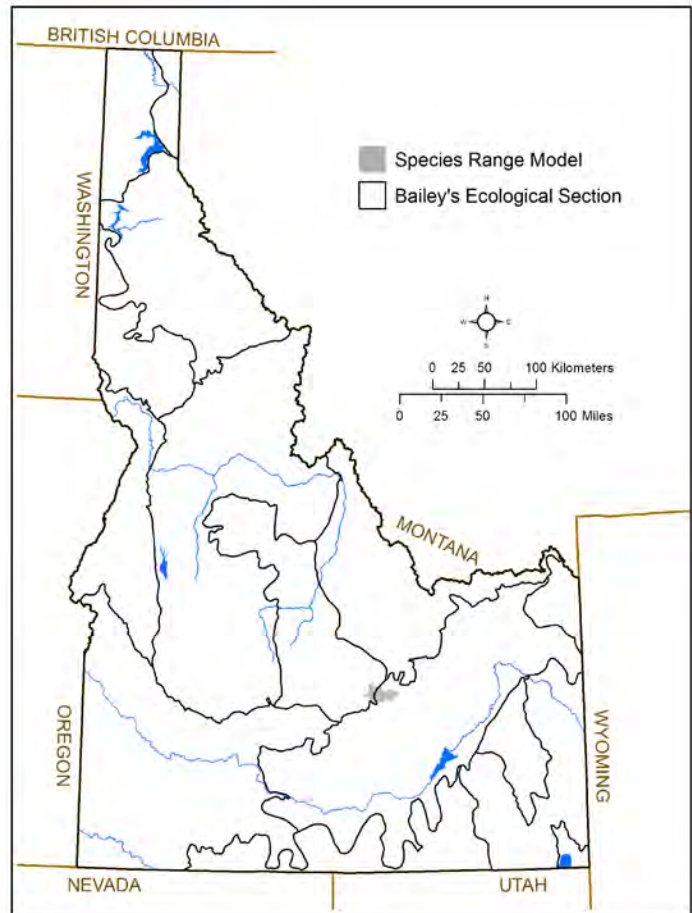
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This cave obligate species is an Idaho endemic, known only from a single cave at Craters of the Moon National Monument and Preserve.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species is an obligate cave inhabitant, but specific habitat requirements have not been published.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Threats are unknown, but any activity that might negatively disrupt the cave environment would be considered a threat.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Elliott WR. 1976. New cavernicolous Rhagidiidae from Idaho, Washington, and Utah (Prostigmata: Acari: Arachnida). Occasional Papers, Museum of Texas Tech University 43:1–15.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Western Pearlshell

Margaritifera falcata

Class: Bivalvia

Order: Unionoida

Family: Margaritiferidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

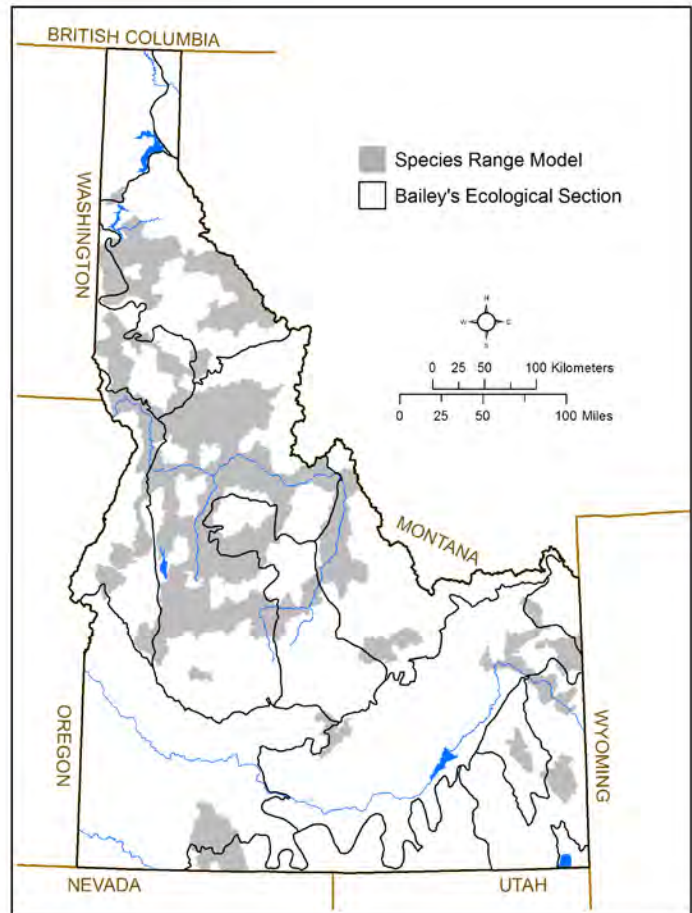
IDAPA: Unprotected Wildlife

G-rank: G4G5

S-rank: S2

SGCN TIER: 2

Rationale: Significant rangewide declines, multiple threats



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 30,328 stream km (~18,845 stream mi)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics, Idaho Batholith, Palouse Prairie, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: Historically, the Western Pearlshell was widespread across western North America, including most of Idaho. Once the most common mussel in the Pacific Northwest, it is now increasingly rare. Although the species continues to persist in most forested streams across the state, it has been lost from large stretches of the Snake, Big Wood, Big Lost, Little Lost, Malad, Raft, Payette, Portneuf, Boise, Clearwater, and Bruneau rivers. Recent surveys in the Buffalo, Upper Teton, and Lower Henrys Fork have identified potentially viable populations, but distribution data from these locations was not available at the time of this report. Viability of populations in the Northern Rocky Mountains is questionable and lack of recruitment correlates with loss of the host fish.

HABITAT & ECOLOGY

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

Description: This species inhabits cold, clear streams and rivers often in reaches with fast current and coarse substrates. It is long-lived (average 60–70 years, but some as long as 100 years), is slow to reproduce, and relies on fish hosts, predominantly native salmonids.

POPULATION TREND

Short-term Trend: Decline 30–50%

Appendix F. Species Conservation Status Assessments

Long-term Trend: Unknown

Description: Western Pearlshell have declined across much of the historical range. In Idaho, the species has declined between 37% and 57% when compared to estimates of historical distribution. These declines have been attributed to changes in water quality and the loss of riparian zones. Habitats once more appropriate for Western Pearlshell no longer support populations and may instead be inhabited by the native Western Ridged Mussel that are better adapted to lower quality stream habitats.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: This species is sensitive to changes in water quality and is particularly intolerant of heavy nutrient loads and siltation. Thus, threats to the species include impoundments, channel modification, dredging/mining, contamination, sedimentation, nutrient enrichment, water withdrawal and diversion, thermal pollution, and improper livestock grazing management in riparian areas. In addition, loss of host fish populations and introduction of non-native fish and invertebrate species are also threats. The species is also known to be recreationally harvested in certain portions of its range, the scale and effect of this harvest is not fully understood.

CONSERVATION ACTIONS

Priority conservation strategies include conducting surveys to determine the current abundance and trends of this species in Idaho and maintaining water quality and quantity at both known and potential sites.

ADDITIONAL COMMENTS

None.

Information Sources: Lysne S. 2009. A Guide to Southern Idaho's Freshwater Mollusks. Boise (ID): US Fish and Wildlife Service; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Xerces Society. 2012. Status Review of *Margaritifera falcata* (Gould, 1850) Western Pearlshell (Bivalvia: Margaritiferidae). www.xerces.org [Accessed Jan 6, 2015]; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51; Hovingh P. 2004. Intermountain freshwater mollusks, USA (Margaritifera, Anodonta, Gonidea, Valvata, Ferrissia): Geography, conservation and fish management implications. *Western North American Naturalist* 2:109–135; Lysne SJ, Krouse BR. 2011. *Margaritifera falcata* in Idaho: using museum collections and GIS to demonstrate a declining trend in regional distribution. *Journal of the Idaho Academy of Science*, 47(2):33–39; Vannote RL, Minshall GW. 1982. Fluvial processes and local lithology controlling abundance, structure, and composition of mussel beds. *Proceedings of the National Academy of Science*, 79:4103–4107.

Map Sources: Range extent is based on the current stream occupancy in Idaho (30,328 stream km); Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; The Xerces Society for Invertebrate Conservation and the Confederated Tribes of the Umatilla Indian Reservation Mussel Project. 2015. Western Freshwater Mussel Database. Database available by request; Holderman C, Shafii B, Anders P, Lester G. 2009. Characterization of the Kootenai River aquatic macroinvertebrate community before and after experimental nutrient addition, 2003-2006. Chap 3 in Kootenai River Macroinvertebrate Characterization, 2009 KTOI Report [Accessed Feb 20, 2015] <https://pisces.bpa.gov/release/documents/documentviewer.aspx?doc=P110393>; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Lysne SJ, Garcia G, Krouse BR. 2011. Molluscan community composition and richness in four high-elevation Idaho streams includes an exotic taxon. *American Malacological Bulletin* 29:127–133; Lysne SJ, Krouse BR. 2011. *Margaritifera falcata* in Idaho: using museum collections and GIS to demonstrate a declining trend in regional distribution. *Journal of the Idaho Academy of Sciences* 47:33–39.

California Floater

Anodonta californiensis

Class: Bivalvia
Order: Unionoida
Family: Unionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

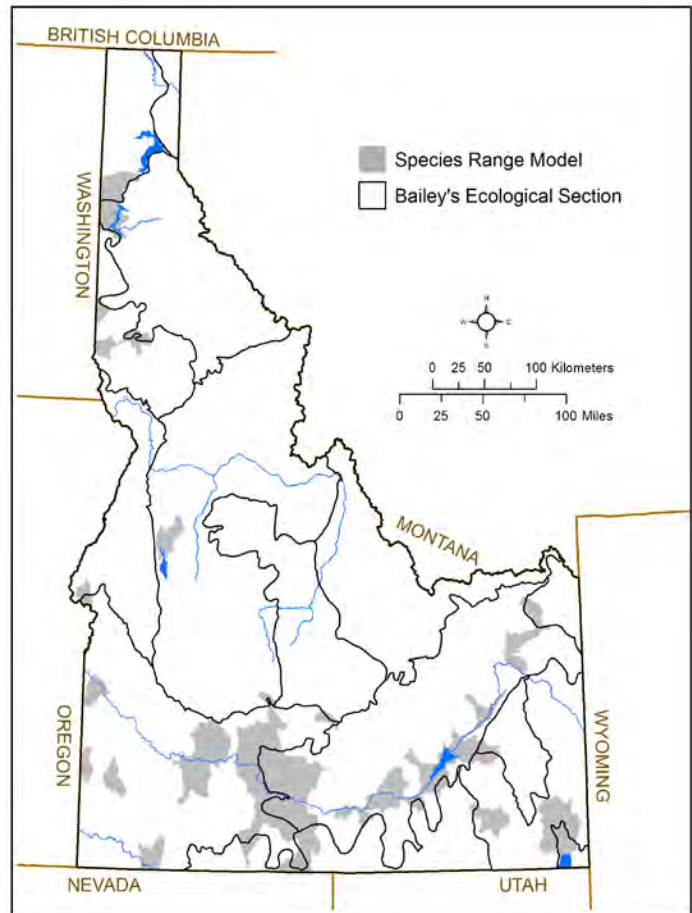
IDAPA: Unprotected Wildlife

G-rank: G3Q

S-rank: S3Q

SGCN TIER: 3

Rationale: Significant rangewide declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 23,300 km² (~9,000 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: The California Floater is widespread across the western US, but scarce. In Idaho, populations primarily occur in the Snake River Plain and it can still be locally common in some reaches.

HABITAT & ECOLOGY

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

Description: This species occurs in large, cold, slow-moving streams and lakes at lower elevations. It is typically found on soft substrates, is relatively sedentary and is thought to be a fast-growing species that reaches sexual maturity in 4–5 years with a lifespan of 10–15 years. Host fish in Idaho are unknown.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: This species is declining both in terms of the area occupied and the number of sites and individuals across much of its range, but predominantly in the southern extent. Recent analyses by the Xerces Society indicates that a major range contraction has not yet taken place in Idaho.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Sensitive to changes in water quality and quantity, the primary threats to this species include impoundments, channel modification, dredging/mining, contamination, sedimentation, nutrient enrichment, water withdrawal and diversion, thermal pollution, and improper livestock grazing management in riparian areas. In addition, loss of host fish populations and introduction of nonnative fish and invertebrate species are also threats.

CONSERVATION ACTIONS

Priority conservation strategies for this species include conducting surveys to determine the current abundance and trends in Idaho and genetic work to determine the possible synonymy with *Anodonta nuttalliana*.

ADDITIONAL COMMENTS

The taxonomy of the California Floater is uncertain and it is considered likely synonymous with *Anodonta nuttalliana* by the Xerces Society and Chong et al. (2008).

Information Sources: Xerces Society. 2009. Freshwater mussels of the Pacific Northwest, Second edition. Portland (OR): The Xerces Society for Invertebrate Conservation; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51; Hovingh P. 2004. Intermountain freshwater mollusks, USA (*Margaritifera*, *Anodonta*, *Gonidea*, *Valvata*, *Ferrissia*): Geography, conservation and fish management implications. *Western North American Naturalist* 2:109–135.; Chong JP, Brim Box JC, Howard JK, Wolf D, Myers TL, Mock KE. 2008. Three deeply divided lineages of the freshwater mussel genus *Anodonta* in western North America. *Conservation Genetics* 9:1303–1309.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; The Xerces Society for Invertebrate Conservation and the Confederated Tribes of the Umatilla Indian Reservation Mussel Project. 2015. Western Freshwater Mussel Database. Database available by request; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Lysne SJ, Clark WH. 2009. Mollusc survey of the lower Bruneau River, Owyhee County, Idaho, USA. *American Malacological Bulletin* 27:167–172

Western Ridged Mussel

Gonidea angulata

Class: Bivalvia
Order: Unionoida
Family: Unionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

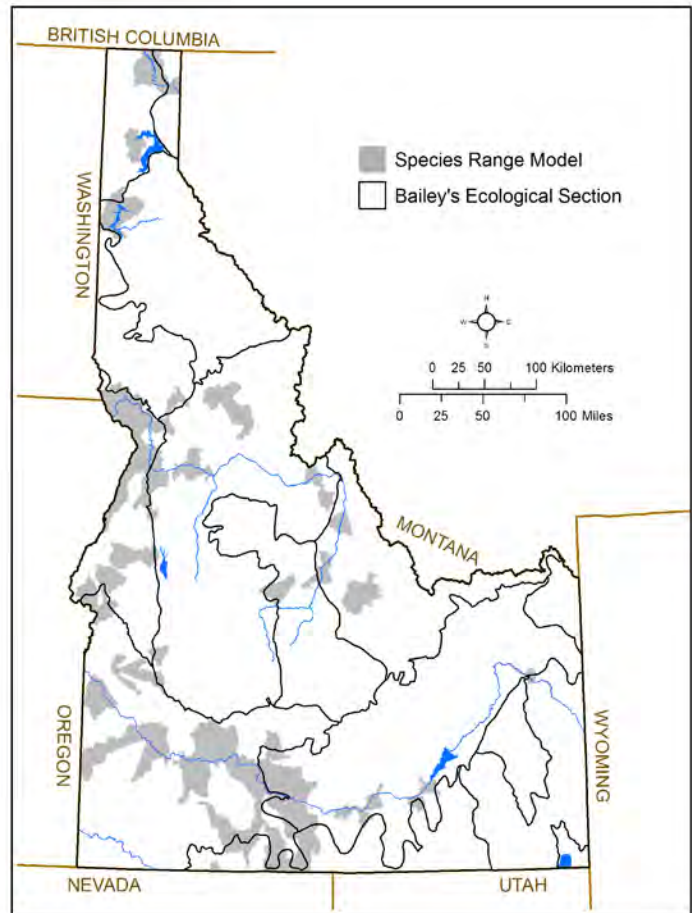
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S3

SGCN TIER: 3

Rationale: Rangewide declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 30,500 km² (~11,800 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith, Okanogan Highlands, Flathead Valley, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Western Ridged Mussel is widespread across the western US, but with declining populations in many areas of its range. Historically, populations existed in much of the Snake, Clearwater, Salmon, and Little Salmon rivers in Idaho. Recent analyses by the Xerces Society suggests that the species has been lost from about a third of its range in Idaho. The Snake River is considered a stronghold for this species and it can still be locally common in some areas.

HABITAT & ECOLOGY

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

Description: This species is found in cold creeks and streams, mainly in low to mid-elevations. Adults are sedentary with an estimated lifespan of 20–30 years. Host fish in Idaho are unknown.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: This species is declining both in terms of the area occupied and the number of sites and individuals across much of its range, though a population on the Humboldt River in Nevada appears to be stable. In Idaho, the species is estimated to have declined by about 30% of its historic range but current trend estimates are unknown.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: This mussel is a cold-water filter feeder and is fairly sensitive to nutrient enhancement, pollution, and temperature changes. Thus, the primary threat to this species is the degradation of water quality and quantity through impoundments, channel modification, reduced stream flow, contamination, sedimentation, nutrient enrichment, and thermal pollution. In addition, the loss of host fish and introduction of nonnative fish and invertebrates are threats.

CONSERVATION ACTIONS

Priority conservation strategies include conducting surveys to determine the current abundance and trends of this species in Idaho and maintaining water quality and quantity at both known and potential sites.

ADDITIONAL COMMENTS

None.

Information Sources: Xerces Society. 2009. Freshwater mussels of the Pacific Northwest, Second edition. Portland (OR): The Xerces Society for Invertebrate Conservation; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51; Hovingh P. 2004. Intermountain freshwater mollusks, USA (*Margaritifera*, *Anodonta*, *Gonidea*, *Valvata*, *Ferrissia*): Geography, conservation and fish management implications. *Western North American Naturalist* 2:109–135.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; The Xerces Society for Invertebrate Conservation and the Confederated Tribes of the Umatilla Indian Reservation Mussel Project. 2015. Western Freshwater Mussel Database. Database available by request; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Holderman C, Shafii B, Anders P, Lester G. 2009. Characterization of the Kootenai River aquatic macroinvertebrate community before and after experimental nutrient addition, 2003-2006. Chap 3 in Kootenai River Macroinvertebrate Characterization, 2009 KTOI Report <https://piscis.bpa.gov/release/documents/documentviewer.aspx?doc=P110393> [Accessed Feb 20, 2015]; Lysne SJ, Clark WH. 2009. Mollusc survey of the lower Bruneau River, Owyhee County, Idaho, USA. *American Malacological Bulletin* 27:167–172

Raptor Fairy Shrimp

Branchinecta raptor

Class: Branchiopoda

Order: Anostraca

Family: Branchinectidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

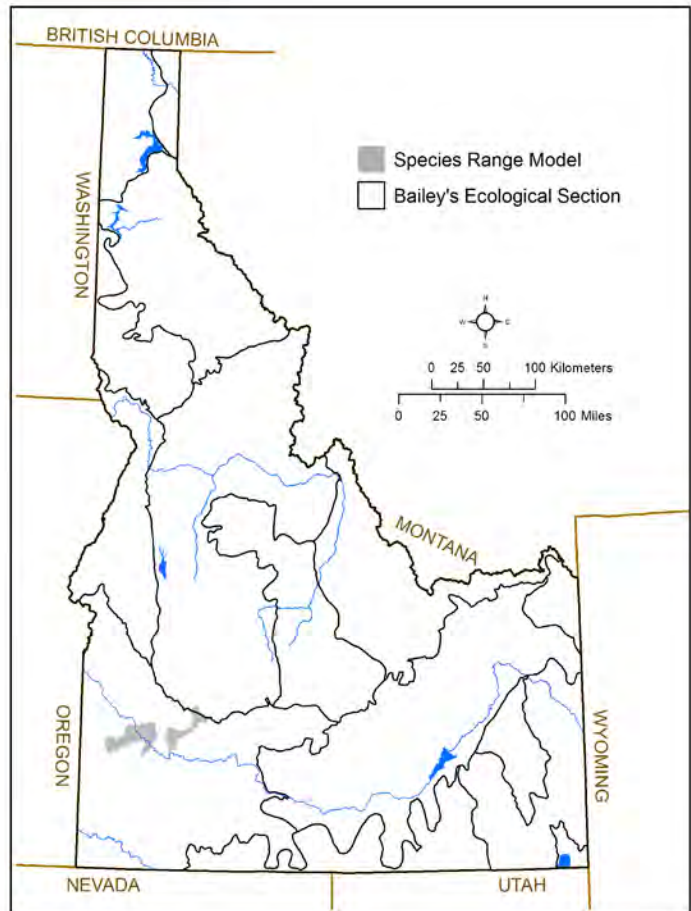
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,400 km² (~500 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: To date, Raptor Fairy Shrimp are known from only two playas in southwestern Idaho – Tadpole Lake in the Idaho Army National Guard Orchard Training Area and Armadillo Lake in the Snake River Birds of Prey National Conservation Area.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The two localities for this species are playas less than 5 ha (12 acres) in size and 10–30 cm (4–12 in) in depth with turbid water, pH of 10 or higher, and temperatures ranging between 4° and 25° C (39°–77° F). Spring rainfall is variable and combined April – June rainfall ranges from 2.5 to 10 cm (1–4 in). This species is a predatory shrimp preying primarily on the Alkali Fairy Shrimp (*Branchinecta mackini*).

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Highly vulnerable

Description: Threats to the population are not specifically identified but primarily include any changes to water quality and quantity including pollution, pH level, and temperature. Climate change will likely exacerbate these threats given current and projected changes in temperature and precipitation patterns.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Rogers CD, Quinney DL, Weaver J, Olesen J. 2006. A new giant species of predatory fairy shrimp from Idaho, USA (Branchiopoda: Anostraca). *Journal of Crustacean Biology* 26:1–12.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Idaho Lava Tube Millipede

Idagona westcottii

Class: Diplopoda

Order: Chordeumatida

Family: Conotylidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

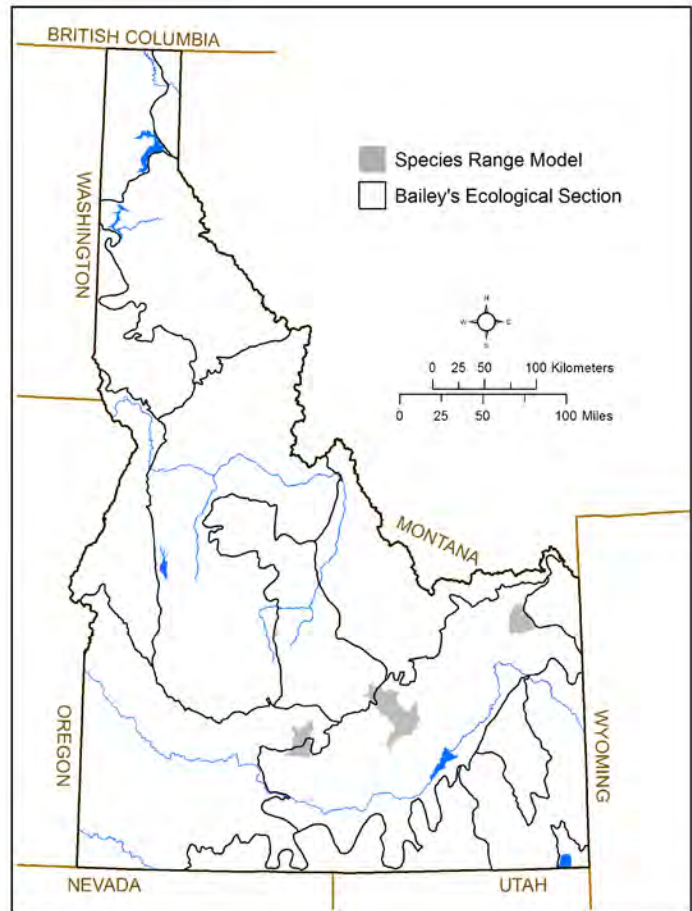
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range, habitat specialist



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Idaho Lava Tube Millipede is an Idaho endemic known from four clusters of lava-tube caves in southern Idaho, it may however be more widespread across the Snake River plain in similar cave systems.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The species is a cave obligate but little else is known about its specific habitat requirements. The lava tubes where it is found generally have permanent ice and constant temperatures around 4 °C (39 °F).

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threat to this species is alteration of cave habitat, which may include climate change, human activities, nutrient loads, and insecticides.

CONSERVATION ACTIONS

Priority conservation strategies for this species include surveys to determine the current abundance and trends of this species in Idaho, maintaining suitable habitat at both known and potential sites, and managing human uses of caves to prevent unintentional damage.

ADDITIONAL COMMENTS

None.

Information Sources: Buckett JS, Garner MR. 1967. A new family of cavernicolous millipedes with description of a new genus and species from Idaho (Diplopoda: Chordeumida: Chordeumidea). *The Michigan Entomologist*, 1, 117–126.; Shear WA. 2007. Cave millipeds of the United States. V. The genus *Idagona* Buckett & Gardner (Chordeumatida, Conotylidae, Idagoninae). *Zootaxa* 1463:1–12.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Shear WA. 2007. Cave millipeds of the United States. V. The genus *Idagona* Buckett & Gardner (Chordeumatida, Conotylidae, Idagoninae). *Zootaxa* 1463:1–12.

Banbury Springs Limpet

Lanx sp. 1

Class: Gastropoda

Order: Basommatophora

Family: Lymnaeidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Endangered

USFS:

Region 1: No status

Region 4: No status

BLM: Type 1

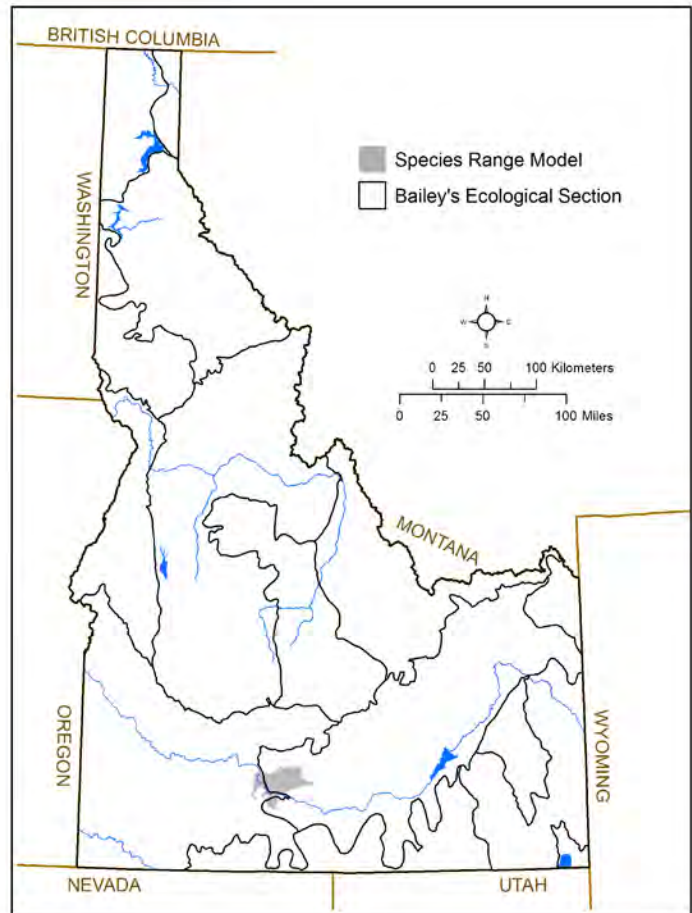
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, ESA Listed, significant declines, high vulnerability



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,200 km² (~500 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Banbury Springs Limpet is an Idaho endemic currently known to occur in only 4 coldwater springs along the Snake River – Briggs Springs, Banbury Springs, Box Canyon Springs, and Thousand Springs. The status of the 4 separate populations is uncertain, but experts estimate approximately 2,500 individuals.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The species appears to prefer deep, cold, high quality water and stable substrates.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Unknown

Description: Although the 4 populations have persisted, the decline reported here represents the average decline in estimated density (individuals/m²) among the 4 populations.

THREATS

Overall Threat Impact: Very High

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: This species is sensitive to small changes in water quality (e.g., temperature, dissolved oxygen, sediment, pollution) and quantity. Thus, the primary threats include habitat modification, water diversion, spring flow reduction, and groundwater contamination from agriculture. The invasive New Zealand mudsnail is also a threat.

CONSERVATION ACTIONS

Although first discovered in 1988 by Terrence Frest, this species has never been formally described or named in the scientific literature. The priority conservation need for this species is that it be described in the scientific literature within the next ten years. In addition, water quality and quantity should be maintained at both occupied and potential sites.

ADDITIONAL COMMENTS

A petition to designate critical habitat for this species was submitted in 2010 but FWS has not yet published its findings.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; Hopper D, US Fish and Wildlife Service, pers. comm.; Lysne S. 2009. A Guide to Southern Idaho's Freshwater Mollusks. Boise (ID): US Fish and Wildlife Service; Burak G, Hopper D. 2014. 2014 Banbury Springs lanx monitoring report for Banbury, Box Canyon, Thousand, and Briggs springs, Idaho. FWS Internal Status Report. Boise (ID): US Fish and Wildlife Service.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Hopper D, US Fish and Wildlife Service, pers.com.

Pondsnail Species Group

Stagnicola Species Group

Class: Gastropoda

Order: Basommatophora

Family: Lymnaeidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

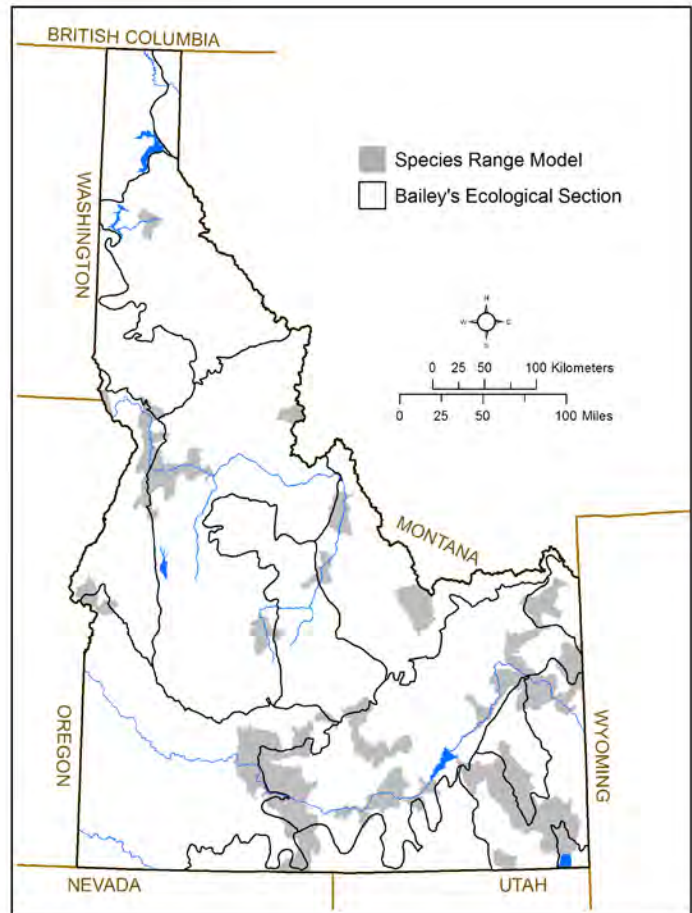
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: SNR

SGCN TIER: 3

Rationale: State and regional endemics, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 39,500 km² (~15,300 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: This species group consists of 9 species (*Stagnicola apicina*, *S. caperata*, *S. elodes*, *S. emarginata*, *S. hinkleyi*, *S. idahoensis*, *S. montanensis*, *S. traski*, and *S. utahensis*) found in various parts of the Salmon and Snake River drainages. Four of these species (*hinkleyi*, *idahoensis*, *montanensis*, and *traski*) are currently considered to be rare or uncommon and 1 (*S. utahensis*) is thought to be extinct in Idaho. Current population status for all species is unknown.

HABITAT & ECOLOGY

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

Description: All of these Pondsnails are cold water stenotherms, found in cold streams often with coarse substrates.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Unknown

Description: Threats to the populations have not been documented however changes in water quality through agricultural pollution, road construction and mining, as well as habitat loss through the conversion of springs and streams for stock and domestic use and grazing have been identified as primary issues for some of the species.

CONSERVATION ACTIONS

Uncertainties in the taxonomy of *Stagnicola* have been raised (Stagliano et al. 2007) and some of these species may be synonyms of more common species (e.g., *S. catascopium*) and may be actually be in the *Lymnaea* genus. Priority conservation strategies include genetic work to determine taxonomic uniqueness of these species and surveys to determine the current abundance and trends in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Extent includes all *Stagnicola* species in Idaho.; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Minshall GW, Andrews DA. 1973. An ecological investigation of the Portneuf River, Idaho: a semiarid-land stream subjected to pollution. *Freshwater Biology* 3:1–30.; Lysne SJ, Garcia G, Krouse BR. 2011. Molluscan community composition and richness in four high-elevation Idaho streams includes an exotic taxon. *American Malacological Bulletin* 29:127–133.

Snake River Physa

Physa natricina

Class: Gastropoda

Order: Basommatophora

Family: Physidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Endangered

USFS:

Region 1: No status

Region 4: No status

BLM: Type 1

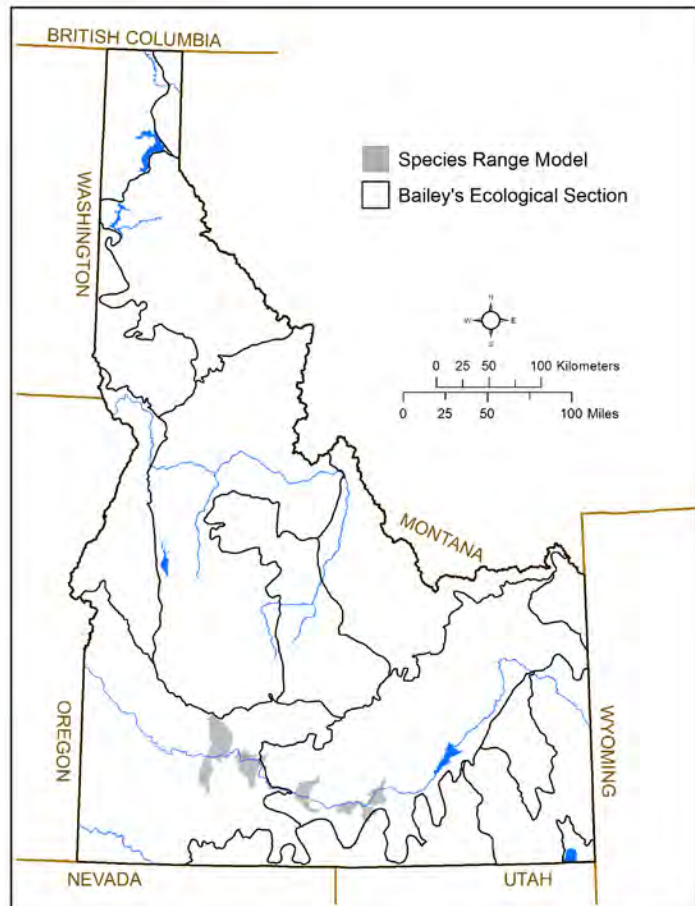
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, ESA listed, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,600 km² (~1,000 mi²)

Key Ecological Sections: Owyhee Uplands, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Snake River Physa is endemic to Idaho and occurs predominantly in the middle Snake River. Until recently, this snail was thought to only occur from Hagerman downstream to Grandview. Current research indicates the range is much larger. Several museum specimens were collected from 1998-2002 along the Snake River as far downstream as Ontario, Oregon, and a persistent population is known to occur farther upstream below the Minidoka Dam. The species is considered rare, is not easily detected throughout most of its range, and has never been found in high densities.

HABITAT & ECOLOGY

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

Description: The habitat requirements of this species are not well understood. Based on limited occurrence data, it is thought to require clean gravel and pebble substrates (i.e., free of fine sediments and macrophyte growth), moderate water velocity, and good water quality. It is rarely collected in shallow water and has been found in greatest numbers at depths greater than 1.5 m (4.9 ft). Diet preferences are unknown.

POPULATION TREND

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

Long-term Trend: Unknown

Appendix F. Species Conservation Status Assessments

Description: Population trends rangewide have not been documented. However, survey data from 2006-2012 indicates the population within the Minidoka reach is relatively stable.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat for this species is the degradation of water quality and quantity. All waters occupied by this species are heavily managed for flood control and agricultural use. Low flows, pollutants, and excess nutrients impair water quality. Changes in water management for additional consumptive use and storage (e.g., as a result of drought and climate change) are likely to adversely affect this species. In addition, introductions of nonnative species (e.g., Quagga mussel) could be highly detrimental.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the FWS Snake River Aquatic Species Recovery Plan and 2014 5-Year Status Review, and appropriate section plans. In short, recommended actions are to continue monitoring populations, gather additional biological information on distribution, habitat, and ecology, revise the Species Recovery Plan, and address water quality issues.

ADDITIONAL COMMENTS

This species was listed as Endangered under the ESA in 1992. In the recent 5-year Status Review, the FWS recommended that recovery criteria be revised and the status be downlisted to Threatened.

Information Sources: Hopper D, US Fish and Wildlife Service, pers. comm.; FWS 1995. Snake River Aquatic Species Recovery Plan. Boise (ID): US Fish and Wildlife Service; FWS. 2014. 5-year status review for Snake River physa (*Physa* (*Haltia*) *natricina*). Boise (ID): US Fish and Wildlife Service.; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. Journal of the Idaho Academy of Science 36:1-51; Gates KK, Kerans BL. 2014. Habitat use of an endemic mollusc assemblage in a hydrologically altered reach of the Snake River, Idaho, USA. River Research and Applications 30:976-986.; Gates KK, Kerans BL, Keebaugh JL, Kalinowski S, Vu N. 2013. Taxonomic identity of the endangered Snake river physa, *Physa natricina* (Pulmonata: Physidae) combining traditional and molecular techniques. Conservation Genetics 14:159-169.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Rotund Physa

Physella columbiana

Class: Gastropoda

Order: Basommatophora

Family: Physidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

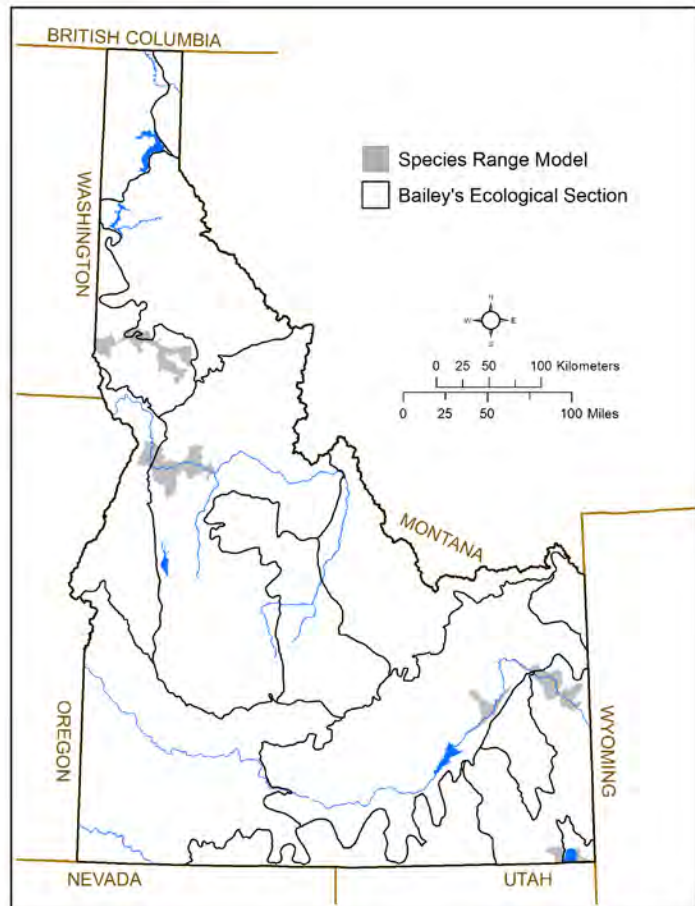
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,900 km² (~2,700 mi²)

Key Ecological Sections: Bear Lake, Bitterroot Mountains, Blue Mountains, Idaho Batholith, Overthrust Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Rotund Physa is endemic to the Columbia River basin. Historically, it was widespread across the basin, but is now possibly extirpated from Oregon and British Columbia. The current extent of its range is unknown. In Idaho, the species was recorded in the early 1980s from scattered locations along the lower Clearwater River, the lower Salmon River, and the upper Snake River. The only recent observations are known from the Coeur d'Alene drainage, where certain populations appear to have uniquely adapted to lakes contaminated with heavy metals (i.e., arsenic, cadmium, lead, and zinc). Populations are robust in polluted lakes, but rare at nearby reference (non-contaminated) lakes. Part of the species' success in these polluted sites comes from decreased parasite loads that are caused by the parasite's lower tolerance for heavy metals.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Habitat requirements for this species are not well understood. It is generally found in shallow water rivers and lakes and is thought to be a cold water stenotherm (capable of surviving in only a narrow range of cold temperatures).

POPULATION TREND

Appendix F. Species Conservation Status Assessments

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented. However, the population in the Coeur d'Alene drainage has been studied for the past several years and appears to be stable.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Threats to this species have not been identified.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Lefort H, Wehner EA, Cocco PL. 2013. Pre-exposure to heavy metal pollution and the odor of predation decrease the ability of snails to avoid stressors. *Archives of Environmental Contamination and Toxicology* 64:273-280.; Lefcort H, Freedman Z, House S, Pendleton M. 2008. Hormetic effects of heavy metals in aquatic snails: is a little bit of pollution good? *EcoHealth* 5:10–17.; Lefcort H, Abbott DP, Cleary DP, Howell E, Keller NC, Smith MM. 2004. Aquatic snails from mining sites have evolved to detect and avoid heavy metals. *Archives of Environmental Contamination and Toxicology* 46:478–484.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Rocky Mountain Dusksnail

Colligyrus greggi

Class: Gastropoda

Order: Neotaenioglossa

Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

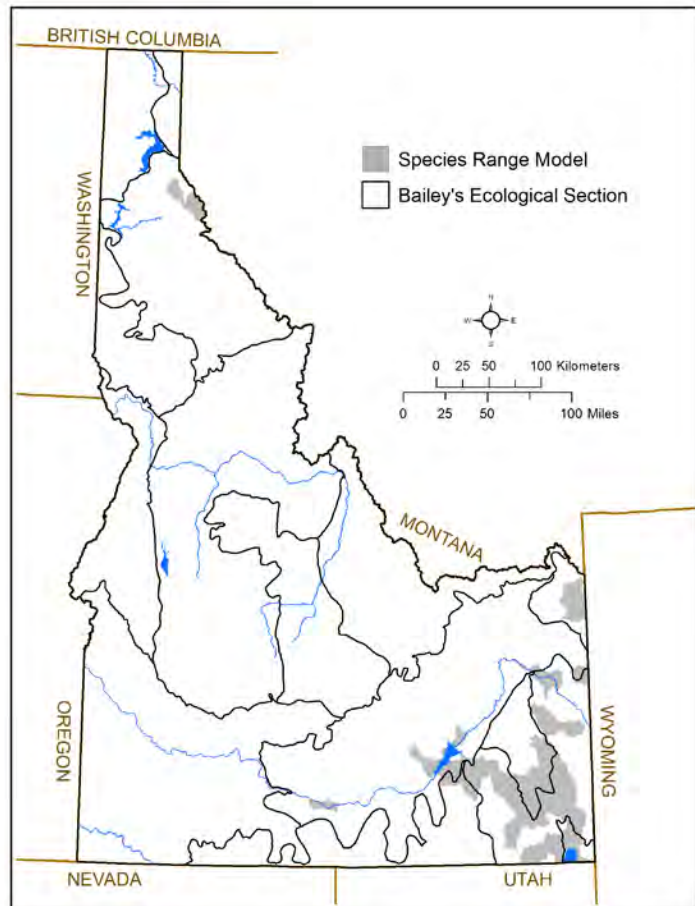
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S3Q

SGCN TIER: 2

Rationale: Regional endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 11,200 km² (~4,300 mi²)

Key Ecological Sections: Bear Lake, Bitterroot Mountains, Northwestern Basin and Range, Overthrust Mountains, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Rocky Mountain Dusksnail is known to occur in Idaho, Montana, Wyoming and Utah. Recent genetic research also indicates that populations in the area of Mount Hood, Oregon, formerly known as Columbia Ducksynail, are conspecific though somewhat differentiated. In Idaho, the species is predominantly recorded from the southeast portion of the state with a few scattered observations elsewhere (2 in Shoshone County, 1 in Twin Falls County). It can be locally common.

HABITAT & ECOLOGY

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

Description: This snail is found in cold to very cold springs, streams, and rivers.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Moderately vulnerable

Description: Threats to this species have not been identified but likely include the loss or degradation of habitat.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

The full range and conservation status of this species is uncertain pending resolution of the taxonomic status.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Liu H, Hershler R, Rossel CS. 2015. Taxonomic status of the Columbia dusksnail (*Truncatelloidea*, *Amnicolidae*, *Colligyrus*). *Zookeys* 514:1–13.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Nez Perce Pebblesnail

Fluminicola gustafsoni

Class: Gastropoda

Order: Neotaenioglossa

Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

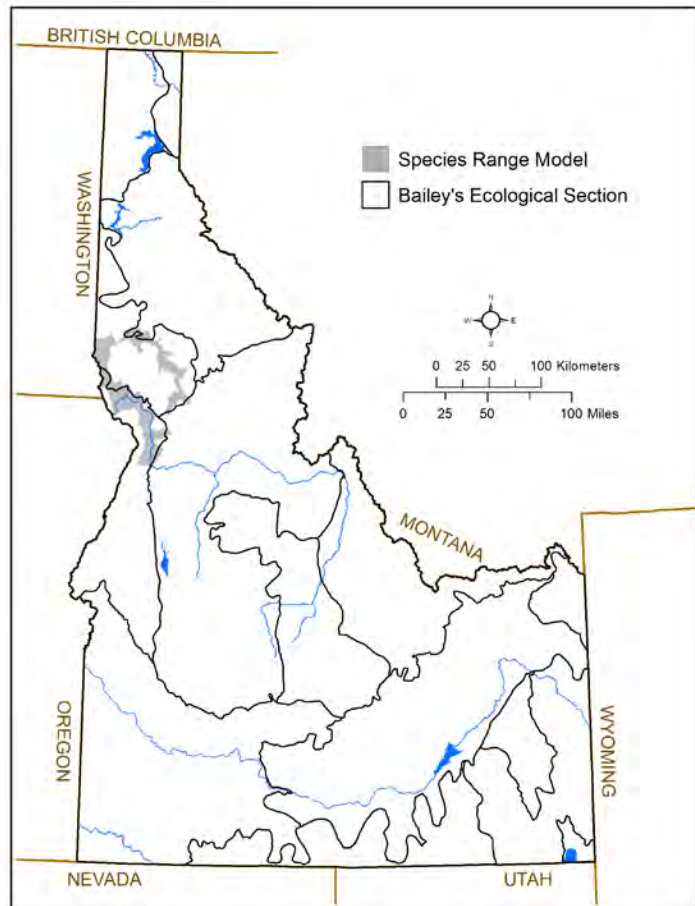
IDAPA: Unprotected Wildlife

G-rank: G2G3

S-rank: SNR

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,300 km² (~1,300 mi²)

Key Ecological Sections: Blue Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Nez Perce Pebblesnail is restricted to the Clearwater River and the lower Salmon River, as well as the reach of the Snake River in between these two rivers.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: The species has been found in shallow water on rocks and cobbles, but additional habitat requirements are unknown.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: This species is newly described and its status in Idaho is uncertain and threats are unknown.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Hershler R, Liu HP. 2012. Molecular phylogeny of the western North American pebblesnails, genus *Flumicola* (Rissooidea: Lithoglyphidae), with description of a new species. *Journal of Molluscan Studies* 78:321–329.

Map Sources: Hershler R, Liu HP. 2012. Molecular phylogeny of the western North American pebblesnails, genus *Flumicola* (Rissooidea: Lithoglyphidae), with description of a new species. *Journal of Molluscan Studies* 78:321–329.

Pixie Pebblesnail

Fluminicola minutissimus

Class: Gastropoda
Order: Neotaenioglossa
Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

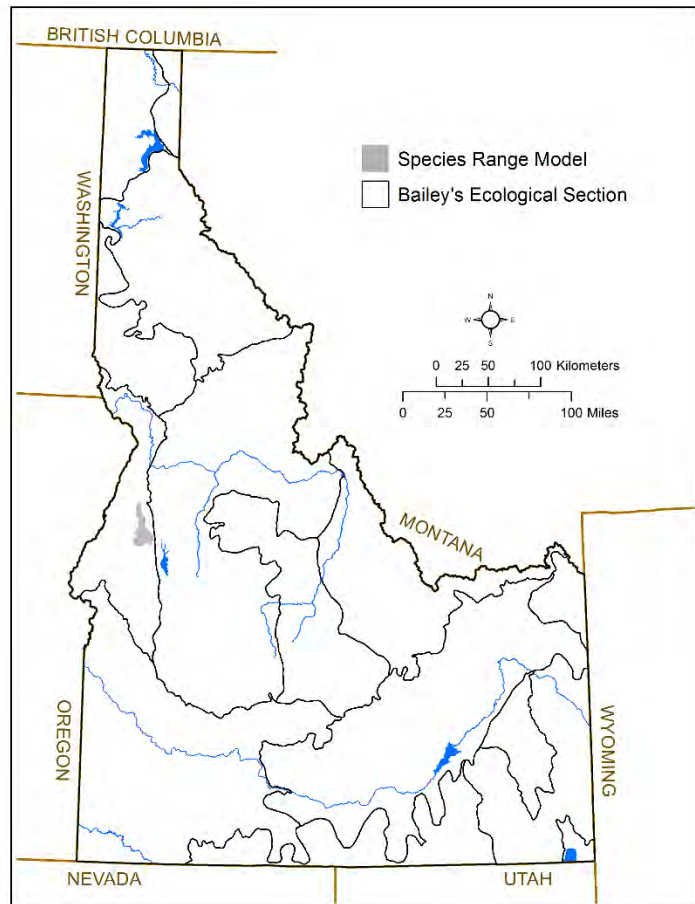
IDAPA: Unprotected Wildlife

G-rank: GH

S-rank: SH

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, may be extinct



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Pixie Pebblesnail is an Idaho endemic, known only from the Weiser River drainage. Populations have not been relocated since the first collections were made in the early 1900s. The species might be extinct.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Habitat requirements for this species are not well understood. The type locality is a small spring within ponderosa pine and Douglas-fir forests at moderate elevations.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Threats to this species have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if the species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Hershler R, Frest TJ. 1996. A review of the North American freshwater snail genus *Fluminicola* (Hydrobiidae). *Smithsonian Contributions to Zoology* 583:1–41.; Hershler R, Liu HP. 2012. Molecular phylogeny of the western North American pebblesnails, genus *Fluminicola* (Rissooidea: Lithoglyphidae), with description of a new species. *Journal of Molluscan Studies* 78:321–329.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Pristine Pyrg

Pristinicola hemphilli

Class: Gastropoda

Order: Neotaenioglossa

Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

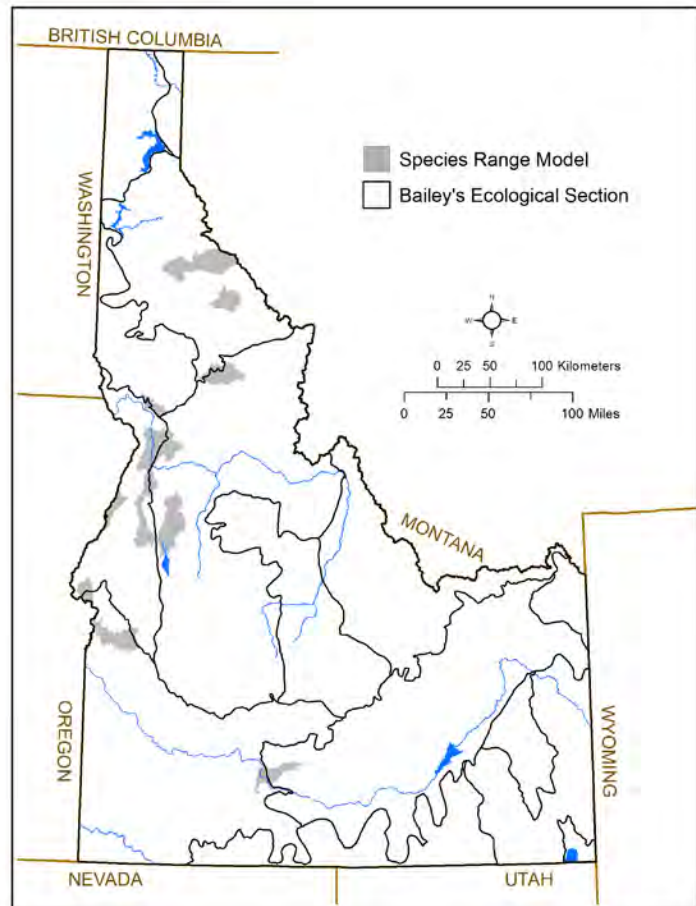
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S3

SGCN TIER: 2

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 7,700 km² (~3,000 mi²)

Key Ecological Sections: Bitterroot Mountains, Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Pristine Pyrg occurs in Washington, Oregon, California, and Idaho, but is known only from scattered locations. In Idaho, the species has been recorded in Shoshone, Clearwater, Idaho, Adams, and Valley counties. Although observations in Idaho typically consist of a small number of individuals, other areas within its range have reported colonies with hundreds of individuals. Such colonies can vary considerably from year to year depending on environmental factors.

HABITAT & ECOLOGY

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

Description: This snail is found in cold, undisturbed springs, seeps, and small creeks. It is completely aquatic, semelparous (reproduces a single time before dying), and generally lives 1-2 years.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Threats to this species in Idaho have not been identified but likely include the loss or degradation of cold water habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Bruneau Hot Springsnail

Pyrgulopsis bruneauensis

Class: Gastropoda
Order: Neotaenioglossa
Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Endangered

USFS:

Region 1: No status

Region 4: No status

BLM: Type 1

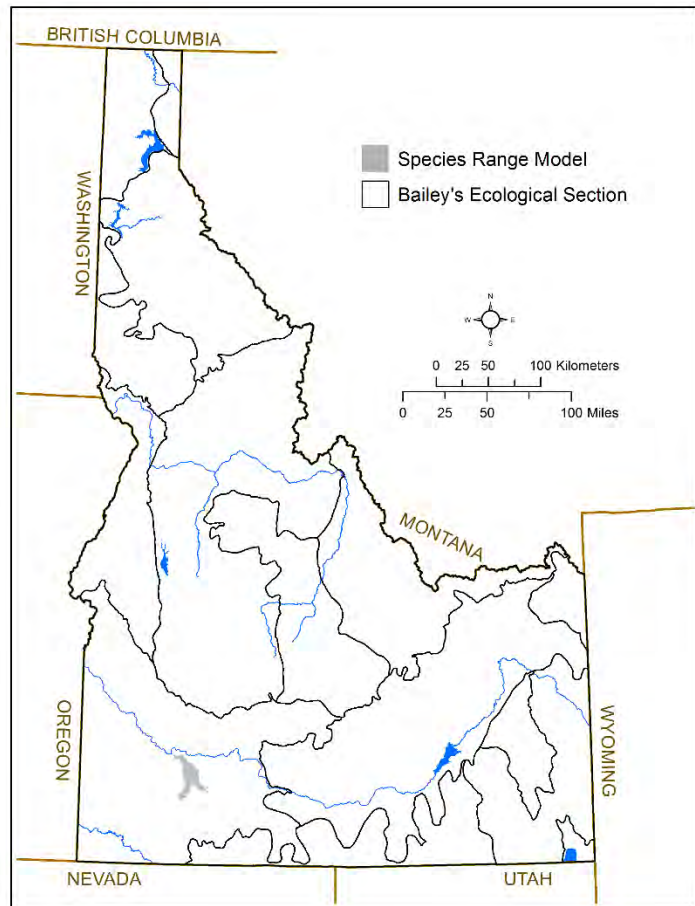
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, ESA listed, IUCN Critically Endangered, significant declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,000 km² (~800 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Bruneau Hot Springsnail is an Idaho endemic restricted to thermal springs and seeps along approximately 8 km (5 mi) of the Bruneau River and Hot Creek, the major tributary. Its range extent and distribution are determined primarily by water temperature.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This tiny, gill-breathing gastropod is completely aquatic and only found in small hotsprings or areas of river habitat with geothermal influences. It resides in waters ranging from 11° C to 35 °C (52 °F to 95 °F).

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Decline 30–50%

Description: A comparison of population estimates suggests that the overall population size declined by 50% between 1982 and 1991, yet Hot Creek, a major hotspring tributary, still contained a large robust population of springsnails. Upstream of Hot Creek, the total number of hotsprings (both occupied and unoccupied) declined at a rate of ~5 springs per year from 1991-2004. From 1991 to 2013, the number of springs in the entire system declined by 69%. During this same period, Hot Creek lost significant amounts of flow and spring emergence increasingly

Appendix F. Species Conservation Status Assessments

migrated downstream. Recent rangewide surveys indicate continued gradual declines in populations and springs.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this species is habitat loss from groundwater depletion. Although seasonal high flows in the Bruneau River largely control the population size within the river, the gradual loss of springs and reduced geothermal groundwater has had a chronic adverse effect on the spring-dwelling component of the population. In addition, introduced aquarium-trade fish species (Tilapia, guppies, and other tropical and semitropical fish) feed on springsnails in this system. These non-native fish may expand their range through portions of the Bruneau River during late summer, but are restricted to Hot Creek and other large hot spring systems during the winter. Lastly, modification of hot spring habitats to create soaking pools have eradicated snails in some areas.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the 2002 Recovery Plan for the Bruneau Hot Springsnail and the Owyhee Uplands Section plan. In short, recommended actions are to continue monitoring populations and springs and work with partners and private landowners to stabilize and increase groundwater levels.

ADDITIONAL COMMENTS

This species was listed as Endangered under the ESA in 1993. The FWS 5-year Status Review in 2007 concluded that the original listing classification was still valid.

Information Sources: Hopper D, US Fish and Wildlife Service, pers. comm.; Myler CD, Mladenka GC, Minshall GW. 2007. Trend analysis shows decline of an endangered thermophilic springsnail (*Pyrgulopsis bruneauensis*) in southwestern Idaho. *Western North American Naturalist* 67:199-205; Lysne S. 2009. A Guide to Southern Idaho's Freshwater Mollusks. Boise (ID): US Fish and Wildlife Service; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1-51.; Hershler R, Liu HP, Howard J. 2014. Springsnails: A new conservation focus in western North America. *BioScience* 64:693-700; Hopper D, Burak G, Hardy N. 2014. Bruneau hot springsnail (*Pyrgulopsis bruneauensis*) 2013 range-wide surveys. FWS Internal Status Report. Boise (ID): US Fish and Wildlife Service.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Lysne SJ, Clark WH. 2009. Mollusc survey of the lower Bruneau River, Owyhee County, Idaho, USA. *American Malacological Bulletin* 27:167-172

Bear Lake Springsnail

Pyrgulopsis pilsbryana

Class: Gastropoda

Order: Neotaenioglossa

Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

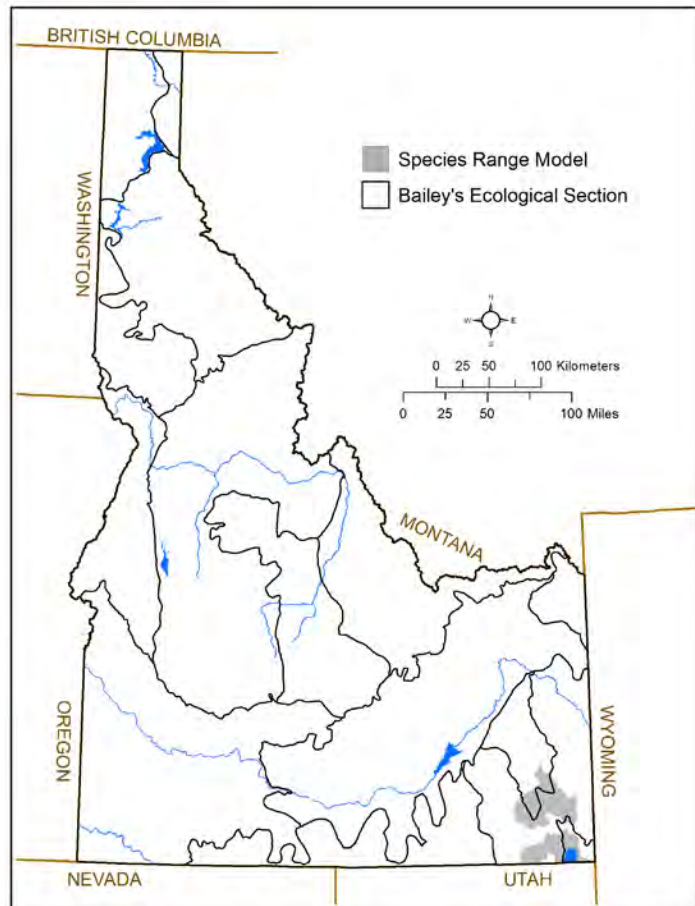
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 1

Rationale: Regional endemic, data deficient, restricted range, IUCN Near Threatened



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,300 km² (~1,300 mi²)

Key Ecological Sections: Bear Lake, Northwestern Basin and Range, Overthrust Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Bear Lake Springsnail is restricted to the Bear River basin in northeast Utah, southwest Wyoming and southeast Idaho. Most of the range is within Idaho where the species occurs at about 10 sites in close proximity to one another. All known occurrences predate 1995.

HABITAT & ECOLOGY

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

Description: Habitat requirements for this species are not well understood, but members of this genus typically occur in small, usually fishless, spring-fed waterbodies. The Bear Lake Springsnail, in particular, has been found in cold to slightly warm springs.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this species is the loss or degradation of cold spring habitats.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Hershler R, Liu HP, Howard J. 2014. Springsnails: A new conservation focus in western North America. *BioScience* 64:693–700.; Hershler R. 1998. A systematic review of the Hydrobiid snails (Gastropoda: Rissooidea) of the Great Basin, Western United States. Part I. Genus *Pyrgulopsis*. *The Veliger* 41:1–132.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Bliss Rapids Snail

Taylorconcha serpenticola

Class: Gastropoda
Order: Neotaenioglossa
Family: Hydrobiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: Threatened

USFS:

Region 1: No status

Region 4: No status

BLM: Type 1

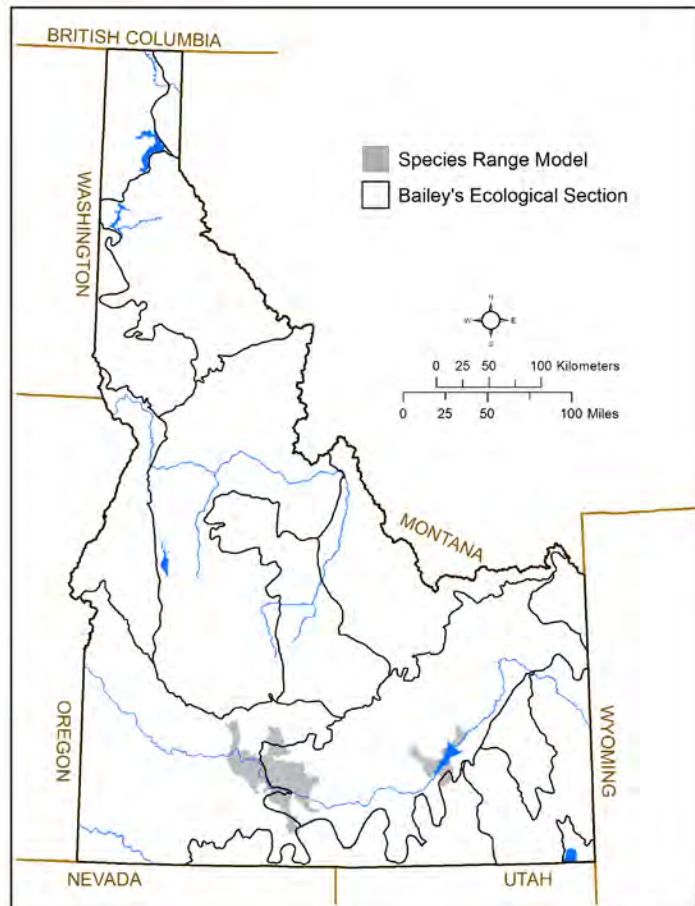
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, ESA listed, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 5,600 km² (~2,200 mi²)

Key Ecological Sections: Owyhee Uplands, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Bliss Rapids Snail is a rare Idaho endemic that historically occurred in the Snake River from Indian Cove Bridge near Hammett to Twin Falls. Currently, it is patchily distributed over 22 miles of the middle Snake River, from approximately King Hill to Bliss Dam (River Mile 547–560), Shoestring Bridge to Lower Salmon Falls Dam (River Mile 566–573), and at Doleman Rapids (River Mile 580). It also occurs in 14 springs and tributaries of the Snake River, including a small section of the Malad River. Colonies that occur in springs are consistently larger (higher relative abundance and density) than river colonies. Recent research suggests this species may be more abundant and widely distributed than previously known.

HABITAT & ECOLOGY

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

Description: This tiny snail is limited to cold water springs, seeps, and spring-influenced streams. It is known to occur on stable, cobble substrates in unimpounded sections of the Snake and Malad Rivers and on various substrates in the spring complexes. It is generally found in water temperatures between 15–16 °C (59–60.8 °F). This species is typically absent from areas with impoundments and major depth fluctuations, warm-water environments, whitewater, and sites with predominantly aquatic macrophytes. It has a 1-year life cycle.

POPULATION TREND

Appendix F. Species Conservation Status Assessments

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

Long-term Trend: Unknown

Description: The past destruction and alteration of springs and spring tributaries, primarily from agriculture, has had some impact on this species. However, because the pre-development distribution of this species is uncertain and its status on private lands is not currently known, declines cannot be precisely estimated. Current populations are thought to be relatively stable.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threats to this species include ground water depletion, impaired water quality, and invasive species (predominantly New Zealand mudsnails).

CONSERVATION ACTIONS

Conservation issues and management actions are described in the FWS Snake River Aquatic Species Recovery Plan and appropriate section plans. In short, recommended strategies are to continue monitoring populations, protect remaining cold water spring habitats, stabilize water levels, improve water quality, and control nonnative species.

ADDITIONAL COMMENTS

The species was listed under the ESA in 1992 and a Recovery Plan was published in 1995. In 2006, a petition to remove the species from ESA status was submitted. In 2009, the FWS found that the species still warranted protection at that time. Critical habitat has not been designated.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; Hopper D, US Fish and Wildlife Service, pers. comm.; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; FWS. 2009. 12-month finding on a petition to remove the Bliss Rapids Snail (*Taylorconcha serpenticola*) from the list of Endangered and Threatened wildlife. *Federal Register* 74(178):47536. 50 CFR Part 17.; Richards DC, Arrington TD. 2008. Threatened Bliss Rapids snail's susceptibility to desiccation: Potential impact from hydroelectric facilities. *American Malacological Bulletin* 24:91–96.; Bean BM. 2011. Spatial distribution and habitat use of the Bliss Rapids snail [master's thesis]. Boise (ID): Boise State University.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Pale Jumping-slug

Hemphillia camelus

Class: Gastropoda

Order: Stylommatophora

Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

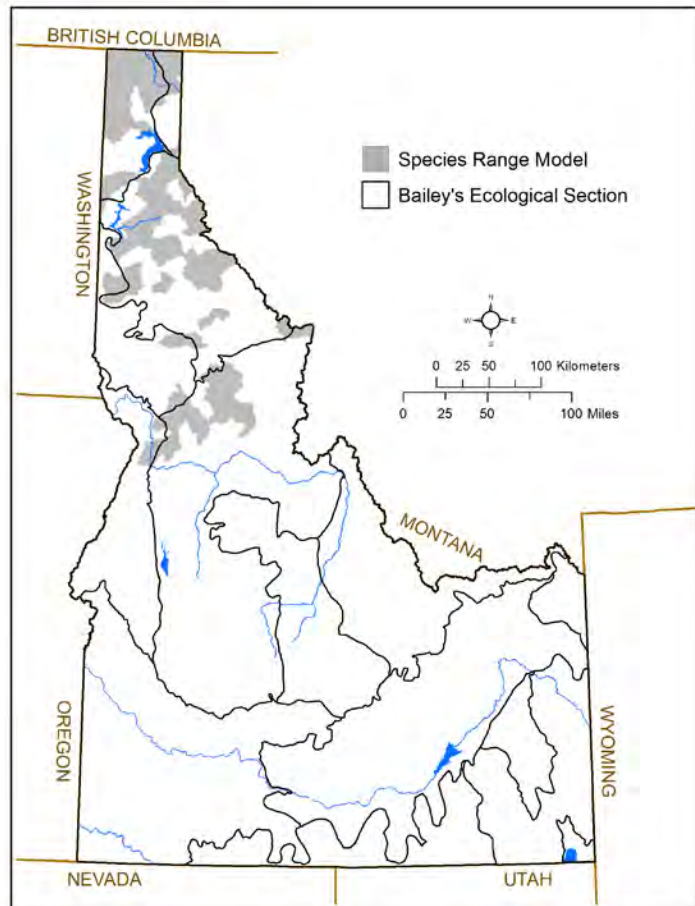
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 20,900 km² (~8,100 mi²)

Key Ecological Sections: Bitterroot Mountains, Flathead Valley, Idaho Batholith, Okanogan Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: Originally thought to be in Idaho endemic, the Pale Jumping-slug is now known to also occur in adjacent parts of surrounding states and provinces. In recent surveys across north Idaho, the species was found to be widespread. Its range overlaps, but is mostly disjunct from a new, undescribed, species of *Hemphillia* (see *Hemphillia* sp.1).

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Slugs in this genus inhabit moist, coniferous forests with abundant large, woody debris and extensive litter and duff layers. This species in particular is associated with a narrow cold air temperature envelope below the mean annual air temperature in the Idaho Panhandle. It is one of the 4 most cold-associated gastropods studied during the recent Multispecies Baseline Initiative.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Appendix F. Species Conservation Status Assessments

Description: According to Frest and Johannes (1997), the number of occupied sites and population size are declining. However, more current population trends have not been documented and the number of documented locations is increasing.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Threats to the population are not specifically identified but could include any changes to the moist, forested habitat at known sites. Little is known about this species, including its sensitivity to disturbance.

CONSERVATION ACTIONS

Priority conservation strategies for this species include surveys to determine the current abundance and trends in Idaho, managing habitat to maintain cool microclimate at known sites, and taxonomic research to describe characteristics that differentiate this species from the new undescribed *Hemphillia*, which also occurs in the Panhandle.

ADDITIONAL COMMENTS

None.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; Hendricks P, Maxell BA, Lenard S, Currier C. 2007. Land mollusk surveys on USFS Northern Region lands: 2006. Report to the USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Burke T. 2013. Land snails and slugs of the Pacific Northwest. Oregon State University Press, Corvallis, OR; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

Marbled Jumping-slug

Hemphillia danielsi

Class: Gastropoda

Order: Stylommatophora

Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

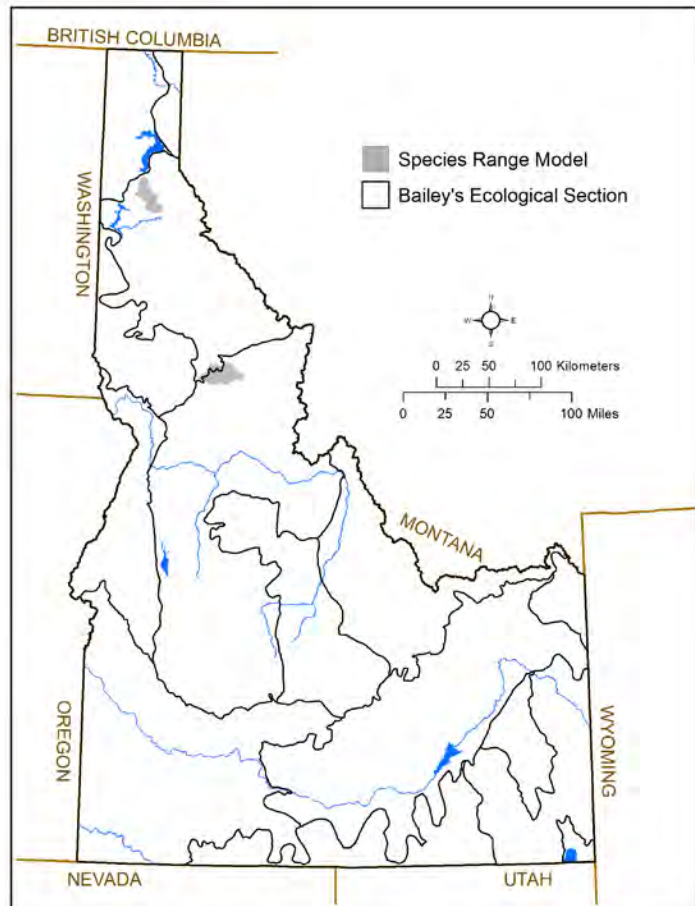
IDAPA: Unprotected Wildlife

G-rank: G2G3

S-rank: SNR

SGCN TIER: 1

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,000 km² (~400 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Marbled Jumping-slug appears to be restricted to the Northern Rocky Mountain Refugium in northern Idaho and Montana, with most current observations occurring in Montana. Only 2 locations are recorded in Idaho, one along the Lochsa River in 1960 and the other along the Coeur d'Alene River in 2007.

HABITAT & ECOLOGY

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

Description: Slugs in this genus inhabit moist, coniferous forests with abundant large, woody debris and extensive litter and duff layers.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Threats to the population are not specifically identified but could include any changes to the moist, forested habitat at known sites. Little is known about this species, including its sensitivity to disturbance.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Hendricks P, Maxell BA, Lenard S, Currier C. 2007. Land mollusk surveys on USFS Northern Region lands: 2006. Report to the USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Roundback Slug

Hemphillia sp. 1

Class: Gastropoda

Order: Stylommatophora

Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

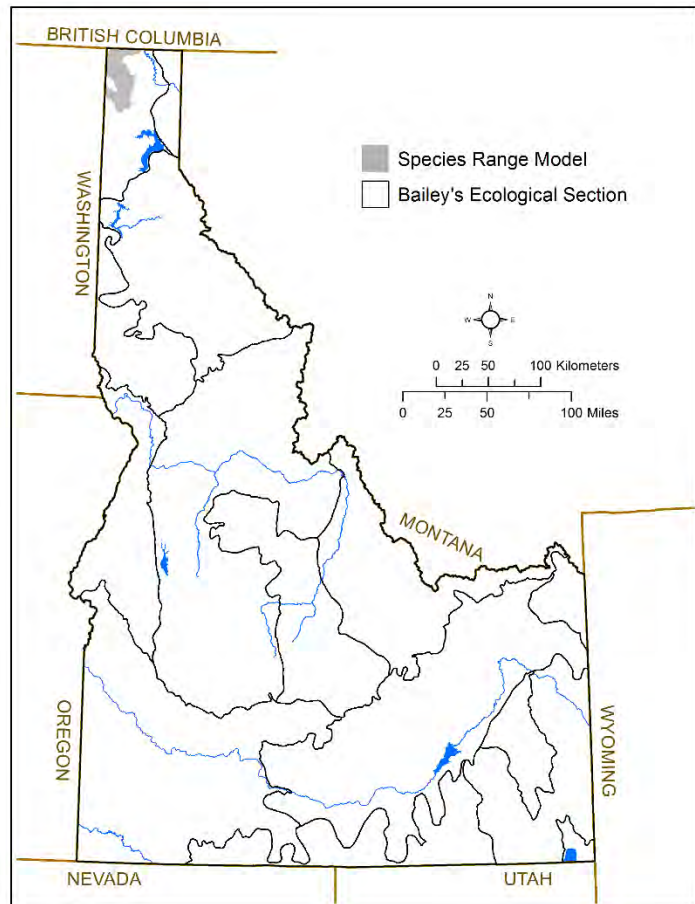
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2Q

SGCN TIER: 2

Rationale: Possible Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,300 km² (~500 mi²)

Key Ecological Sections: Okanogan Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: This newly discovered species is apparently restricted to northern Idaho and adjoining states.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Slugs in this genus inhabit moist, coniferous forests with abundant large, woody debris and extensive litter and duff layers. This species in particular is associated with cold air temperatures (<2 °C [1.8 °F] below mean annual air temperature) in the Idaho Panhandle. It is one of the 4 most cold-associated gastropods studied during the recent Multispecies Baseline Initiative.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Threats to the population are not specifically identified but could include any changes to the cool, moist, forested habitat at known sites. Little is known about this species, including its sensitivity to disturbance.

CONSERVATION ACTIONS

Priority conservation strategies for this species include surveys to determine the current distribution and abundance in Idaho, managing habitat to maintain cool microclimate at known sites, and taxonomic research to describe characteristics that differentiate this species from the Pale Jumping-slug.

ADDITIONAL COMMENTS

This is a newly discovered species in north Idaho collected as part of the Multispecies Baseline Initiative. Taxonomic research needed to describe characteristics that differentiate this species from the Pale Jumping-slug.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].

Magnum Mantleslug *Magnipelta mycophaga*

Class: Gastropoda
Order: Stylommatophora
Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

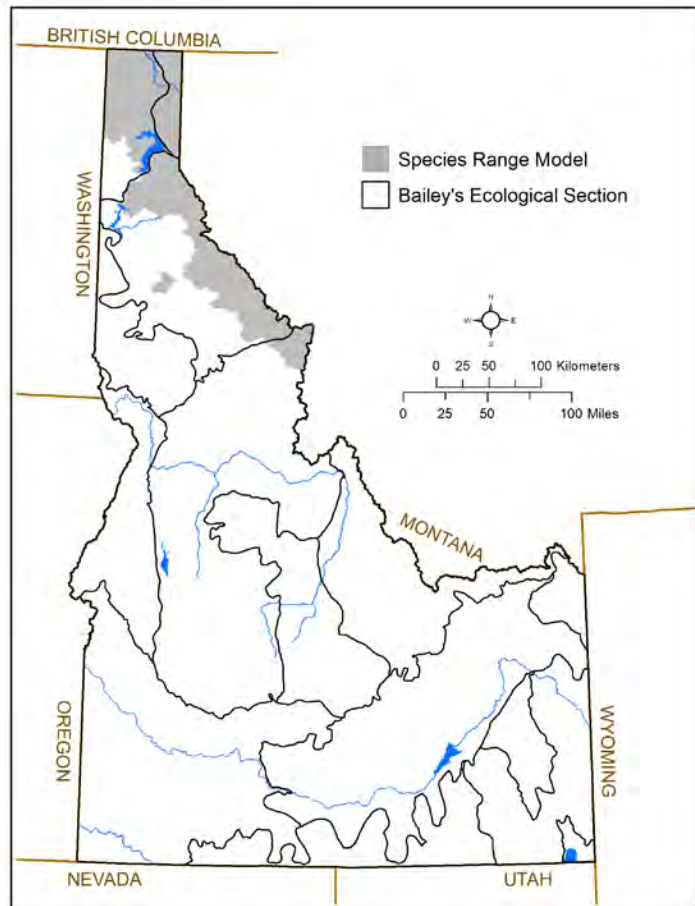
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S2

SGCN TIER: 1

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 16,800 km² (~6,500 mi²)

Key Ecological Sections: Bitterroot Mountains, Flathead Valley, Okanogan Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Magnum Mantleslug is a large slug that is found throughout the Pacific Northwest in British Columbia, Washington, Montana, and Idaho, but appears to occur irregularly. In Idaho, this species was most recently recorded in 2010-2014 as part of the Multi-species Baseline Initiative; the first such detection in 68 years. It is known to occur in Bonner, Boundary, and Idaho counties.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species is primarily found in mesic mixed conifer forest and riparian woodlands, sometimes with talus. It is also found at higher elevation, drier sites with ground cover that maintains soil moisture. It is usually found under rocks and woody debris, though sometimes in decomposing logs. Recent surveys indicate that this terrestrial gastropod is the most closely associated with cool air temperatures in the Idaho Panhandle.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified, however habitat loss and degradation are thought to be the primary issues.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; Burke TE. 2013. Land Snails and Slugs of the Pacific Northwest. Corvallis (OR): OSU Press.; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].; Burke, T. E. 2013. Land Snails and Slugs of the Pacific Northwest. Corvallis (OR): OSU Press.

Blue-gray Taildropper

Prophysaon coeruleum

Class: Gastropoda

Order: Stylommatophora

Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

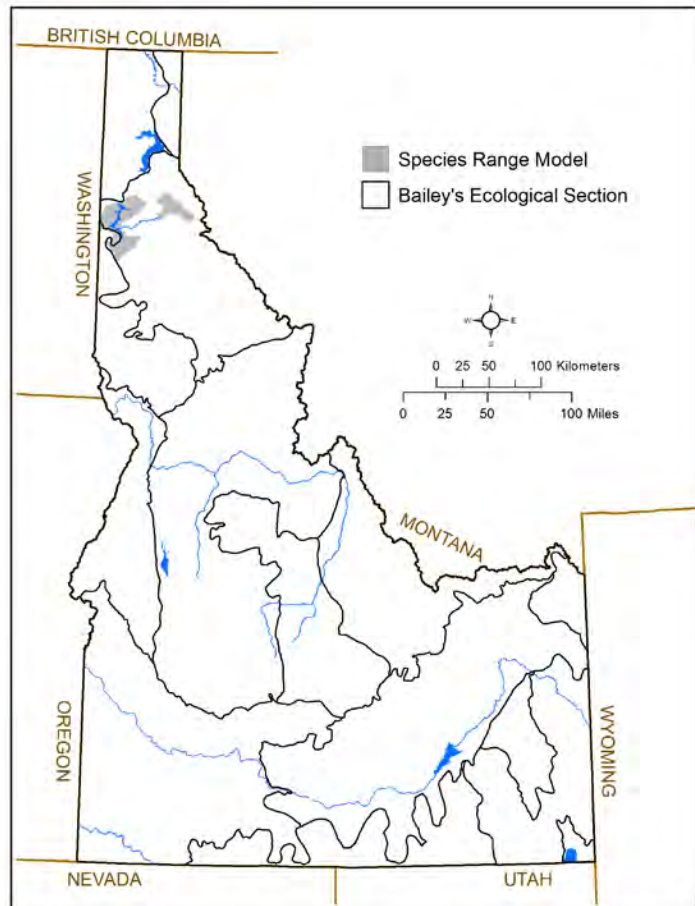
IDAPA: Unprotected Wildlife

G-rank: G3G4

S-rank: S1Q

SGCN TIER: 1

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,900 km² (~700 mi²)

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Blue-gray Taildropper is known to occur from southern British Columbia south to northern California, and eastward to northern Idaho. Although common in western Oregon and Washington, this species is apparently rare in Idaho. Only 4 known occurrences are documented: Benewah County (2002), Kootenai County (2 locations, 2013), and Shoshone County (2013).

HABITAT & ECOLOGY

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

Description: This species is typically found in late-successional conifer forests with moist plant associations, abundant coarse woody debris, and heavy accumulation of organic litter. It primarily eats fungus.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Highly vulnerable

Description: Primary threats to this species include habitat loss and degradation from development, timber harvest, and fire, predation, and competition with nonnative mollusks. Populations are also isolated and at risk to stochastic events and loss of genetic diversity given the species' limited dispersal capability.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

Genetic work is needed to determine if populations in Idaho are taxonomically unique from those on the west coast.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; Burke TE. 1999. Management Recommendations for terrestrial mollusk species *Prophysaon coeruleum*, Blue-Gray Taildropper, and *Prophysaon dubium*, Papillose Taildropper. V. 2.0. <http://www.blm.gov/or/plans/surveyandmanage/files/mr-terrestrial-ig-4sp-1999-11-att3.pdf>; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].

Papillose Taildropper

Prophysaon dubium

Class: Gastropoda

Order: Stylommatophora

Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

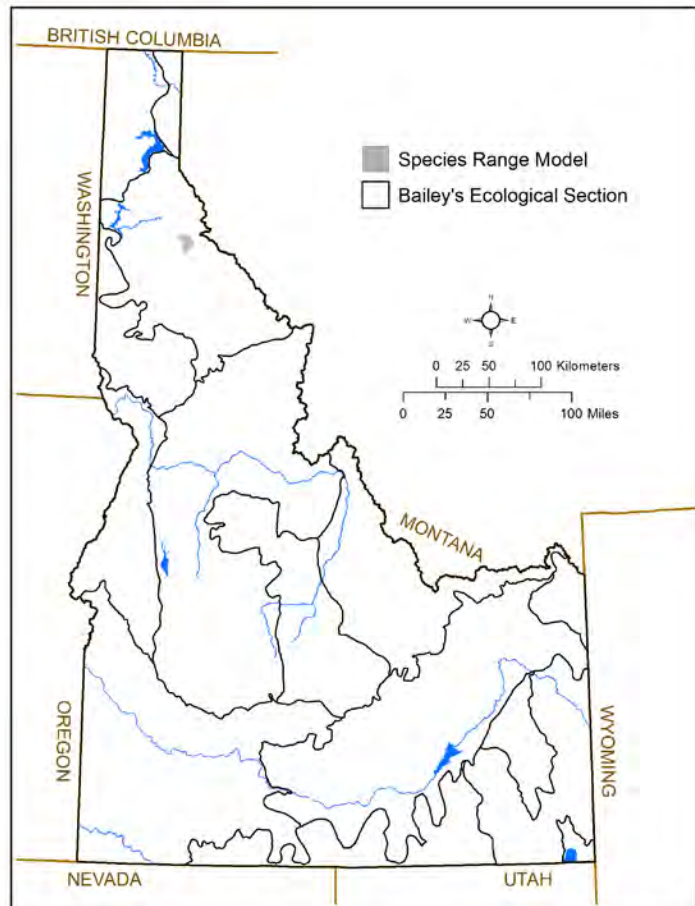
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S2Q

SGCN TIER: 1

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Papillose Taildropper is known from California, Oregon, Washington, and Idaho. In Idaho, populations are known to occur in Benewah, Kootenai, and Shoshone counties and are disjunct from the rest of the species range. This species is apparently rare in Idaho and was found in only 1 of 880 cells surveyed as part of the 2010-2014 Multi-species Baseline Initiative.

HABITAT & ECOLOGY

Environmental Specificity: B = Narrow; Specialist key requirements common

Description: This species is typically found in late-successional forests with and hardwood component, moist plant associations, abundant coarse woody debris, and an accumulation of organic litter. It appears to eat both fungus and plant litter.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Primary threats to this species include habitat loss and degradation from development, timber harvest, and fire, as well as predation and competition with nonnative mollusks. Populations are also isolated and at risk to stochastic environmental events and loss of genetic diversity, given the species' limited dispersal capability.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

Genetic work is needed to determine if populations in Idaho are taxonomically unique from those on the west coast.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.; Burke TE. 1999. Management Recommendations for terrestrial mollusk species *Prophysaon coeruleum*, Blue-Gray Taildropper, and *Prophysaon dubium*, Papillose Taildropper. V. 2.0.
<http://www.blm.gov/or/plans/surveyandmanage/files/mr-terrestrial-ig-4sp-1999-11-att3.pdf>

Map Sources: Burke T. 2013. Land snails and slugs of the Pacific Northwest. Oregon State University Press, Corvallis, OR; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].; Leonard WP, Chichester L, Ovaska K. 2003. *Prophysaon dubium* Cockerell, 1890, the papillose taildropper (Gastropoda: Arionidae): distribution and anatomy. *The Nautilus* 117:62-67.

Rocky Mountain Axetail

Securicauda hermani

Class: Gastropoda

Order: Stylommatophora

Family: Arionidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

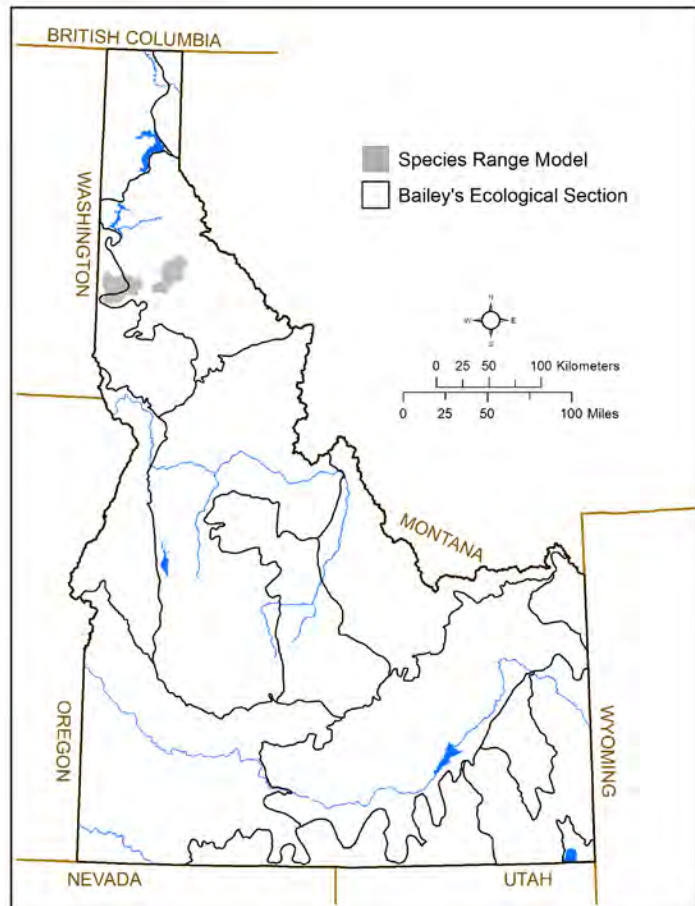
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,500 km² (~600 mi²)

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Rocky Mountain Axetail is a newly described species (2011) that has been recorded from 4 areas in northern Idaho: Hobo, Merry, and Cornwall creeks in Shoshone County and Mannering Creek in Benewah County. It appears to be extremely rare.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Little is known of the habitat requirements for this small slug. However, it is apparently limited to areas of high winter snowfall where western redcedar dominates. It has been found either on the underside of woody debris or in moss, often buried in the needle-duff layer.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Leonard WP, Chichester L, Richart CH, Young TA. 2011. *Securicauda hermani* and *Carinacauda stormi*, two new genera and species of slug from the Pacific Northwest of the United States (Gastropoda: Stylommatophora: Arionidae), with notes on *Gliabates oregonius* Webb 1959. *Zootaxa* 2746:43–56.; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].; Leonard WP, Chichester L, Richart CH, Young TA. 2011. *Securicauda hermani* and *Carinacauda stormi*, two new genera and species of slug from the Pacific Northwest of the United States (Gastropoda: Stylommatophora: Arionidae), with notes on *Gliabates oregonius* Webb 1959. *Zootaxa* 2746:43–56.

Nimapuna Disc

Anguispira nimapuna

Class: Gastropoda

Order: Stylommatophora

Family: Discidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

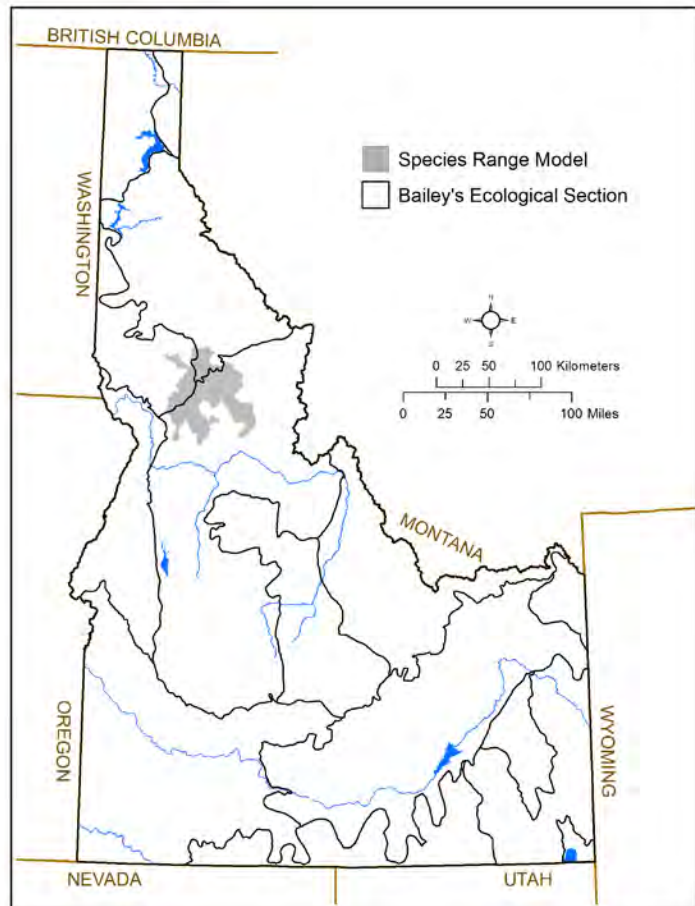
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S3

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 5,100 km² (~2,000 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Nimapuna Disc (or Nimapuna Tigersnail) is endemic to a limited area in the Clearwater and Selway river canyons in Idaho County. This species may have a wider distribution as surveys have generally occurred along roads and rivers, thus creating a biased distribution.

HABITAT & ECOLOGY

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

Description: Specific habitat requirements are not known, but the species has been found in dry to mesic mixed conifer forest often under debris, especially rocks and talus.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats have not been identified. However, habitat loss and degradation due to improper livestock grazing management, logging, mining, and road construction are likely the primary threats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Sauder J, Idaho Department of Fish and Game, pers. comm.; Baumgardt JA, Sauder J. 2012. Occupancy modeling of the Nimapuna tigersnail, a terrestrial gastropod endemic to Idaho. Idaho Fish and Game, Lewiston, ID.; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Sauder J, Idaho Department of Fish and Game, unpublished data.

Marbled Disc

Discus marmorensis

Class: Gastropoda

Order: Stylommatophora

Family: Discidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

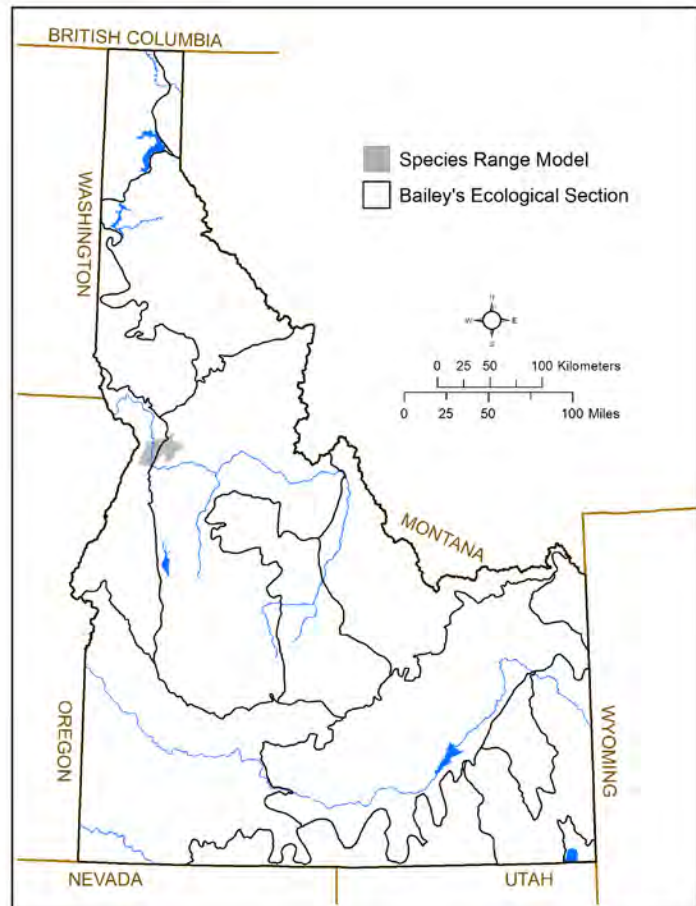
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S2

SGCN TIER: 1

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 700 km² (~300 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Marbled Disc is an Idaho endemic, found only in the lower Salmon River drainage in western Idaho County. The distribution of this snail is coincident with a geologic region known as the Martin Bridge Formation, characterized by a predominance of calcareous rock types. Documented occurrences all predate 1993.

HABITAT & ECOLOGY

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

Description: Habitat at many sites is dense riparian conifer forest. Snails occur under rocks and woody debris partially buried in decomposing leaf and conifer-needle litter or decomposing downed tree limbs. This species also inhabits well-shaded, moist ponderosa pine forests with diverse deciduous and forb understories. Within occupied habitat, colonies usually occur near stream edges and at the bases of steep slopes, often in association with limestone.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999, both the number of sites and the number of individuals was thought to have declined. Current population trends have not been documented.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat for this species is habitat loss and degradation due to logging and improper livestock grazing management. In particular, habitat management or resource development projects that reduce the availability and complexity of understory vegetation, coarse woody debris, leaf and needle litter, and rock and talus cover could negatively affect this species.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Salmon Coil

Helicodiscus salmonaceus

Class: Gastropoda

Order: Stylommatophora

Family: Helicodiscidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

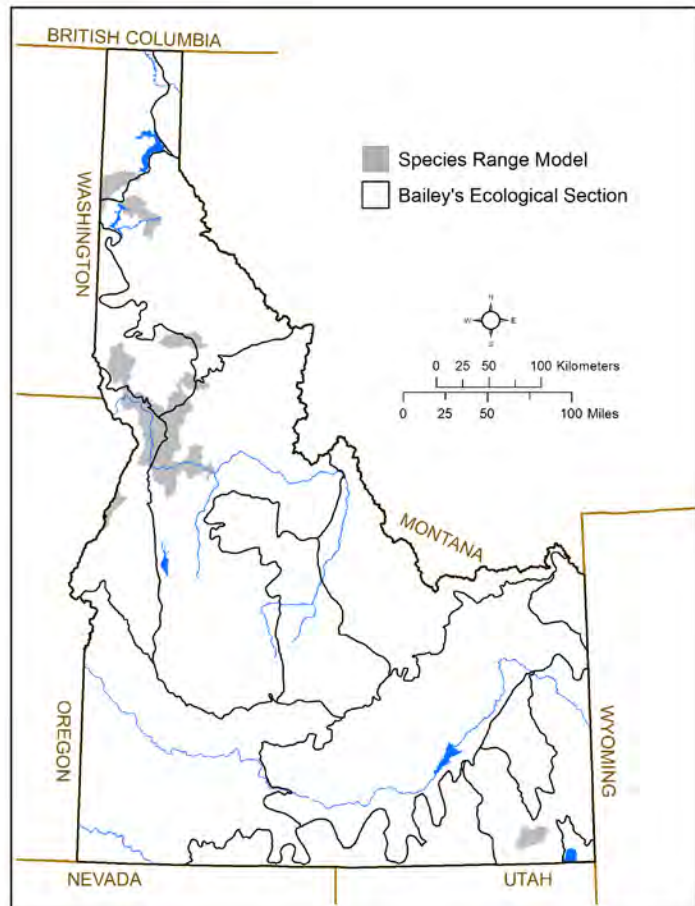
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 8,300 km² (~3,200 mi²)

Key Ecological Sections: Bitterroot Mountains, Blue Mountains, Idaho Batholith, Okanogan Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Salmon Coil is a small snail that occurs in Idaho, Washington, and Oregon. In Idaho, records are from Adams, Idaho, Lewis, Nez Perce, Clearwater, and Kootenai counties. The species appears to be relatively rare in northern Idaho, but more common further South along the Lower Salmon River.

HABITAT & ECOLOGY

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

Description: This species is found in xeric to mesic sites within moderately closed- to open-canopied mixed conifer forest, though sometimes it can be found in shrub-dominated habitats as well. It is often found under bryophyte mats over calcareous talus or under rocks with predominant canopy species including ponderosa pine, Douglas-fir, grand fir and western hackberry. It is thought to be limited by the occurrence of its rocky habitat (Burke, pers. comm).

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Specific threats have not been identified, however road building and other activities that disturb the terrain are thought to be the primary threat.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.

Map Sources: Burke T. 2013. Land snails and slugs of the Pacific Northwest. Oregon State University Press, Corvallis, OR; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].

Seven Devils Mountainsnail

Oreohelix hammeri

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

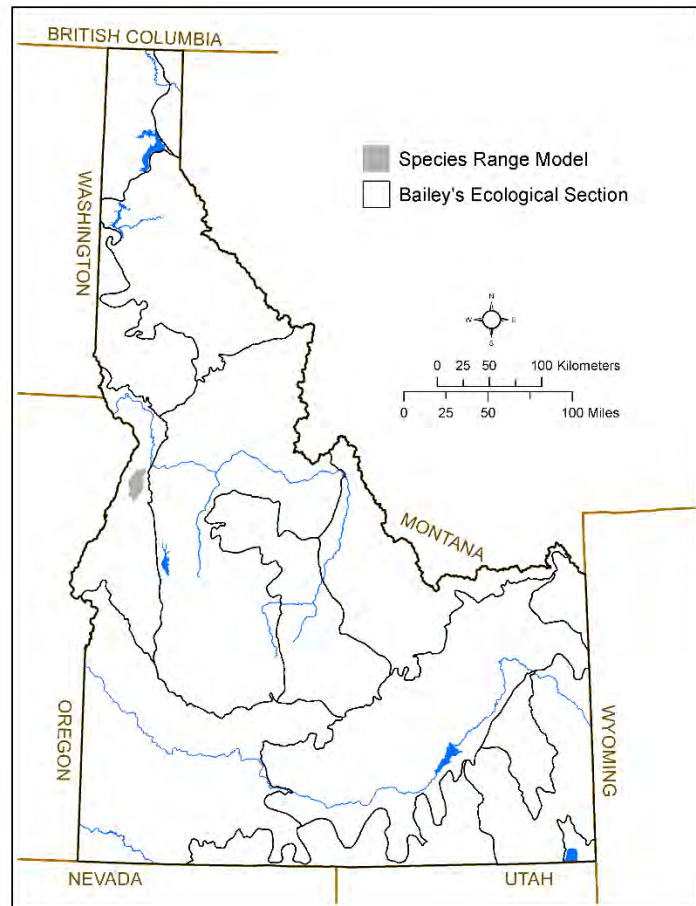
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,800 km² (~1,100 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Seven Devils Mountainsnail is an Idaho endemic known only from a single site (Mt. Sampson) in the Seven Devils Mountains discovered in 1982. Although the population had been thought to have been affected by a wildfire during the 1990s, the population was determined to be extant during 2010.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species occurs on a steeply descending ridge crested with an outcrop of limestone blocks and plates of rock standing on edge. The habitat is vegetated with grasses, assorted forbs (including balsamroot and paintbrush), and mountain mahogany. The east-facing slope immediately below the ridge is heavily timbered with Douglas-fir, while the west-facing slope is predominantly vegetated with grasses and perennial forbs.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Specific threats have not been identified for this species.

CONSERVATION ACTIONS

Surveys are needed to better delineate the species distribution and vulnerability to stochastic events.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51; Fairbanks HL. 1984. A new species of *Oreohelix* (Gastropoda: Pulmonata: Oreohelicidae) from the Seven Devils Mountains, Idaho. *Proceedings of the Biological Society of Washington* 97:179–185.; Bosworth W. 2012. Terrestrial gastropods of USFS Northern Region: Materials developed for Idaho Field Guide. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Lyrate Mountainsnail

Oreohelix haydeni

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

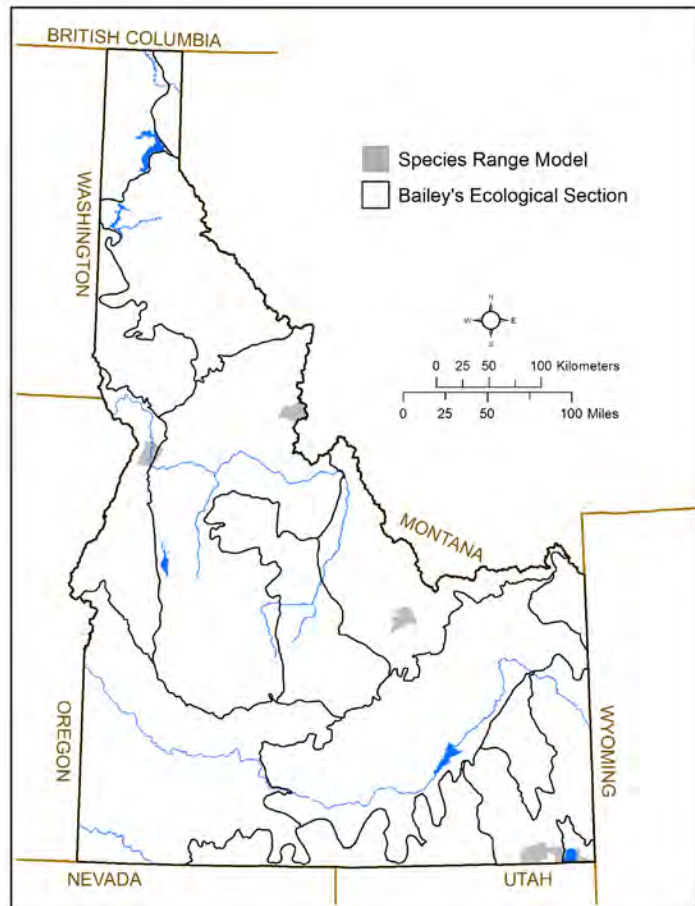
IDAPA: Unprotected Wildlife

G-rank: G2G3

S-rank: S1

SGCN TIER: 2

Rationale: Endemic subspecies, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,600 km² (~1,000 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith, Bear Lake, Beaverhead Mountains, Overthrust Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Lyrate Mountainsnail is irregularly distributed across the Rocky Mountain states, including scattered locations in Idaho. Two subspecies (*O. h. hesperia* and *O. h. perplexa*) are endemic to the state.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This species is found in xeric habitats with exposed limestone outcrops. The subspecies *hesperia* occurs in open ponderosa pine forests while *perplexa* occurs in areas dominated by sagebrush, serviceberry, and grasses.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999, the two subspecies were believed to occupy <10% and <30% of their historical range, respectively. Current population trends for both the species and subspecies are unknown.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: The primary threat to this species is thought to be habitat loss from timber harvest, improper livestock grazing management, and agricultural development.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Costate Mountainsnail

Oreohelix idahoensis

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

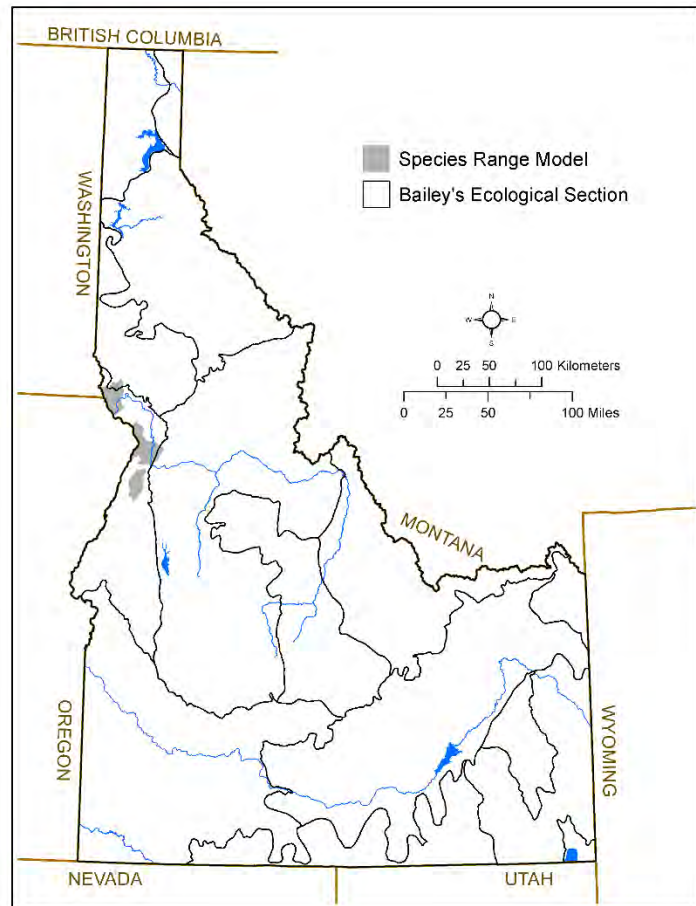
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S2

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 4,700 km² (~1,800 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Costate Mountainsnail is an Idaho endemic, known only from a short reach along the Salmon River in Idaho County. Two subspecies (*O. i. idahoensis* and *O. i. baileyi*) are recognized, but little known regarding current status of either one.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species occurs in dry, open limestone or calcareous schist. The dominant vegetation includes sagebrush, netleaf hackberry, and prickly pear.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999 this species was considered to be declining both in occupied area and in the number of individuals. Current population trends are unknown.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: This species is vulnerable to habitat loss and fragmentation resulting from surface disturbance, grazing, housing development, and mining or quarrying.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

Taxonomy may need to be examined for the two subspecies (*O. i. idahoensis* and *O. i. baileyi*). The Costate Mountainsnail is Red listed with IUCN due to lack of information. Similarly, the subspecies *O. i. idahoensis* was a candidate for ESA listing, but was determined to be lacking information (1994, FR2729).

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Frest TJ, Johannes EJ. 1997. Land snails of the Lucile Caves ACEC. Idaho Bureau of Land Management Technical Bulletin 97-16.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Deep Slide Mountainsnail

Oreohelix intersum

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

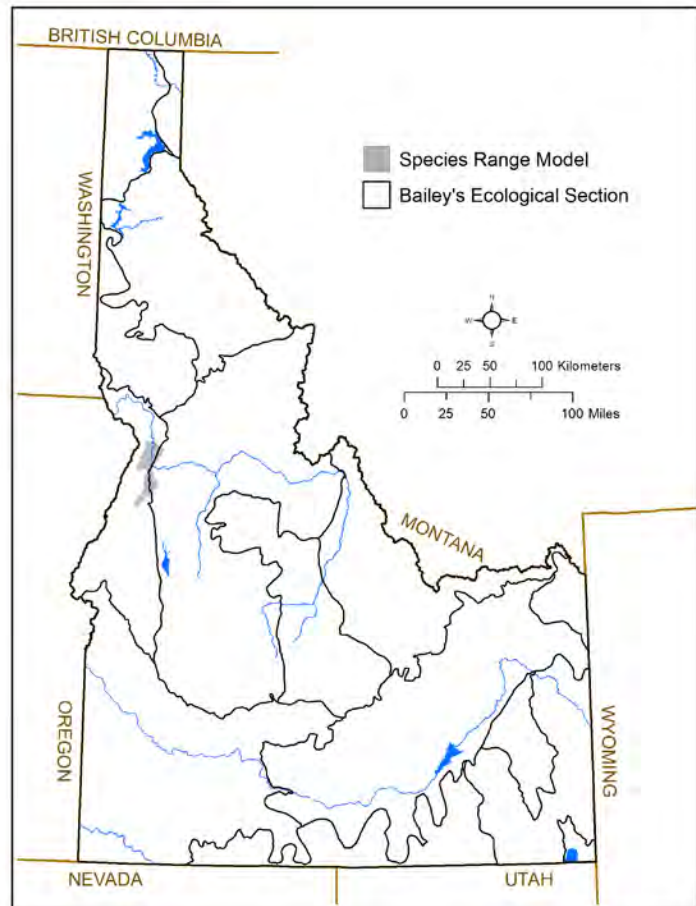
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Deep Slide Mountainsnail is an Idaho endemic known from only few sites along the Little Salmon River.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The species occurs primarily in association with basalt talus in dry habitat. Dominant vegetation in the area includes poison ivy, netleaf hackberry, prickly pear, sagebrush, and balsamroot.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999 this species was considered to be declining both in occupied area and in the number of individuals. Current population trends are unknown.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threat to this species is thought to be habitat loss resulting from road construction, quarrying, and herbicide application.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Boulder Pile Mountainsnail

Oreohelix jugalis

Class: Gastropoda
Order: Stylommatophora
Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

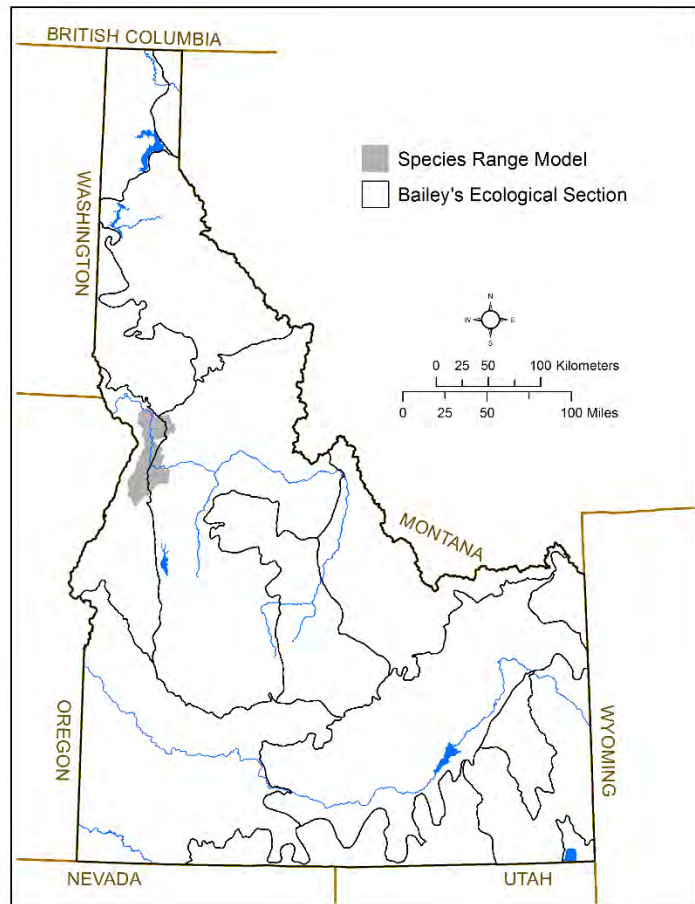
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 5,000 km² (~1,900 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Boulder Pile Mountainsnail is an Idaho endemic known from the Salmon River between Hells Gate Creek and Allison Creek. In 1999, snails were reported as common at 9 of 34 sites. Current abundance is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species is found in varied habitats, but generally is associated with talus or boulder fields in mesic to somewhat xeric conditions. Dominant vegetation at known locations includes netleaf hackberry, willow, and various forbs and grasses.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999 this species was considered to be declining. Current population trends are unknown.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Threats have not been documented.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Deseret Mountainsnail

Oreohelix peripherica

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

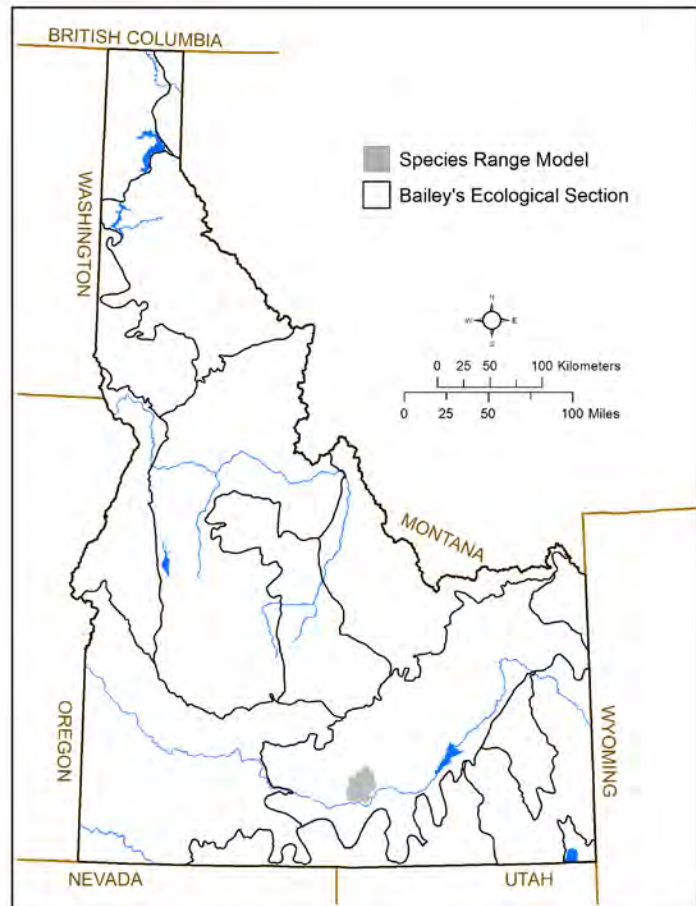
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: SNR

SGCN TIER: 2

Rationale: Regional endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,400 km² (~500 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Deseret Mountainsnail is known to occur in Idaho, Oregon, and Utah in fragmented populations. In Idaho, one museum specimen was collected near Rupert, Minidoka County. Current population status is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Habitat requirements for this species have not been documented. Other species in this genus seem to prefer limestone rock outcrops.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Specific threats have not been identified for this species.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

The taxonomic status of this species is uncertain.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Striate Mountainsnail

Oreohelix strigosa goniogyra

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

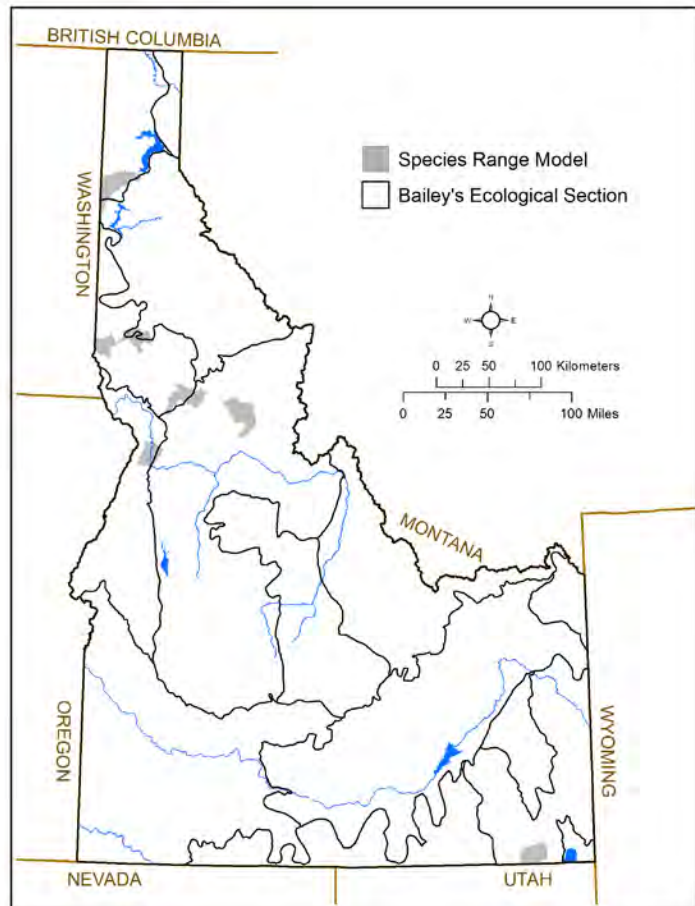
IDAPA: Unprotected Wildlife

G-rank: G5T1Q

S-rank: S1

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,300 km² (~1,300 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Striate Mountainsnail is endemic to Idaho and occurs in a limited area along the lower Salmon River drainage near Riggins, Idaho. Older records, however, indicate the species may also occur in the Selway River drainage, and even in scattered locations on the Palouse and Rathdrum prairies, but these specimens have not been confirmed and may be a different subspecies. Current status of the species is not known.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The species is found on schist and limestone outcrops in forested, often moist, areas. Sites are often in closed or partially closed-canopy ponderosa pine forests with well-developed and diverse understory vegetation.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Frest (1999) indicated both the abundance and the number of occupied sites of this species were declining. Current trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Timber harvest and fire have eliminated some habitat, and snails now occur on small remnant patches of relatively intact habitat. Other threats include improper livestock grazing management and road construction and maintenance.

CONSERVATION ACTIONS

Priority conservation strategies for this species include surveys to determine the current abundance and trends and genetic work to determine status of the subspecies in Idaho.

ADDITIONAL COMMENTS

The taxonomic status of the subspecies is currently uncertain.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Thin-ribbed Mountainsnail

Oreohelix tenuistriata

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

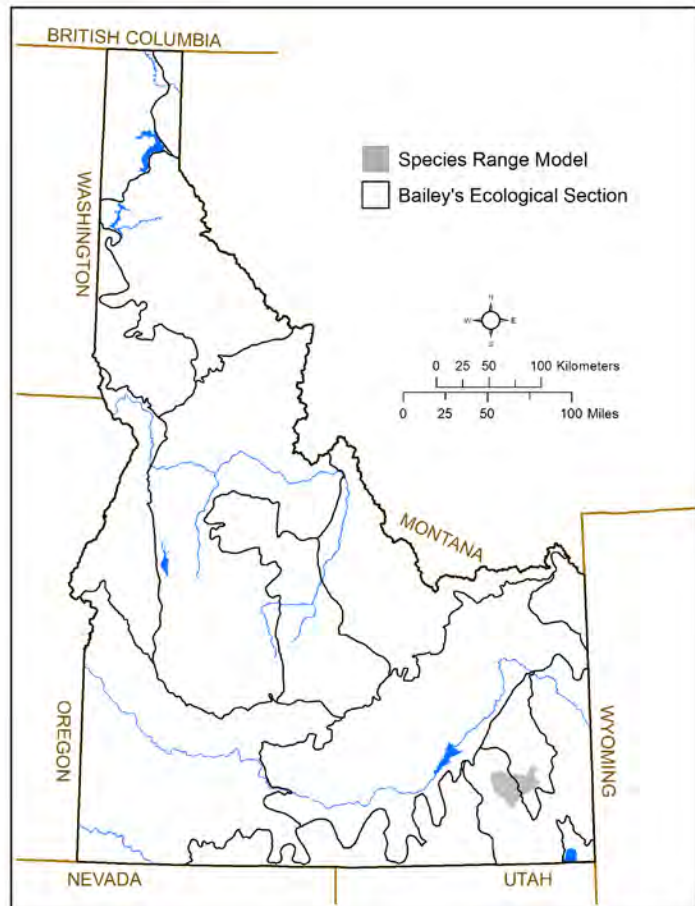
IDAPA: Unprotected Wildlife

G-rank: GH

S-rank: SH

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,100 km² (~800 mi²)

Key Ecological Sections: Overthrust Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Thin-ribbed Mountainsnail is known from only 8 occurrences between Lava Hot Springs and McCammon in Bannock County, and has not been relocated since 1947. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The population was found in an area dominated by mountain mahogany, in openings among the shrubs where balsamroot grew in association with limestone.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Threats have not been documented.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Whorled Mountainsnail

Oreohelix vortex

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

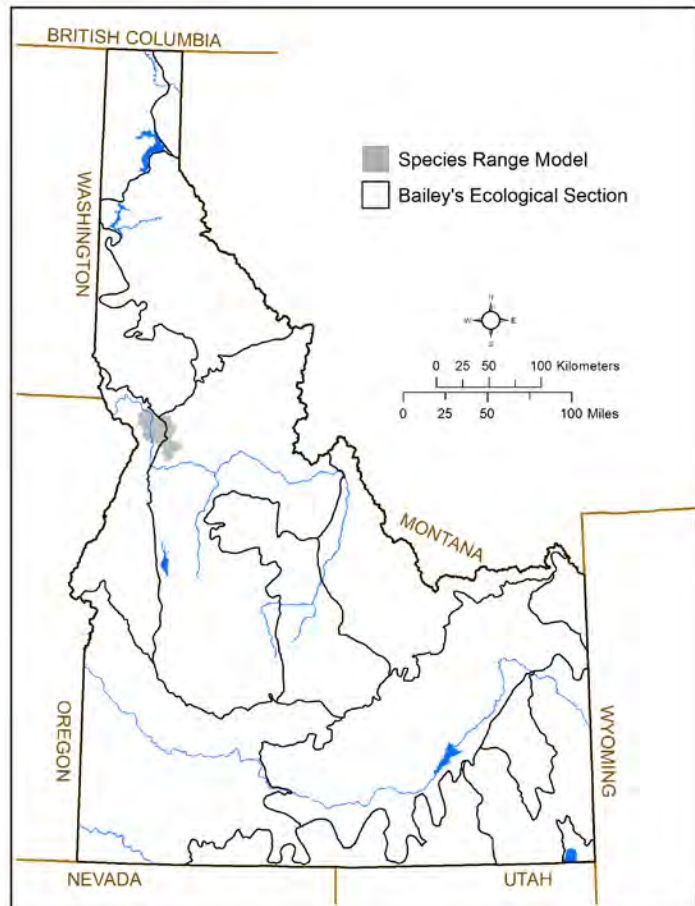
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,100 km² (~400 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Whorled Mountainsnail is endemic to a limited stretch of the lower Salmon River and tributaries just above and below the town of Whitebird, Idaho. It was last recorded in 1994 and its current status is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species occurs in association with basalt boulder fields and talus in xeric habitat. Grasses and occasionally shrubs or forbs are the most common plant associates.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Frest (1999) considered this species to be declining, noting both a decrease in the extent of occupied habitat and population extirpations. Current trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threat to this species is thought to be habitat loss resulting from quarrying, road construction and maintenance, and improper livestock grazing management.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Lava Rock Mountainsnail

Oreohelix waltoni

Class: Gastropoda

Order: Stylommatophora

Family: Oreohelicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

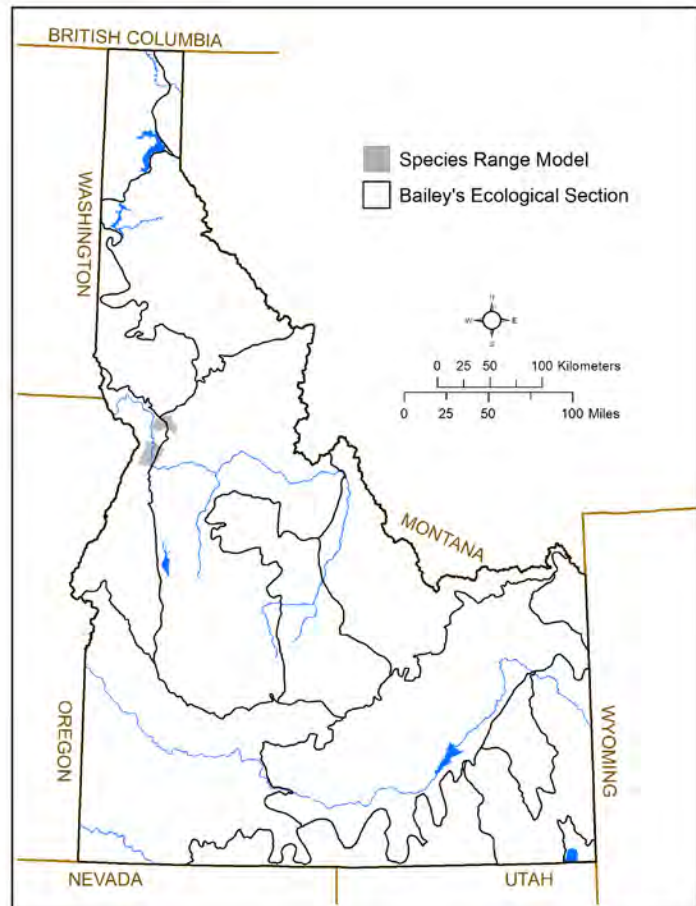
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 600 km² (~200 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Lava Rock Mountainsnail is an Idaho endemic restricted to a few sites in the lower Salmon River Canyon. Current abundance information is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The species occurs in xeric habitat in basalt talus and mixed schist/alluvium.

Dominant plants in the areas include sagebrush, netleaf hackberry, and grasses.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999 this species was considered to be declining both in occupied area and in the number of individuals. Current population trends are unknown.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threat to this species is thought to be habitat loss and degradation resulting from improper livestock grazing management, rocky quarrying, and road construction and maintenance.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Selway Forestsnail

Allogona lombardii

Class: Gastropoda

Order: Stylommatophora

Family: Polygyridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

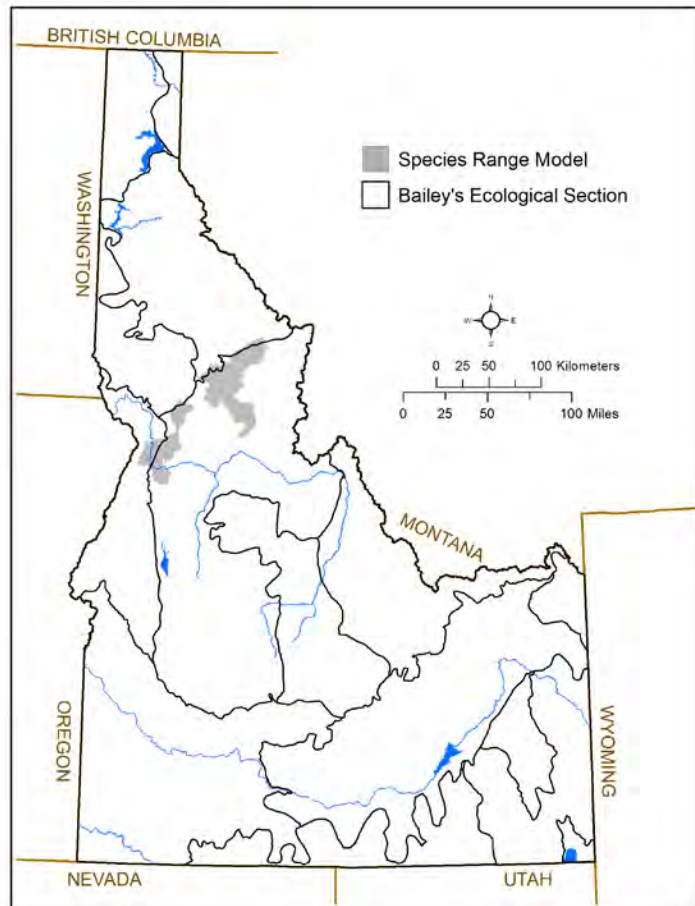
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S3

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,300 km² (~2,400 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Selway Forestsnail is an Idaho endemic that occurs in Idaho County, mostly in isolated colonies along the lower Lochsa River, the Selway River, the South Fork of the Clearwater River, and the lower Salmon River. The most recent records (2006, 2010) have all been along the Lochsa and Selway Rivers.

HABITAT & ECOLOGY

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

Description: This species is found in intact mixed coniferous forest, usually in low elevation, well-shaded, moist areas along medium to large streams. Sites usually have a diverse understory and a substantial duff layer.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats have not been identified for this species, however habitat loss and degradation are thought to be the primary threats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Frest TJ, Johannes EJ. 1997. Land snail survey of the lower Salmon River drainage, Idaho. Idaho Bureau of Land Management Technical Bulletin 97–18.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

Salmon Oregonian

Cryptomastix harfordiana

Class: Gastropoda

Order: Stylommatophora

Family: Polygyridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

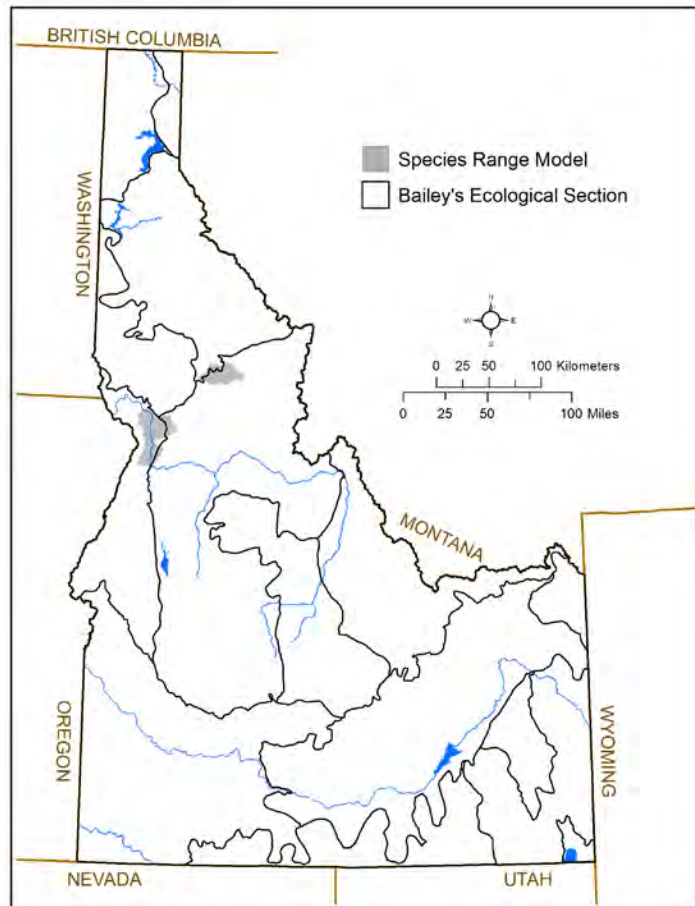
IDAPA: Unprotected Wildlife

G-rank: G3G4

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,700 km² (~700 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Salmon Oregonian is an Idaho endemic, restricted to a limited reach in the lower Salmon River Canyon. Current abundance is unknown.

HABITAT & ECOLOGY

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

Description: This species is found in moderately xeric to somewhat mesic habitats, and is associated with talus or boulder fields often at the base of slopes or in riparian areas. Dominant plants include netleaf hackberry, grasses, willow, and dogwood.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: In 1999 this species was considered to be declining both in occupied area and in the number of individuals. Current population trends are unknown.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threat to this species is thought to be habitat loss resulting from housing development, road construction and maintenance, mining and quarrying, and improper livestock grazing management.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Frest TJ. 1999. A review of the land and freshwater mollusks of Idaho. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Mission Creek Oregonian

Cryptomastix magnidentata

Class: Gastropoda
Order: Stylommatophora
Family: Polygyridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

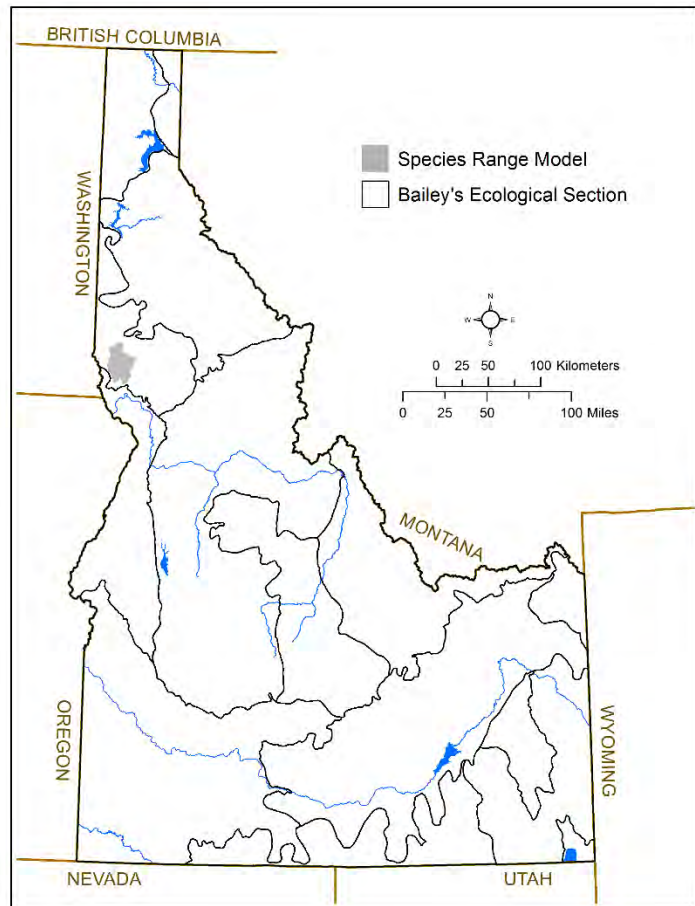
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 700 km² (~300 mi²)

Key Ecological Sections: Bitterroot Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Mission Creek Oregonian is believed to be endemic to a site in Nez Perce County, but the species has also been reported from additional sites in Idaho County, Oregon, and Washington. Observations reported outside of the type locality are currently believed to represent other 3-toothed oregonian species such as the Salmon Oregonian or a subspecies of the Coeur d'Alene Oregonian. Taxonomic uncertainty and difficulties of distinguishing similar species makes interpretation of these records difficult.

HABITAT & ECOLOGY

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

Description: Populations are found on limestone and basalt talus in pine forest that is moist, rocky, and well-shaded.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented, however, in 1999 the species was believed to be declining both in the area occupied and in the number of individuals.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified for this species, however habitat loss and degradation are thought to be the primary threats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on verifying the taxonomic status and identification of recorded specimens, improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Frest TJ. 1999. A review of the land and freshwater mollusks of Idaho. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Coeur d'Alene Oregonian

Cryptomastix mullani

Class: Gastropoda

Order: Stylommatophora

Family: Polygyridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

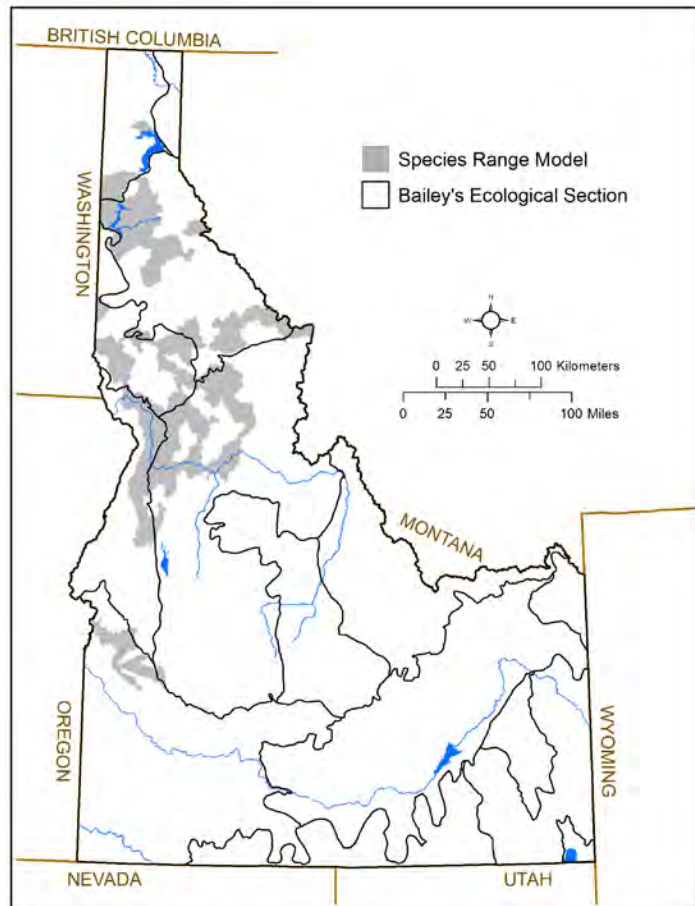
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S4Q

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 23,400 km² (~9,000 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: The Coeur d'Alene Oregonian is a fairly common and widespread species known to occur in British Columbia, Washington, Oregon, Idaho, and Montana. In Idaho, it occurs predominantly in the northern portion of the state. Several rare subspecies endemic to Idaho have been identified, but uncertainty exists in the taxonomic status of those subspecies.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This species is found on rock outcrops in ponderosa pine forests with well-developed, moist, shaded understories.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats have not been identified for this species, however habitat loss and degradation are thought to be the primary threats.

CONSERVATION ACTIONS

Genetic analysis of this species complex is needed to address sub-specific taxonomic designations.

ADDITIONAL COMMENTS

None.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Cottonwood Oregonian

Cryptomastix populi

Class: Gastropoda

Order: Stylommatophora

Family: Polygyridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

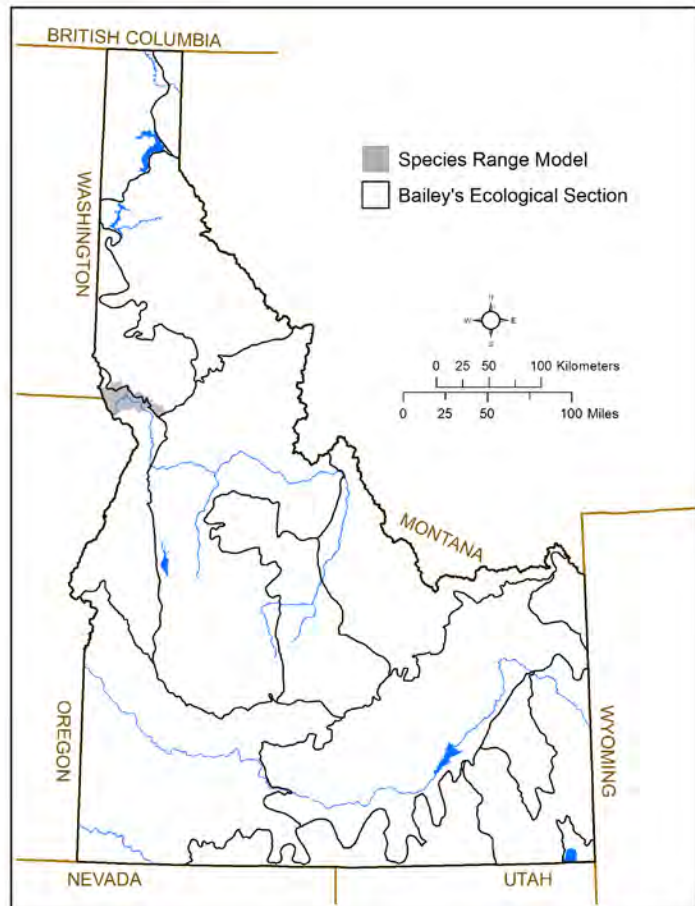
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 1

Rationale: Regional endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,100 km² (~400 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Cottonwood Oregonian is a regional endemic found in Idaho, Oregon, and Washington. In Idaho, it has been documented along the Snake River, lower Salmon River, and lower Clearwater River. By the mid-1990s, sites along the Clearwater River were believed to be extirpated and the species was only known to exist in isolated colonies in undisturbed areas along the lower Salmon River and Snake River. The current status of the species is unknown.

HABITAT & ECOLOGY

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

Description: Little is known of the species biology. However, populations typically occur in basalt talus in xeric, sparsely-vegetated habitats with netleaf hackberry, sagebrush, and a variety of forbs and grasses.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented, but the species is believed to be declining both in number of individuals and number of sites.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified for this species, however habitat loss and degradation are thought to be the primary threats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.; Frest TJ. 1999. A review of the land and freshwater mollusks of Idaho. Boise (ID): Idaho Department of Fish and Game

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Kingston Oregonian

Cryptomastix sanburni

Class: Gastropoda

Order: Stylommatophora

Family: Polygyridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

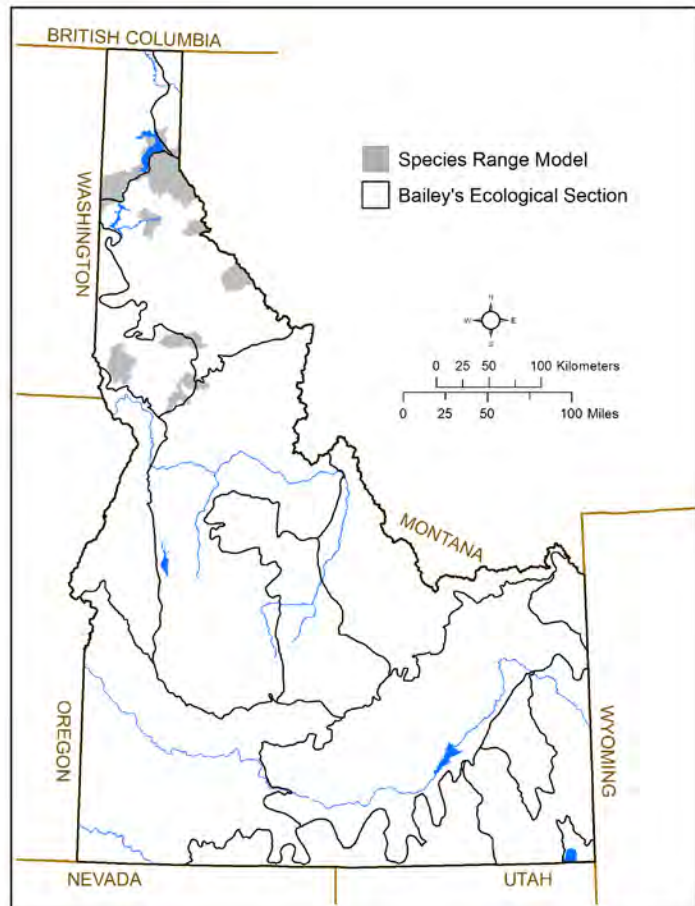
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S3

SGCN TIER: 1

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,300 km² (~2,400 mi²)

Key Ecological Sections: Bitterroot Mountains, Flathead Valley

Population Size in Idaho: Not applicable for invertebrates.

Description: The Kingston Oregonian is a regional endemic, with historical occurrences in Oregon, Montana, and Idaho. In Idaho, it was only known from a few locations until recent (2010-2014) survey efforts documented it at several sites across north Idaho. It now appears to be most abundant in the Cover d'Alene Mountains.

HABITAT & ECOLOGY

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

Description: Specific habitat requirements have not been identified, however the species has typically been found along streams or springs in areas dominated by mesic ponderosa pine forests.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats have not been identified for this species, however habitat loss and degradation are thought to be the primary threats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. Listing was determined to be not warranted in 2009 due to a lack of information.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.

Map Sources: Burke T. 2013. Land snails and slugs of the Pacific Northwest. Oregon State University Press, Corvallis, OR, Idaho Department of Fish and Game, Multi-species Baseline Initiative, unpublished data; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Western Flat-whorl

Planogyra clappi

Class: Gastropoda

Order: Stylommatophora

Family: Valloniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

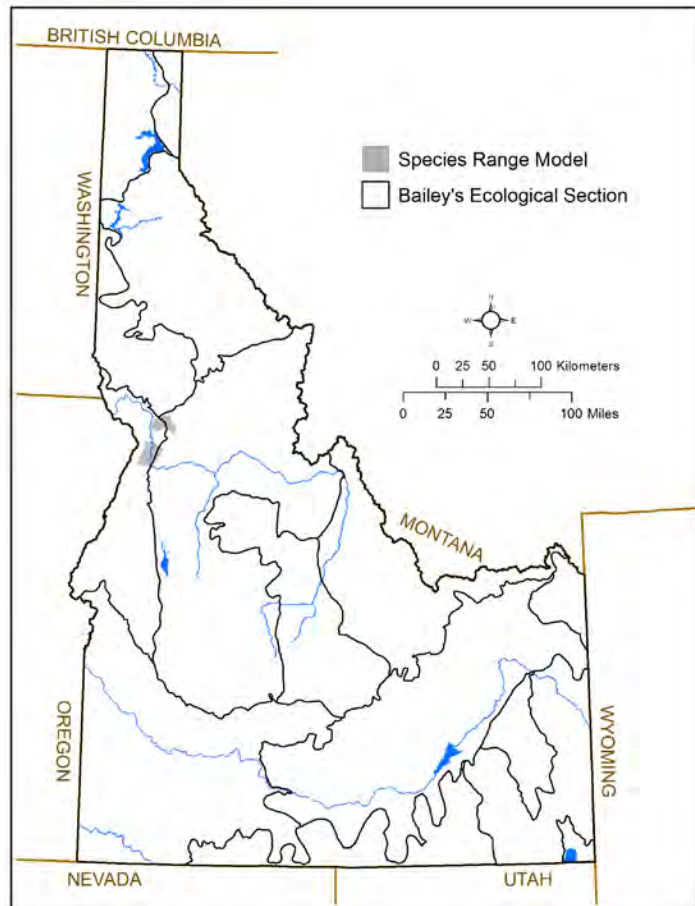
IDAPA: Unprotected Wildlife

G-rank: G4G5

S-rank: S1

SGCN TIER: 3

Rationale: Data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,300 km² (~500 mi²)

Key Ecological Sections: Blue Mountains, Flathead Valley, Idaho Batholith, Okanogan Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Western Flat-whorl occurs in Alaska, British Columbia, Washington, Oregon, California, and Idaho. In Idaho, it is considered rare and is known from only 3 locations along the lower Salmon River, collected in 1993 and 2010. It has not been detected in the Idaho Panhandle, despite recent, extensive surveys.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Habitat associations for this species in Idaho have not been described. Elsewhere, the species is generally associated with mesic forests at a wide range of elevations. Populations are also occasionally encountered in partly forested rock taluses or outcrops, marshes, meadows, or riparian areas. Individuals are usually found under leaf litter.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Specific threats have not been identified for this species, however habitat loss and degradation are thought to be the primary threats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Lucid M, Idaho Department of Fish and Game, pers. comm.; NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA); NatureServe. <http://explorer.natureserve.org>

Map Sources: Burke T. 2013. Land snails and slugs of the Pacific Northwest. Oregon State University Press, Corvallis, OR, Idaho Department of Fish and Game, Multi-species Baseline Initiative, unpublished data; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

Southern Tightcoil

Ogaridiscus subrupicola

Class: Gastropoda

Order: Stylommatophora

Family: Zonitidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

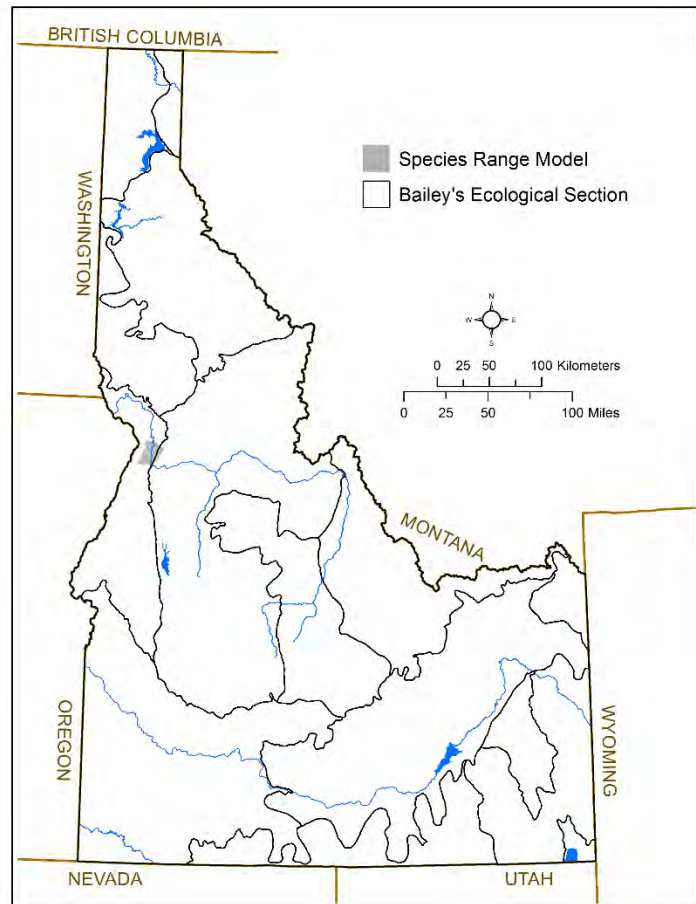
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Southern Tightcoil has been recorded from Oregon (where it is nearly extirpated), Utah (extirpated in 1929), and Idaho (unknown). In Idaho, it is known from only 2 observations (1941 and 1993) both along John Day Creek in Idaho County.

HABITAT & ECOLOGY

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

Description: Specific habitat requirements are not known. However, the species has typically been found in open rocky areas, talus, and caves.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified for this species.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

This species was 1 of 206 petitioned for listing under the ESA in 2007. Listing was determined to be not warranted in 2009 due to a lack of information.

Information Sources: Frest TJ, Johannes EJ. 2000. An annotated checklist of Idaho land and freshwater mollusks. *Journal of the Idaho Academy of Science* 36:1–51.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Shiny Tightcoil

Pristiloma wascoense

Class: Gastropoda

Order: Stylommatophora

Family: Zonitidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

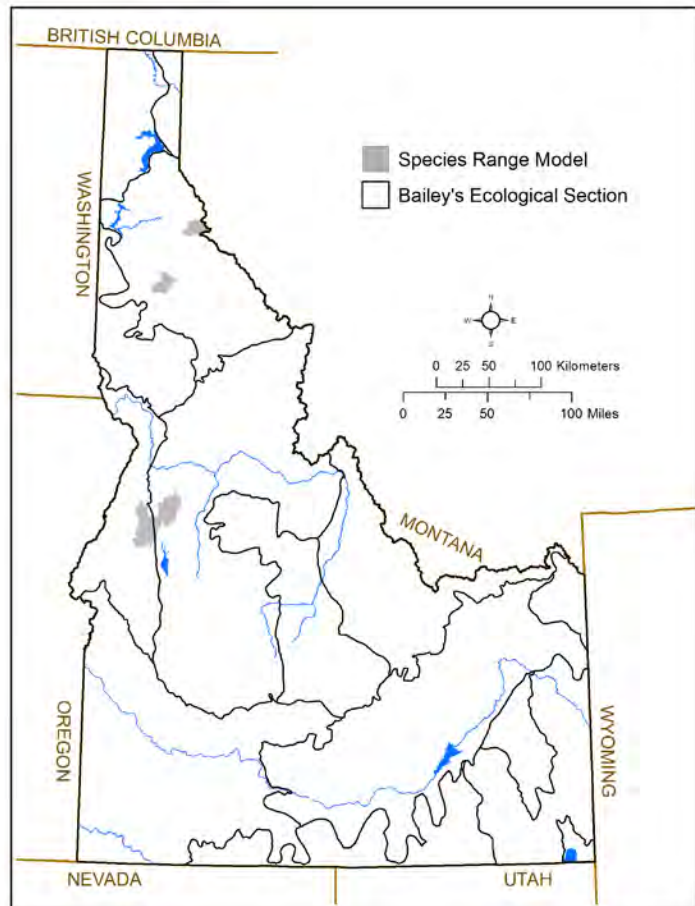
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,700 km² (~700 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: The Shiny Tightcoil has been documented in Washington, Oregon, Idaho, and Montana. In Idaho, it was known from only 4 historical occurrences in Adams, Valley, and Shoshone counties until recently when it was documented in 2 locations (1 in Idaho near Clarkia, 1 in Washington) during 2013 surveys.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Specific habitat requirements for this species are not well known. Most sites are in ponderosa pine and Douglas-fir at moderate to high elevations, but some have been found at more moist locations. The species does appear to be associated with cool air temperatures, at least in the Panhandle Region.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified for this species.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Lucid M, Idaho Department of Fish and Game, pers. comm.

Map Sources: Burke T. 2013. Land snails and slugs of the Pacific Northwest. Oregon State University Press, Corvallis, OR, Idaho Department of Fish and Game, Multi-species Baseline Initiative, unpublished data; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Idaho Department of Fish and Game. Multi-species Baseline Initiative, unpublished data. [Accessed November 14, 2014].

An Ant-like Flower Beetle

Amblyderus owyhee

Class: Insecta
Order: Coleoptera
Family: Anthicidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

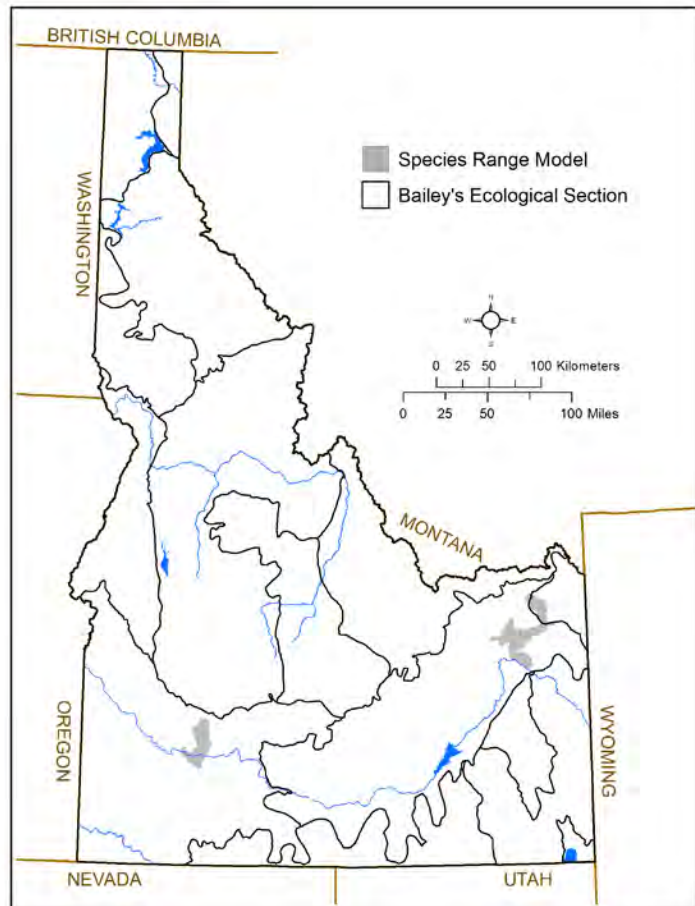
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,000 km² (~800 mi²)

Key Ecological Sections: Owyhee Uplands, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This ant-like flower beetle was described in 1999 and is found in the Snake River and Columbia River Basins in Idaho, British Columbia, and Alberta. In Idaho, the only known locations are at Bruneau Dunes State Park and St Anthony Dunes. It has not been recorded since the late 1980s.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species is a sand habitat specialist. Adults are buried in dune slip-faces during the day; at night they run about investigating the debris that has accumulated at the bottom of the dune slip-faces. Most specimens were taken in May and June, and a smaller number were taken as late as November.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified for this species, however a significant threat to dune habitats in the core of its Idaho range is the loss of habitat as a result of dune stabilization. Dune stabilization occurs primarily as a result of invasive weed encroachment.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate. Reducing the spread of invasive weeds in sand dominated habitats would also benefit this and other sand obligate species.

ADDITIONAL COMMENTS

None.

Information Sources: Chandler DS. 1999. Revision of the North American species of *Amblyderus* with a checklist of the world species (Coleoptera: Anthicidae). Transactions of the American Entomological Society 125:269-293.

Map Sources: Chandler DS. 1999. Revision of the North American species of *Amblyderus* with a checklist of the world species (Coleoptera: Anthicidae). Transactions of the American Entomological Society 125:269-293.

A Metallic Wood-boring Beetle

Agrilus pubifrons

Class: Insecta
Order: Coleoptera
Family: Buprestidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

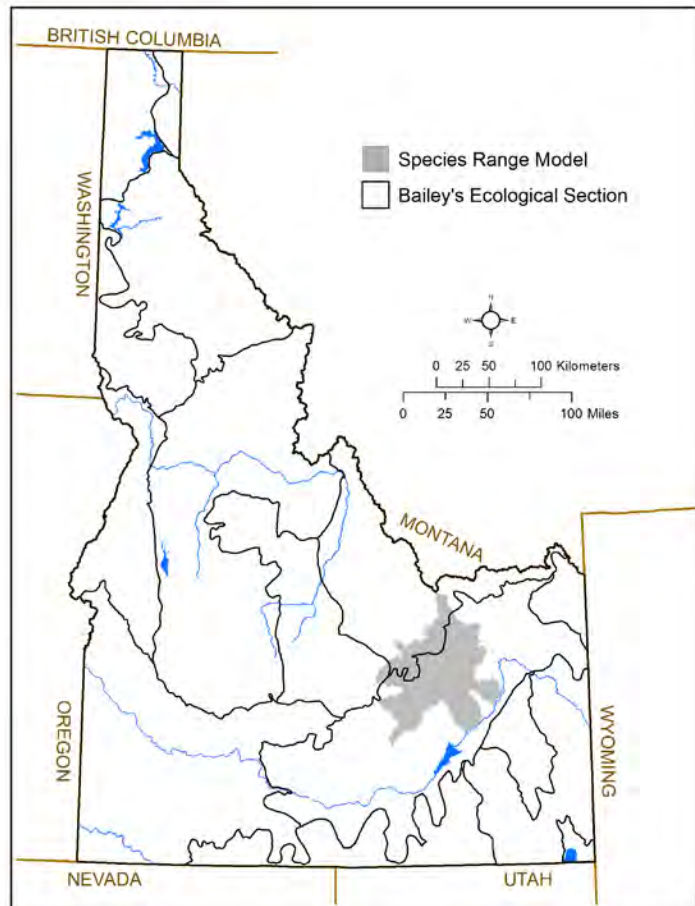
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 8,300 km² (~3,200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This metallic wood-boring beetle is known from only a handful of specimens. It was originally collected near Pocatello, Idaho, and is now known to also occur in Utah.

HABITAT & ECOLOGY

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

Description: Little is known of the species biology but, green rabbitbrush is its only known host plant. The species and related species have generally been described as also feeding on plants in the Amaranth and Aster families, but no specifics on a particular preference. Larvae bore into the plant roots and adults feed in the flowers. Adults have also been collected on Parry's rabbitbrush and spiny hopsage.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats have not been identified for this species.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Nelson GH, Walters GC Jr, Haines RD, Bellamy CL. 2008. A catalog and bibliography of the Buprestoidea of America north of Mexico. The Coleopterists Society, Special Publication 4:1-274.; Jendek E, Polakova J. 2014. Host Plants of World *Agrilus* (Coleoptera, Buprestidae): A critical review. New York (NY): Springer.; Fisher WS. 1928. A revision of the North American species of buprestid beetles belonging to the genus *Agrilus*. US National Museum Bulletin 145:1-347.

Map Sources: Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38.

A Metallic Wood-boring Beetle

Chrysobothris horningi

Class: Insecta
Order: Coleoptera
Family: Buprestidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

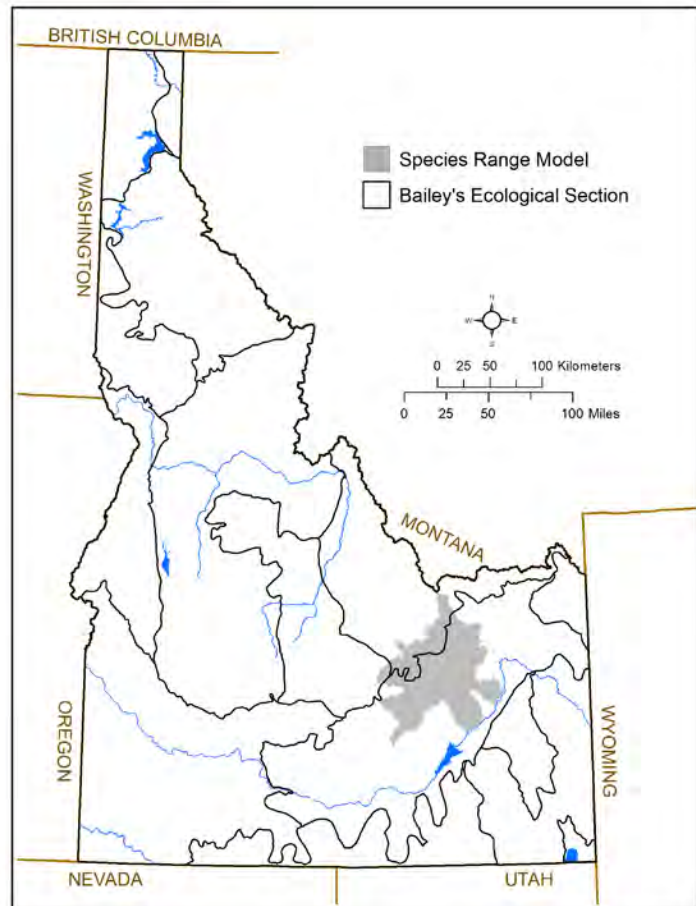
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 8,300 km² (~3,200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This metallic wood-boring beetle has only been collected at Craters of the Moon National Monument and Preserve and the neighboring Idaho National Engineering Laboratory in Butte County. It has not been recorded since the early 1980s.

HABITAT & ECOLOGY

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

Description: Little is known of the species biology but, it appears to be restricted to cushion buckwheat (*Eriogonum depressum*), which commonly grows on cinder cones in the area. Larvae have been found to bore into the roots of the plant. Adults are known as fast-flying, elusive, and uncommon.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats have not been identified for this species.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Barr WF. 1969. New species of *Chrysobothris* from the Pacific Northwest (Coleoptera: Buprestidae). Proceedings of the Entomological Society of Washington 71:117–132.; Stafford MP, Barr WF, Johnson JB. 1986. Coleoptera of the Idaho National Engineering Laboratory: An annotated checklist. Great Basin Naturalist 46:287–293.

Map Sources: Barr WF. 1969. New species of *Chrysobothris* from the Pacific Northwest (Coleoptera_Buprestidae). Proceedings of the Entomological Society of Washington 71:117–132; Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38.

A Metallic Wood-boring Beetle

Chrysobothris idahoensis

Class: Insecta
Order: Coleoptera
Family: Buprestidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

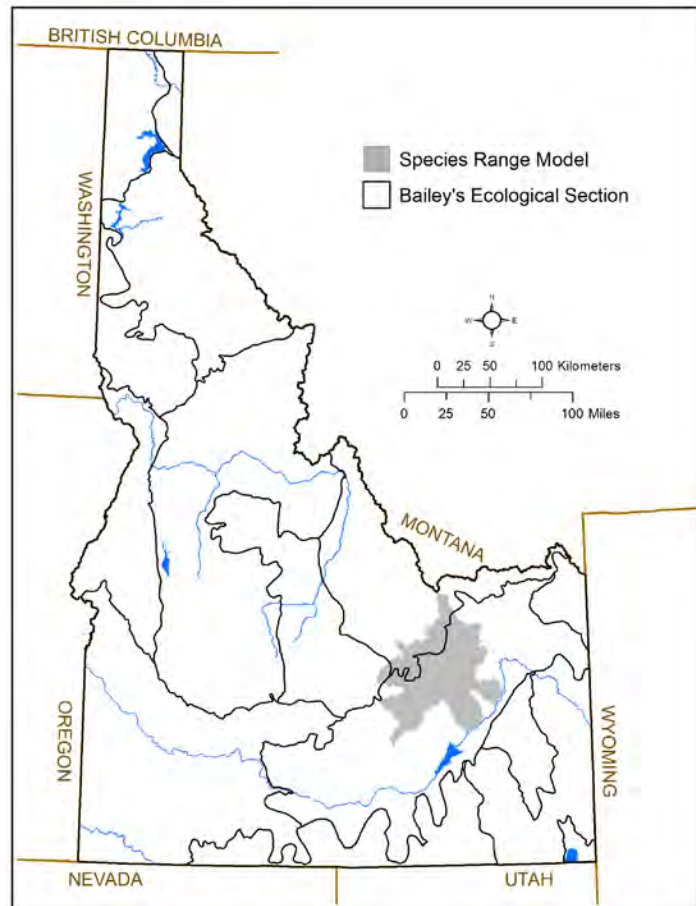
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3

SGCN TIER: 2

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 8,300 km² (~3,200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This metallic wood-boring beetle is known to occur in Idaho and Nevada. In Idaho, it has only been collected in Butte, Blaine and Washington counties. It may be relatively common locally when conditions are suitable, but is not often collected. The species has not been recorded since the early 1980s.

HABITAT & ECOLOGY

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

Description: Little is known of the species biology but, it has been collected from wild buckwheat (*Eriogonum*) species and larvae have been found to bore into the roots of the plant.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Specific threats have not been identified for this species.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Barr WF. 1969. New species of *Chrysobothris* from the Pacific Northwest (Coleoptera: Buprestidae). Proceedings of the Entomological Society of Washington 71:117–132; Westcott RL. 1990. Notes on taxonomy, ecology and distribution for some species of *Chrysobothris* Eschscholtz (Coleoptera: Buprestidae) occurring in the United States (including Hawaii) and Canada. The Coleopterists Bulletin 44:323–343.; Stafford MP, Barr WF, Johnson JB. 1986. Coleoptera of the Idaho National Engineering Laboratory: An annotated checklist. Great Basin Naturalist 46:287–293.

Map Sources: Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38.

Idaho Dunes Tiger Beetle

Cicindela arenicola

Class: Insecta
Order: Coleoptera
Family: Carabidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

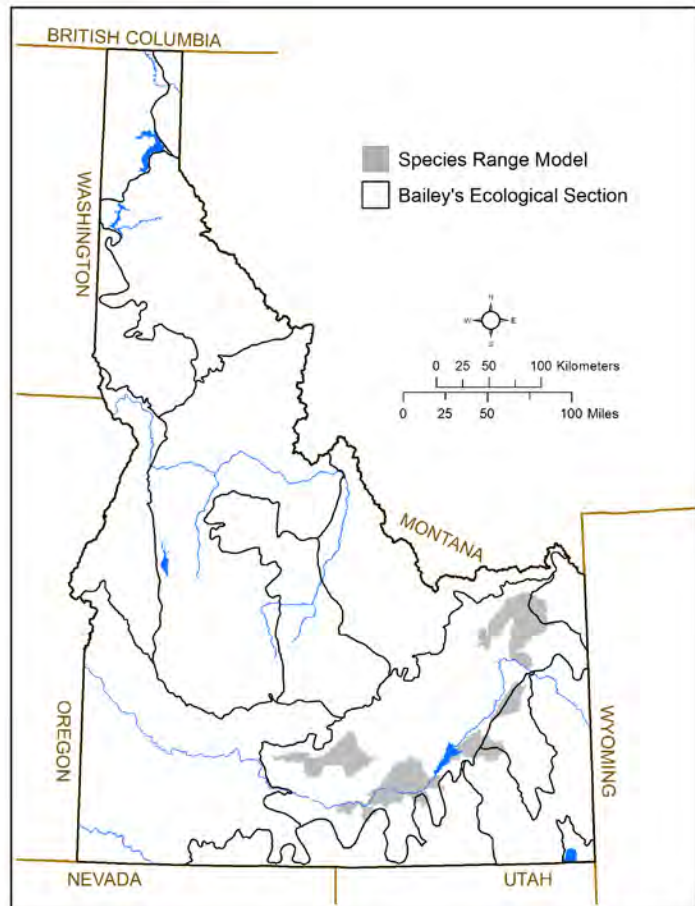
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, habitat specialist, population declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 9,900 km² (~3,800 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Idaho Dunes Tiger Beetle is predominantly in eastern and south-central Idaho, but was recently found to also occur in southwestern Montana. The most extensive populations are in the St. Anthony Dunes in Fremont County.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: In general, tiger beetles show preferences for small patches of dynamic habitats. The Idaho Dunes Tiger Beetle is a sand dunes specialist. Larvae live in burrows located in flat, grassy areas where the sand is at least a meter thick, often on the windward side of sand dunes. Although adult beetles that disperse are reported to move up to 1 km (0.6 mi) within 6 weeks of emergence, most adults remain in the immediate area of the dune system on which they developed. Adults are active from mid-April to late June and again from late August to late October. In low rainfall years, the life cycle from egg to adult may take up to 4 years.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Population trends are thought to be declining slightly.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to this species is the loss or degradation of habitat due to OHV use, agriculture expansion, and invasive grass species.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Knisley CB, Kippenhan M, Brzoska D. 2014. Conservation status of United States tiger beetles. *Terrestrial Arthropod Reviews* 7:93–145; Pearson D, Knisley CB, Duran DP, Kazilek CJ. 2015. A field guide to the tiger beetles of the United States and Canada. 2nd Edition. New York (NY): Oxford University Press.; Winton RC, Kippenhan MG, Ivie MA. 2010. New state record for *Cicindela arenicola* Rumpff (Coleoptera: Carabidae: Cicindelinae) in Southwestern Montana. *The Coleopterists Bulletin* 64:43–44.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

Columbia River Tiger Beetle

Cicindela columbica

Class: Insecta
Order: Coleoptera
Family: Carabidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

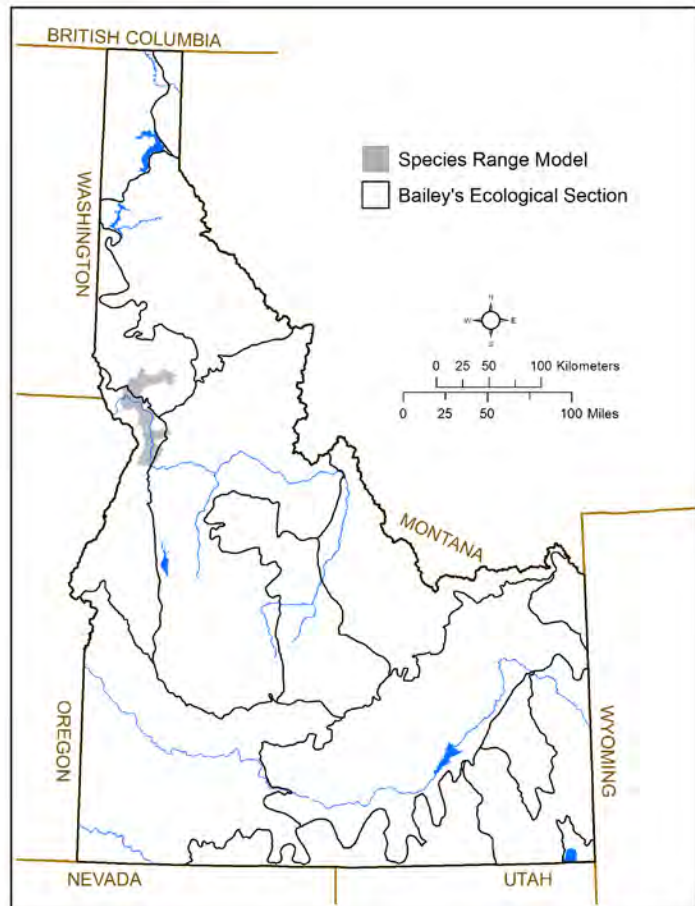
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, range restricted, population declines, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,800 km² (~700 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Columbia River Tiger Beetle was historically known to occur along the Columbia, Snake, and Salmon Rivers in Oregon, Washington, and Idaho. It is now thought to have been extirpated from Oregon and Washington and, in Idaho, only occurs along the lower Salmon River in Idaho County.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: In general, tiger beetles show preferences for small patches of dynamic habitats. This species, in particular, is found exclusively on sandbars and sand dunes in riparian areas of large lowland rivers. Surveys on the lower Salmon River found it in greatest abundance on older, extensive, well-established sandbars that are not affected by spring floods. Adults are found from mid-April to early August. The life cycle is thought to be 3-years in length, and larvae are present in their burrows in any season. Adults and larvae are voracious predators on other insects.

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Population trends are thought to be declining slightly.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Moderate

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this species is the loss or degradation of habitat due to dams and water level changes.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

The species was petitioned for listing under the ESA in 1979 based on the threat of a proposed dam on the lower Salmon River. In 1988, the FWS deemed that listing was unwarranted because the dam was no longer proposed.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Knisley CB, Kippenhan M, Brzoska D. 2014. Conservation status of United States tiger beetles. *Terrestrial Arthropod Reviews* 7:93–145; Pearson D, Knisley CB, Duran DP, Kazilek CJ. 2015. A field guide to the tiger beetles of the United States and Canada. 2nd Edition. New York (NY): Oxford University Press.; Shook G. 1981. The status of the Columbia tiger beetle (*Cicindela columbica* Hatch) in Idaho (Coleoptera: Cicindelidae). *The Pan-Pacific Entomologist* 57:359–363.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

A Tiger Beetle

Cicindela decemnotata montevolans

Class: Insecta
Order: Coleoptera
Family: Carabidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

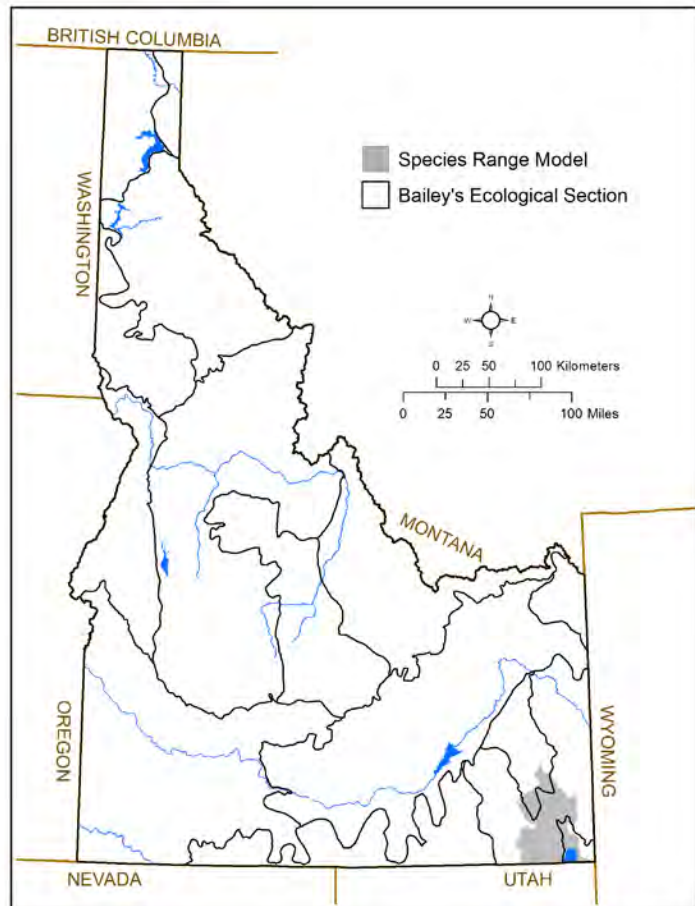
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,800 km² (~1,500 mi²)

Key Ecological Sections: Bear Lake, Overthrust Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This recently described (2012) subspecies is only known from the Bear River Mountain Range in southeastern Idaho and northeastern Utah, with most populations found in the area of Bear Lake Summit. Adults may sometimes be found in abundance.

HABITAT & ECOLOGY

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

Description: In general, tiger beetles show preferences for small patches of dynamic habitats. This tiger beetle in particular is found in patchy colonies at high elevations (>2,000 m [6,500 ft]) in a variety of habitats including sparsely-vegetated grasslands, open pine forests, and sagebrush. Adults are typically found from late June through late August. Larvae take 2–3 years to develop depending on elevation.

POPULATION TREND

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

Long-term Trend: Unknown

Description: Population trends have not been documented, but are thought to be relatively stable.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Low

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats have not been identified for this subspecies.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Knisley CB, Kippenhan M, Brzoska D. 2014. Conservation status of United States tiger beetles. *Terrestrial Arthropod Reviews* 7:93–145.; Knisley CB, Woodcock MR, Kippenhan MG. 2012. A morphological and mtDNA analysis of the badlands tiger beetle, *Cicindela* (s. str.) *decemnotata* Say, 1817 (coleoptera: Carabidae: Cicindelinae) with the description of three new subspecies. *Insecta Mundi* 0214:1–49.

Map Sources: Knisley CB, Kippenhan M, Brzoska D. 2014. Conservation status of United States tiger beetles. *Terrestrial Arthropod Reviews* 7:93–145

Alpine Tiger Beetle

Cicindela plutonica

Class: Insecta
Order: Coleoptera
Family: Carabidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

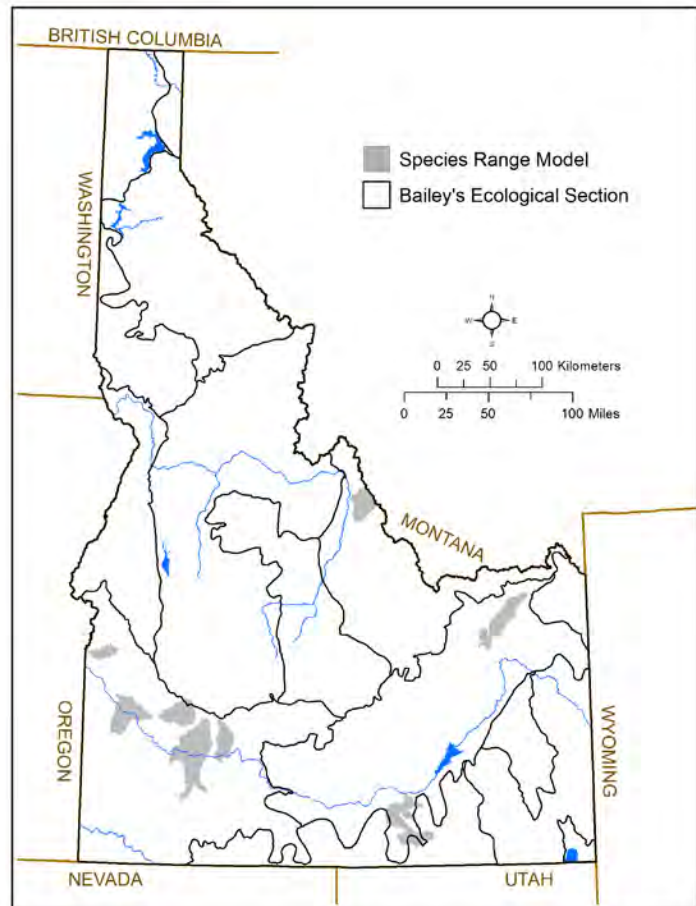
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 6,100 km² (~2,400 mi²)

Key Ecological Sections: Beaverhead Mountains, Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: Limited to the Great Basin, the Alpine Tiger Beetle occurs intermittently across its range including scattered locations in Ada, Canyon, Cassia, Elmore, Jefferson, Lemhi, and Owyhee counties. The Idaho population makes up approximately 45% of its known overall range.

HABITAT & ECOLOGY

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

Description: In general, tiger beetles show preferences for small patches of dynamic habitats. The Alpine Tiger Beetle, in particular, is typically found in high-elevation, mountainous areas in alpine habitat over 2,700m (8,858 ft) elevation. Despite its general association with alpine habitats, however, it is known to occur in much lower elevation sagebrush as well.

POPULATION TREND

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

Long-term Trend: Unknown

Description: Population trends have not been documented, but are thought to be relatively stable.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Specific threats have not been identified for this species.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Pearson D, Knisley CB, Duran DP, Kazilek CJ. 2015. A field guide to the tiger beetles of the United States and Canada. 2nd Edition. New York (NY): Oxford University Press.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Bruneau Dune Tiger Beetle

Cicindela waynei

Class: Insecta
Order: Coleoptera
Family: Carabidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

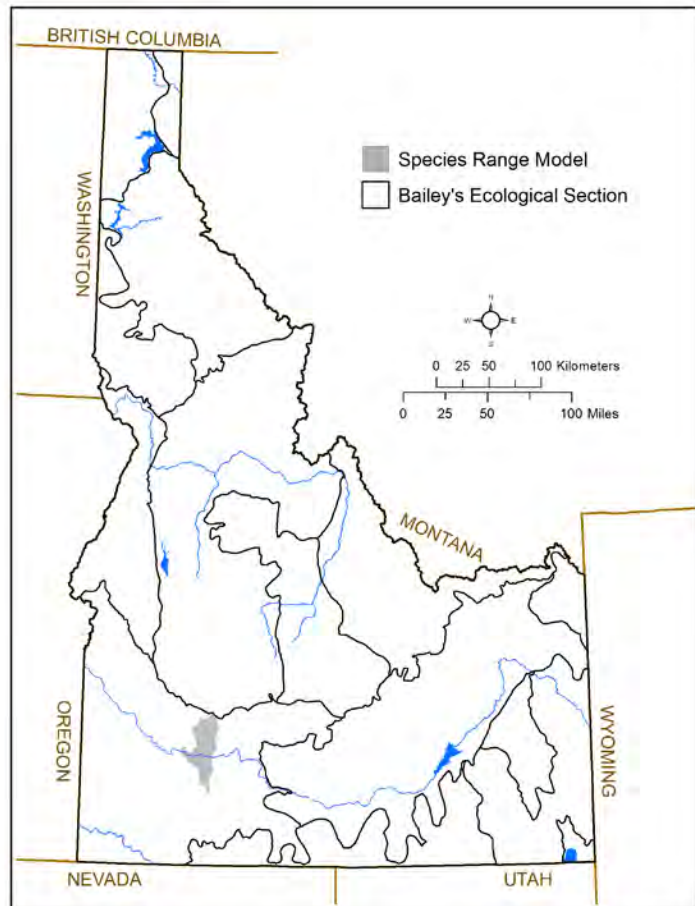
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, range restricted, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,300 km² (~500 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Bruneau Dune Tiger Beetle is found only within Bruneau Dunes State Park and a few adjacent sand-dominated blowouts.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species of ground beetle is a sand-obligate that requires healthy early-seral dune habitats with a mosaic of cobble and open sand. Cobble is required for larval survival and open dunes for breeding and the pursuit of prey.

POPULATION TREND

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

Long-term Trend: Unknown

Description: Although population trend data are unavailable, the proportion of occupied habitat has declined and approximately 75% of previously occupied habitat is now unoccupied.

THREATS

Overall Threat Impact: High

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threats for this species are sand stabilization as a result of nonnative vegetation encroachment and changing precipitation patterns crucial to spring emergence and reproduction. Additional threats include human recreational activities, improper livestock grazing management, and collectors. Threat mitigation is challenging.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. In short, recommended strategies for this species include maintenance of core habitat, potential expansion into restored areas, and assessing the exposure and potential effects of herbicides.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Knisley CB, Kippenhan M, Brzoska D. 2014. Conservation status of United States tiger beetles. *Terrestrial Arthropod Reviews* 7:93–145; Pearson D, Knisley CB, Duran DP, Kazilek CJ. 2015. A field guide to the tiger beetles of the United States and Canada. 2nd Edition. New York (NY): Oxford University Press.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Integrated digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

A Long-horned Beetle

Judolia gaurotoides

Class: Insecta
Order: Coleoptera
Family: Cerambycidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

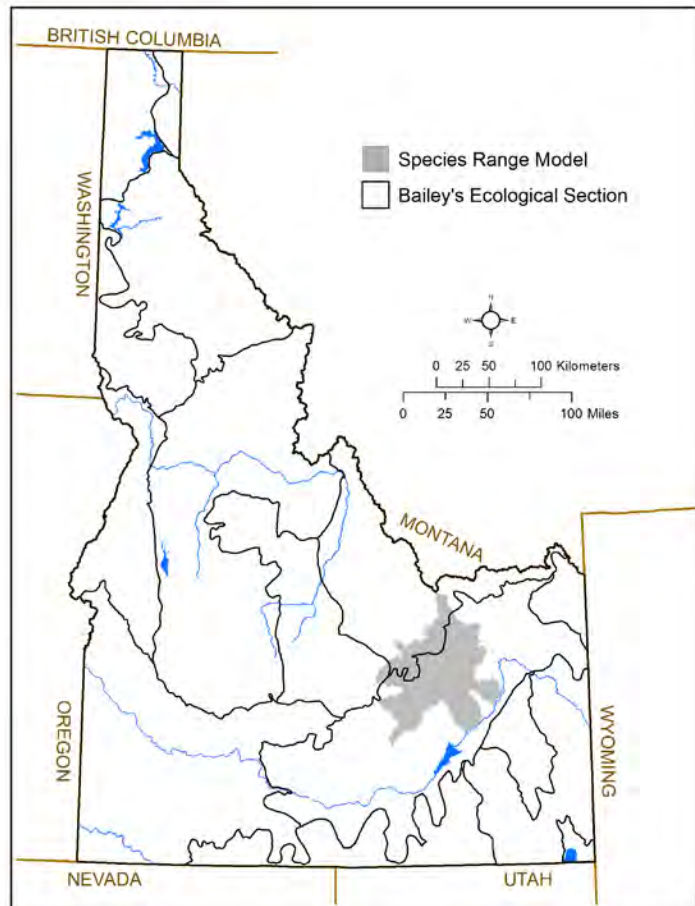
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3Q

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 8,300 km² (~3,200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This long-horned beetle is distributed from the Rockies west to the Sierra Nevada Mountains. There are two distinct subspecies, one is from the west coast area and the other is endemic to the Rocky Mountains. In Idaho, most records of the species are in the southwest. However, recent specimens collected as part of the northern Idaho MBI project need to be checked to determine subspecies status. Due to the habitats where these specimens were collected, they may represent a new species. In general, the species is relatively uncommon, but not rare in the western US.

HABITAT & ECOLOGY

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

Description: Little is known of the species biology but, it appears to be associated with sagebrush, wild buckwheat, and sandworts.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats for this species have not been identified.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on taxonomic work to clarify subspecies status, improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Linsley EG, Chemsak JA. 1976. Cerambycidae of North America. Part VI, No.2: Taxonomy and Classification of the subfamily Lepturinae. Berkeley (CA): University of California Press.

Map Sources: Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38.

A Click Beetle

Beckerus barri

Class: Insecta
Order: Coleoptera
Family: Elateridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

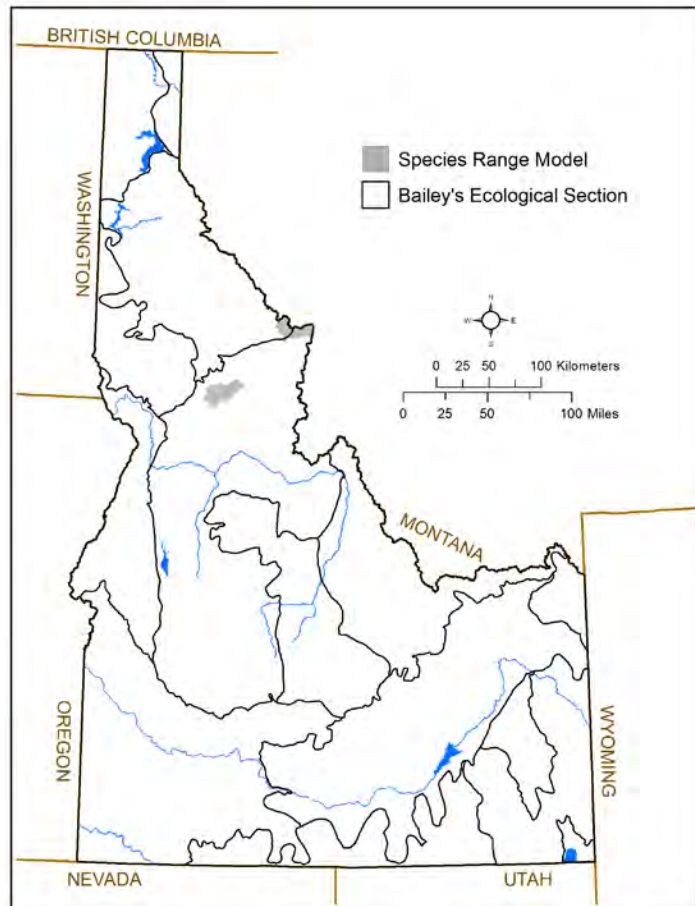
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,000 km² (~400 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This click beetle is an Idaho endemic, known from only 2 localities in Idaho County (O'Hara Campground and the Lolo Pass Visitor Center).

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Little is known about this species biology, however it appears to be a habitat specialist and has only been found in montane bogs.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented. However, as of 1995, the species was assumed to be declining due to habitat loss and degradation.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: As of 1995, the known populations were at risk of habitat loss and/or degradation. At that time, the bog at O'Hara Campground was entirely enclosed by the campground road

Appendix F. Species Conservation Status Assessments

and at risk due to road improvements. At Lolo Pass, one bog (the type locality) had lost at least half of its original size due to roadbuilding and construction of the visitor center, and the remaining habitat was degraded by hydrologic and vegetation changes. The other bog had also been degraded by roadbuilding, but was in better condition than the type locality. No current information is available on the status of these populations.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: LaBonte JR. 1995. Possible Threatened or Endangered Terrestrial Predaceous Coleoptera of the Columbia River Basin. A report prepared for the BLM/USFS Eastside Ecosystem Management Project.

Map Sources: Winton R, Idaho Department of Fish and Game, pers. comm.

A Riffle Beetle

Bryelmis idahoensis

Class: Insecta
Order: Coleoptera
Family: Elmidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

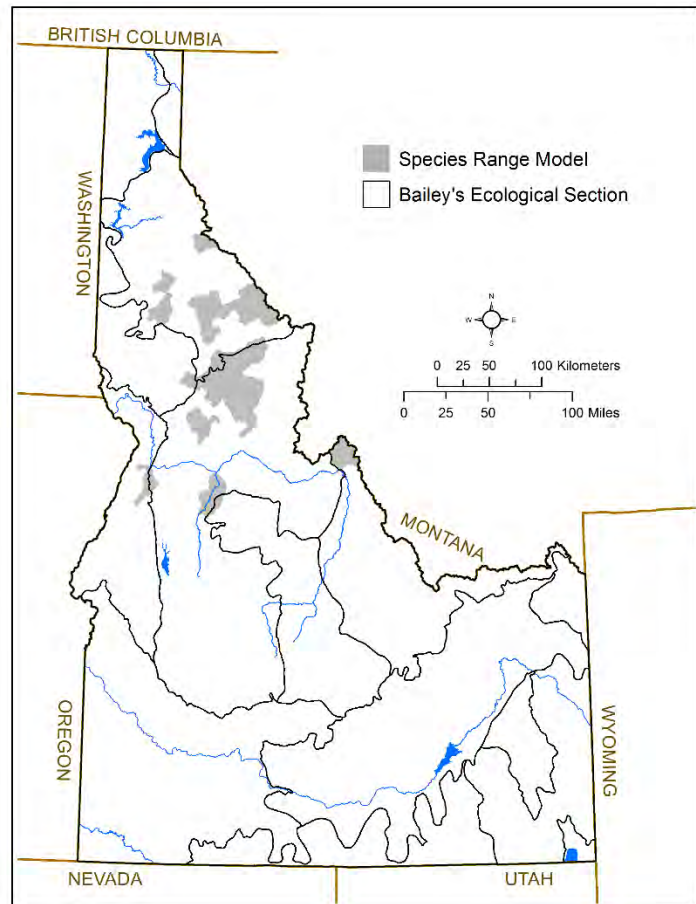
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 9,000 km² (~3,500 mi²)

Key Ecological Sections: Bitterroot Mountains, Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This riffle beetle is a newly described species (2011) that ranges from the St. Joe River in Shoshone County, southeast to the Salmon River in Lemhi County. It is currently considered to be endemic to Idaho, but may be endemic to the Northern Rockies Refugium and also occur in western Montana. When found, specimens were often in large numbers.

HABITAT & ECOLOGY

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

Description: Specimens have been collected in low-order, coniferous closed-canopy streams with clear, cool to cold water and most sites were cold, high-gradient 1st-order rivulets completely concealed by plant cover. It is almost exclusively collected in association with aquatic bryophytes (particularly liverworts) attached to rocks. It has been suggested as one of the more sensitive species dependent on water quality.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats for this species have not been identified, however the primary threat is likely the loss or degradation of clear, cold stream habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Barr CB. 2011. *Breyelmis* Barr (Coleoptera: Elmidae: Elminae), a new genus of riffle beetle with three new species from the Pacific Northwest, USA. The Coleopterists Bulletin 65:197-212.

Map Sources: Essig Museum Online Database. University of California, Berkeley, accessed December 18, 2014; Barr CB. 2011. *Breyelmis* Barr (Coleoptera: Elmidae: Elminae), a new genus of riffle beetle with three new species from the Pacific Northwest, USA. The Coleopterists Bulletin 65:197-212.

A Skiff Beetle

Hydroscapha redfordi

Class: Insecta
Order: Coleoptera
Family: Hydroscaphidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

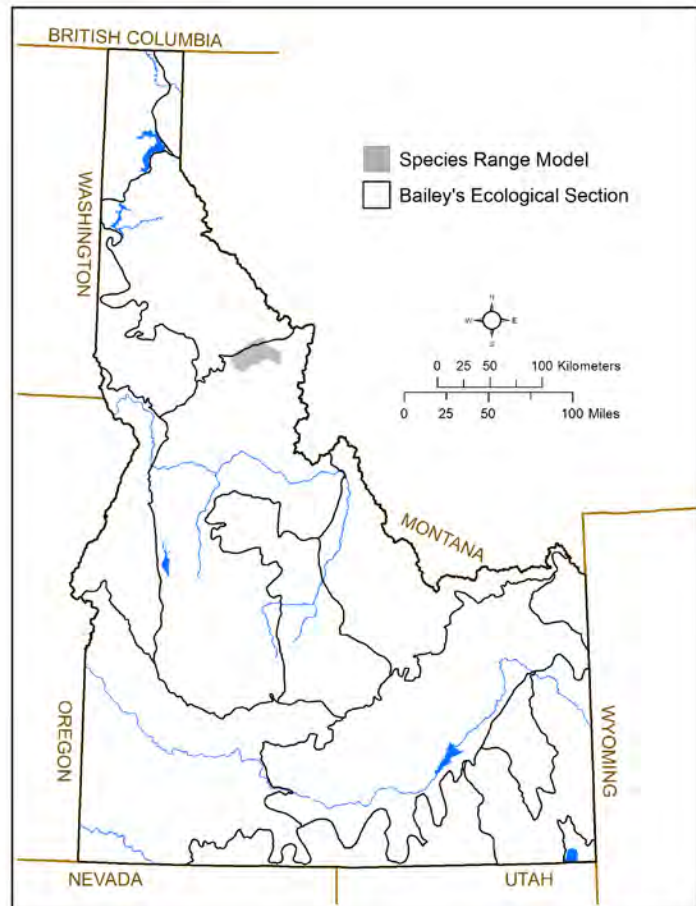
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S1

SGCN TIER: 1

Rationale: Idaho endemic, data deficient, range restricted, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 900 km² (~300 mi²)

Key Ecological Sections: Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This recently described (2010) skiff beetle is known from two disjunct hot springs (Jerry Johnson Hot Springs and Weir Hot Springs) in Idaho County.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This tiny, uncommon species is limited to hot springs and adjacent aquatic habitats where it lives in hygropetric environments on near vertical rock faces in mats of filamentous green algae. Its population density appears to be correlated with algal density.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Species-specific threats have not been identified. However, any loss or degradation of the hot spring habitats will adversely affect the species. For example, piping of hot spring water

Appendix F. Species Conservation Status Assessments

away from its source to create pools for recreational activity removes the cascading effect of the water, which allows for the perpetuation of algal communities. Diminishing ground water sources have also been demonstrated to negatively effect hotspots and, in some instances, has completely and permanently dried up localities of the sister species (*Hydroscapha natans*) in the Bruneau River Valley.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Maier CA, Ivie MA, Johnson JB, Maddison DR. 2010. A New Northern–Most Record for the Family Hydroscaphidae (Coleoptera: Myxophaga), with Description of a New Nearctic Species. *The Coleopterists Bulletin* 64:289–302.

Map Sources: Maier CA, Ivie MA, Johnson JB, Maddison DR. 2010. A New Northern–Most Record for the Family Hydroscaphidae (Coleoptera: Myxophaga), with Description of a New Nearctic Species. *The Coleopterists Bulletin* 64:289–302.

Blind Cave Leiodid Beetle

Glacicavicola bathyscioides

Class: Insecta
Order: Coleoptera
Family: Leiodidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

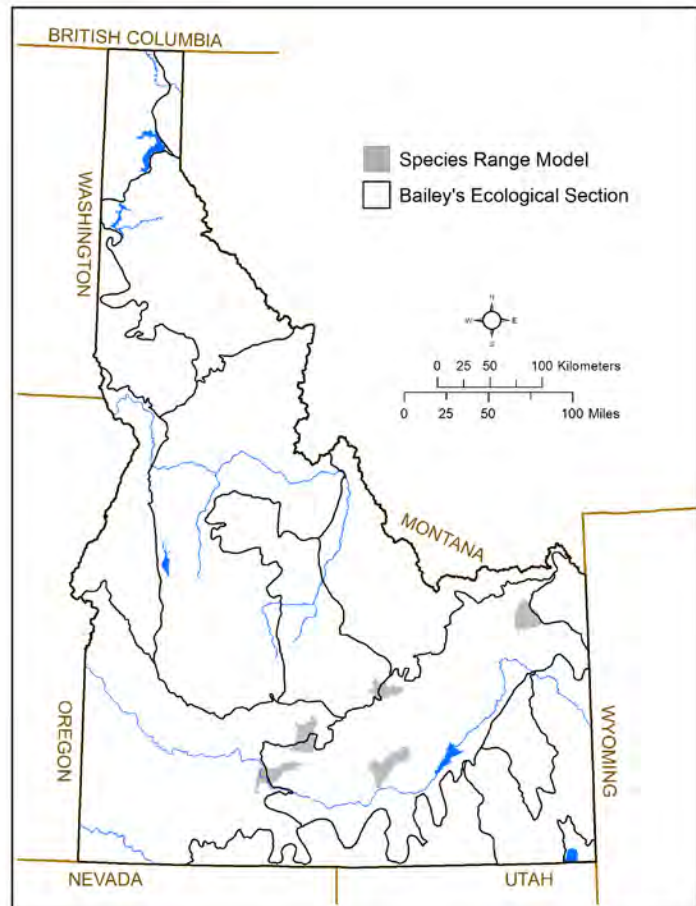
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S1

SGCN TIER: 1

Rationale: Regional endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Blind Cave Leiodid Beetle is known only from Idaho and Wyoming. In Idaho, it occurs in widely separated lava-tube caves on the eastern Snake River Plain in Fremont, Butte, Power, and Lincoln counties. Occurrences in Idaho are primarily from pre-1975, with 3 new records added in 2007 and 1 in 2013. Most lava-tube caves, however, have not been surveyed for invertebrates.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This beetle is an obligate inhabitant of cave habitats. It is found in caves with year-round cold temperatures and moisture, and many of the caves contain perennial ice formations.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Highly vulnerable

Description: The primary threat to this species is the alteration of cave habitat through climate change (affecting temperature and humidity) and human activities.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Westcott RL. 1968. A new subfamily of blind beetle from Idaho ice caves with notes on its bionomics and evolution (Coleoptera: Leiodidae). Los Angeles County Museum Contributions in Science 141:1–14.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Lined June Beetle

Polyphylla devastiva

Class: Insecta
Order: Coleoptera
Family: Scarabaeidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

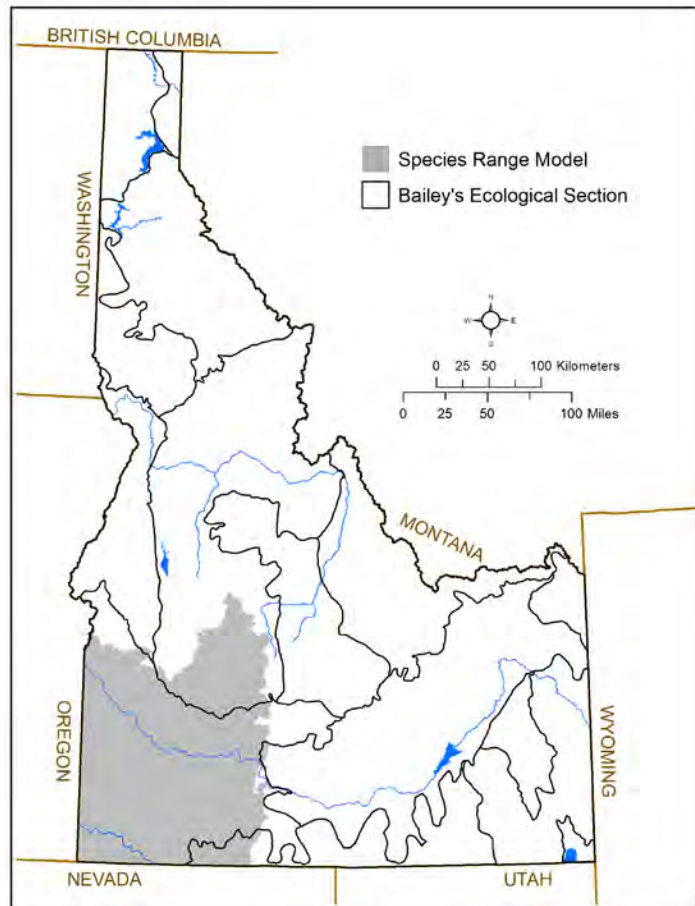
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2

SGCN TIER: 2

Rationale: Idaho endemic, data deficient, restricted range, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 37,100 km² (~14,300 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Lined June Beetle is endemic to southwest Idaho. When originally described in 1966, it was associated with sand systems along the Snake River from Homedale to Bruneau. Due to habitat succession resulting from invasive species encroachment however, it is now only observed at Celebration Park and Bruneau dunes. No formal surveys have been conducted on this species and as a result, its presence at historical sites as well as its population status are unknown.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The Lined June Beetle life cycle is closely tied to healthy early-seral dune habitats with the presence of sand-associated native perennial forbs and grasses. It is rhizophagous, feeding on the roots of a variety of sand-associate plants (primarily grasses) and, like many sand-associate scarabs, is physiologically and behaviorally adapted to sand-dominated habitats and is often unable to survive under surrounding desert conditions.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to this species is the loss of healthy dune habitats due primarily to nonnative vegetation encroachment.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species.

Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Young RM. 1966. A New Species of *Polyphylla* and a Designation of Two Lectotypes (Coleoptera: Scarabaeidae, Melolonthinae). *Journal of the Kansas Entomological Society* 39:233-236.

Map Sources: Young RM. 1966. A New Species of *Polyphylla* and a Designation of Two Lectotypes (Coleoptera: Scarabaeidae, Melolonthinae). *Journal of the Kansas Entomological Society* 39:233-236.

A Mayfly

Ameletus tolae

Class: Insecta
Order: Ephemeroptera
Family: Ameletidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

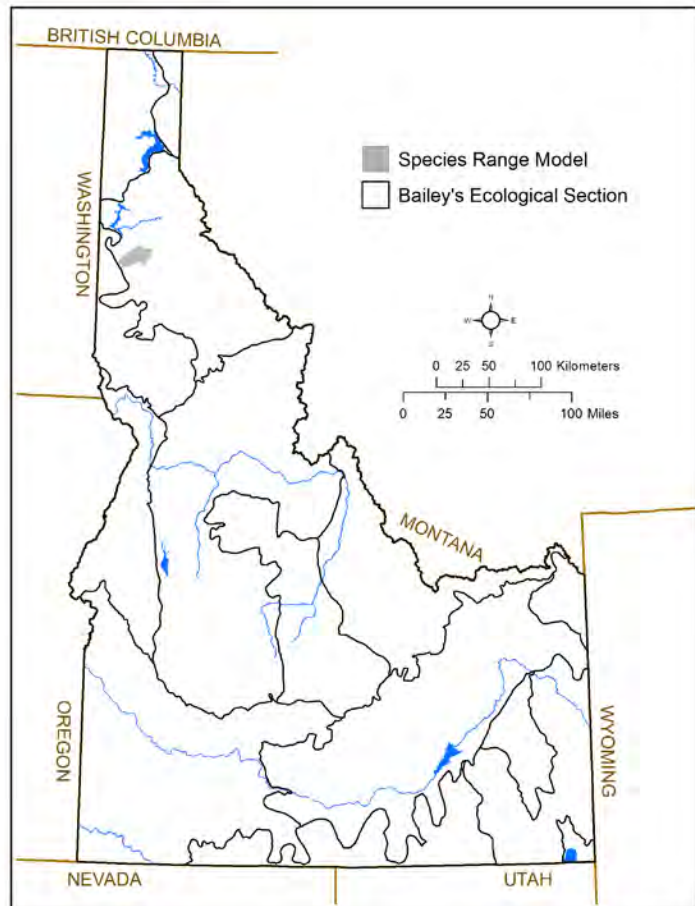
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This mayfly is only known to occur in northeastern Oregon and Idaho. In Idaho, it was collected once in 1966 in Benewah County. Whether it is extant in the state is unknown.

HABITAT & ECOLOGY

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

Description: Specific habitat requirements of this species have not been documented. In general, mayflies in this genus inhabit running waters in mountainous areas, from headwater springs to large rivers.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats to this species have not been identified. In general, mayfly populations are affected by changes in aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Zloty J. 1996. A revision of the Nearctic *Ameletus* mayflies based on adult males, with descriptions of seven new species (Ephemeroptera: Ameletidae). *The Canadian Entomologist* 128:293–346.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Lolo Mayfly

Caurinella idahoensis

Class: Insecta

Order: Ephemeroptera

Family: Ephemerellidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

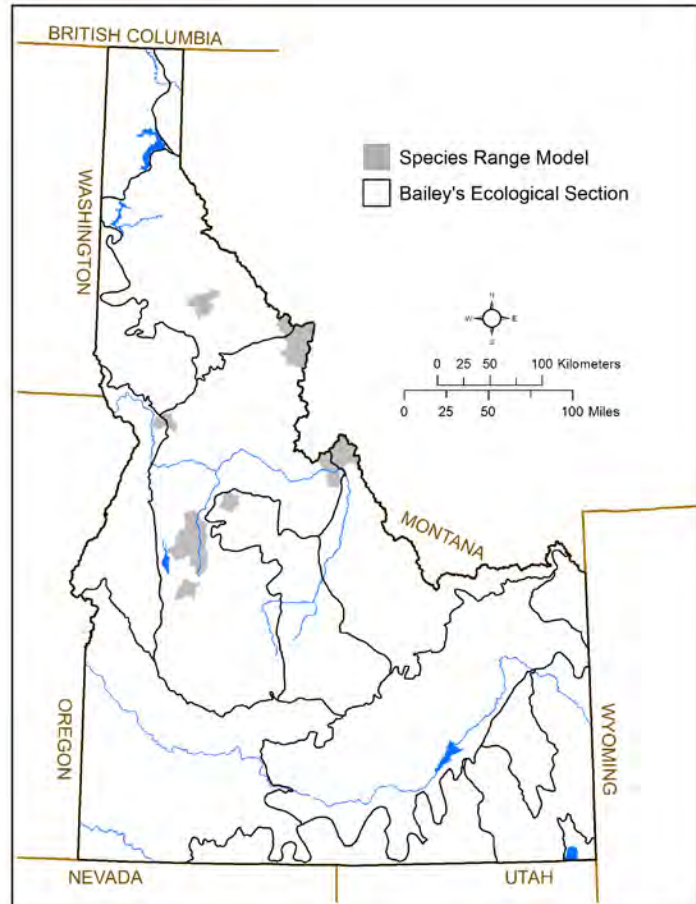
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 7,900 km² (~3,100 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Lolo Mayfly is believed to be endemic to the Northern Rocky Mountain Refugium in Idaho and Montana. In Idaho, it has been documented in less than 20 scattered locations across Clearwater, Idaho, Valley, and Lemhi counties between 1978 and 2005. When found, it is typically in low numbers.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species occurs only in small, fast-flowing, high elevation streams with cobble and gravel substrates and is considered a cold water stenotherm. Larvae have typically been found clinging to rocks at the bases of blue-green algae colonies. The adult flight period is thought to be mid-July to early August.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to this species is thought to be the loss or degradation of source headwater habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Stagliano DM, Stephens GM, Bosworth WR. 2007. Aquatic invertebrate species of concern on USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program and Boise (ID): Idaho Conservation Data Center.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Mayfly

Ephemerella alleni

Class: Insecta

Order: Ephemeroptera

Family: Ephemerellidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

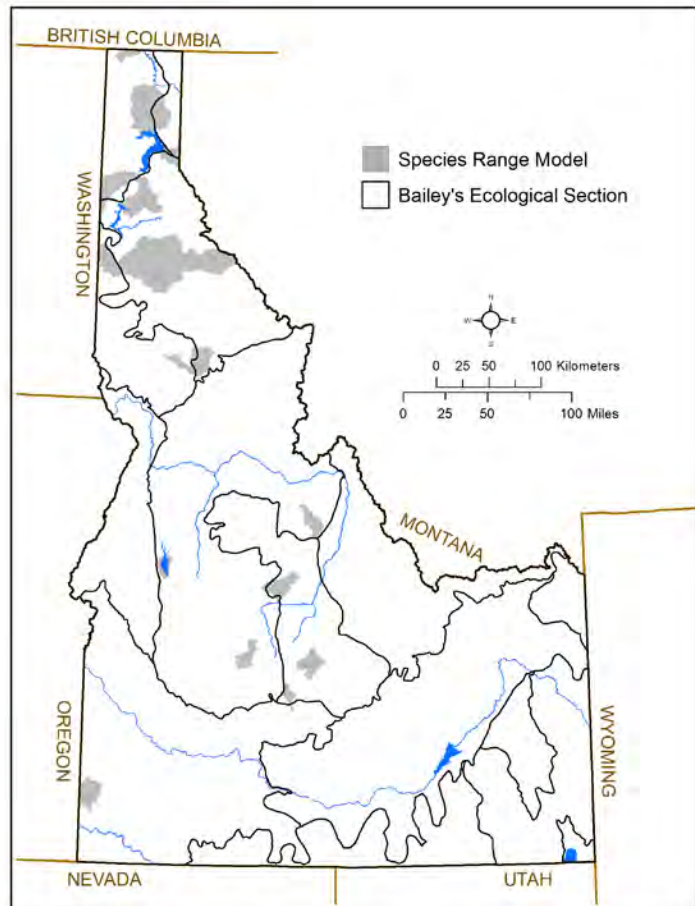
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 19,300 km² (~7,500 mi²)

Key Ecological Sections: Bitterroot Mountains, Challis Volcanics, Flathead Valley, Okanogan Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: This mayfly occurs in the mountainous areas of Idaho, Montana, Oregon, Washington, and Wyoming. In Idaho, occurrences are primarily in the Panhandle, with a few scattered locations in southern Idaho, and mainly from the mid-1990s. The species likely occurs in more areas of central Idaho, but survey data are lacking.

HABITAT & ECOLOGY

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

Description: This species is found in small, headwater streams with cobble and gravel substrates.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: The primary threat to this species is thought to be the loss or degradation of source headwater habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Jacobus LM, Kondratieff BC, Meyer MD, McCafferty WP. 2003. Contribution to the biology and systematics of *Ephemerella alleni* (Ephemeroptera: Ephemerellidae). Pan-Pacific Entomologist 79:207-211.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Jacobus LM, Kondratieff BC, Meyer MD, McCafferty WP. 2003. Contribution to the biology and systematics of *Ephemerella alleni* (Ephemeroptera: Ephemerellidae). Pan-Pacific Entomologist 79:207-211.

A Mayfly

Cinygma dimicki

Class: Insecta

Order: Ephemeroptera

Family: Heptageniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

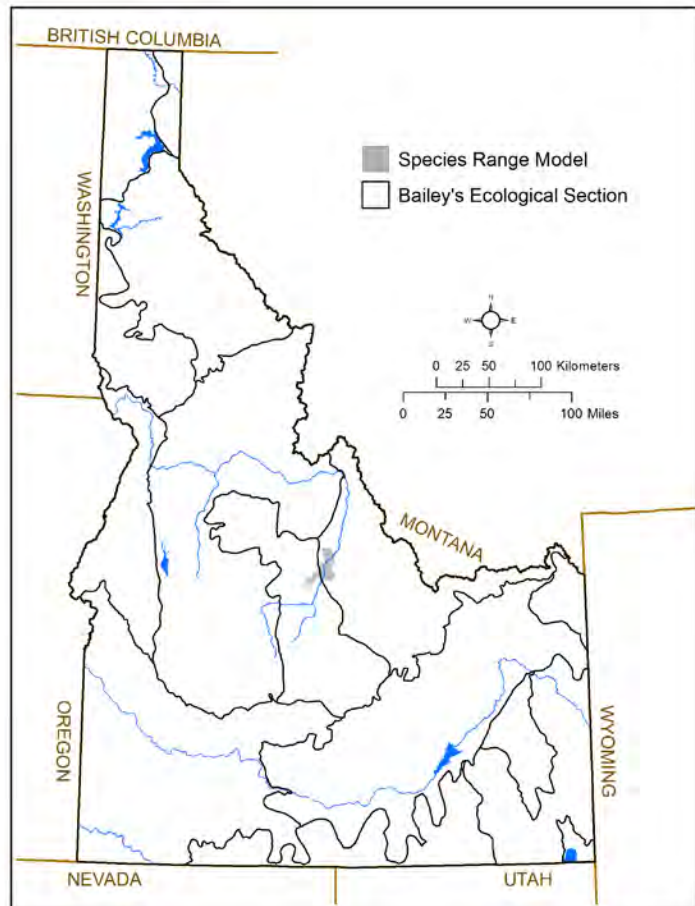
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 500 km² (~200 mi²)

Key Ecological Sections: Beaverhead Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This species of mayfly is known to occur in Idaho, Montana, Oregon, and Washington. However, the only Idaho collection was in 1963 in Custer County and whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Little is known of the species habitat. In general, mayflies in this genus are found in lotic-erosional habitats on wood substrate.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not be identified. In general, mayfly populations are affected by changes to aquatic habitat including alteration of flow patterns, streambed substrates, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Mayfly

Paraleptophlebia falcula

Class: Insecta
Order: Ephemeroptera
Family: Leptophlebiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

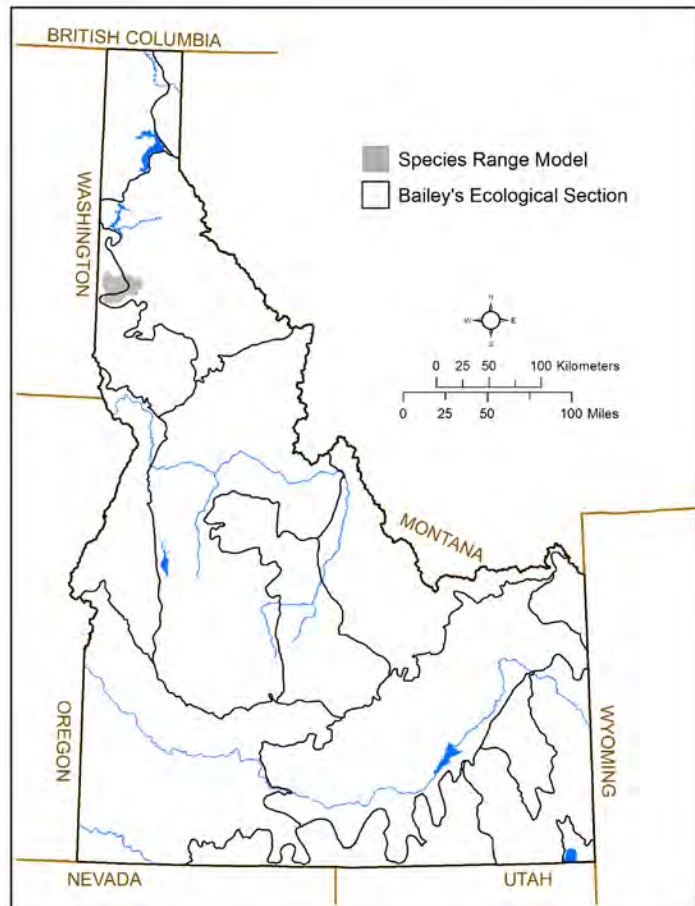
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bitterroot Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: This species is known from limited occurrences in Idaho, Oregon, and Washington. In Idaho, two museum records provide locality of Laird Park (assumed to be in Latah County), but no other location documentation. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Habitat requirements for this species have not been documented. Other species in this genus seem to prefer riffles and slower moving waters or pools.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not be identified. In general, mayfly populations are affected by changes to aquatic habitat including alteration of flow patterns, streambed substrates, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Harper F, Harper PP. 1986. An annotated key to the adult males of the northwestern Nearctic species of *Paraleptophlebia* Lestage (Ephemeroptera: Leptophlebiidae) with the description of a new species. Canadian Journal of Zoology 64:1460–1468.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

A Mayfly

Paraleptophlebia jenseni

Class: Insecta

Order: Ephemeroptera

Family: Leptophlebiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

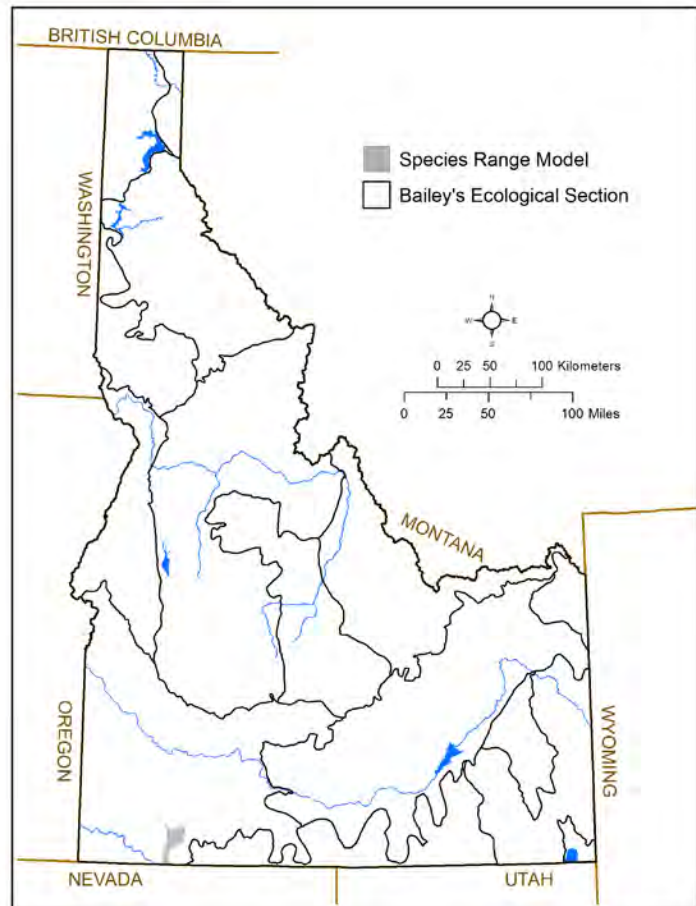
IDAPA: Unprotected Wildlife

G-rank: G2G4

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: This species is known to occur in Idaho and Washington. In Idaho, it has only been collected in Owyhee County in 1965. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Habitat requirements for this species have not been documented. Other species in this genus seem to prefer riffles and slower moving waters or pools.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been identified. In general, mayfly populations are affected by changes to aquatic habitat including alteration of flow patterns, streambed substrates, thermal characteristics, and water quality.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Mayfly

Paraleptophlebia traversae

Class: Insecta

Order: Ephemeroptera

Family: Leptophlebiidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

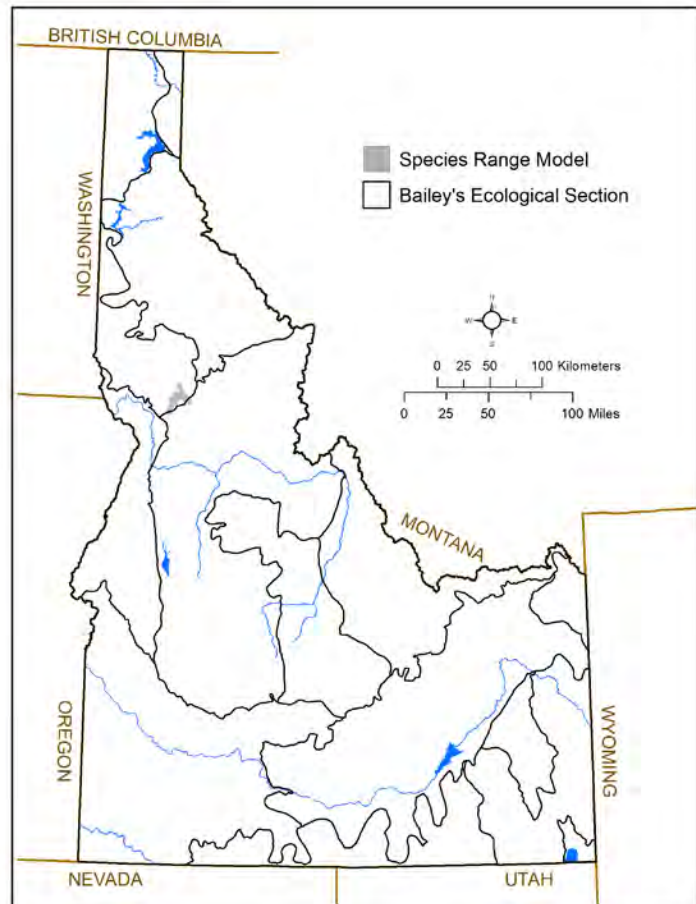
IDAPA: Unprotected Wildlife

G-rank: GH

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 300 km² (~100 mi²)

Key Ecological Sections: Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: This endemic species is known from only one specimen collected near Grangeville, ID in 1907. No recent collections of this species have been documented and whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Habitat requirements for this species have not been documented. Other species in this genus seem to prefer riffles and slower moving waters or pools.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not be identified. In general, mayfly populations are affected by changes to aquatic habitat including alteration of flow patterns, streambed substrates, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Mayfly

Parameletus columbiae

Class: Insecta
Order: Ephemeroptera
Family: Siphonuridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

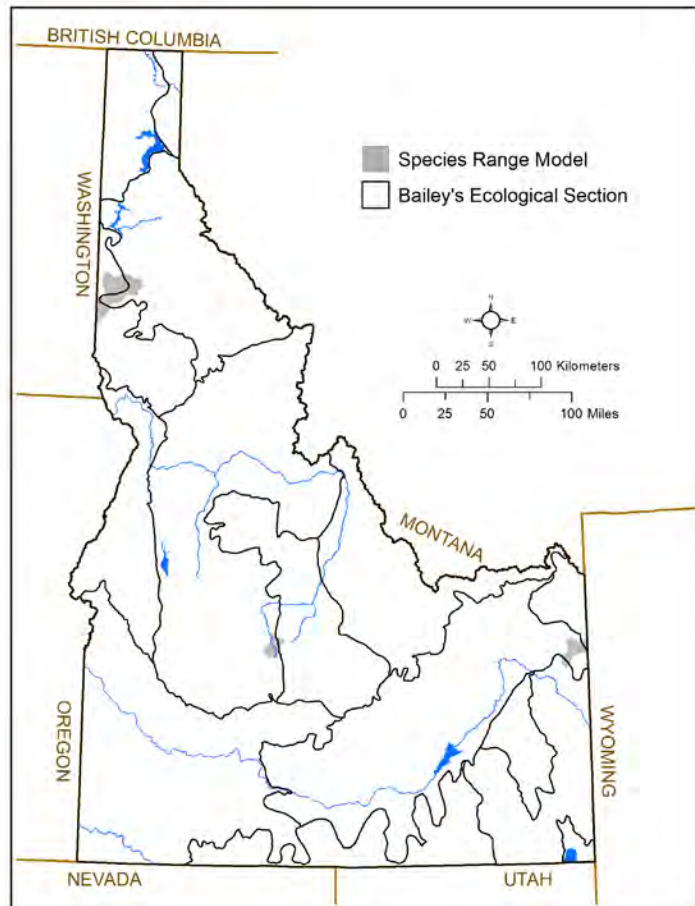
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,700 km² (~700 mi²)

Key Ecological Sections: Bitterroot Mountains, Challis Volcanics, Idaho Batholith, Palouse Prairie, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This mayfly is known from Idaho, Montana, Utah, Wyoming and BC, but no longer occurs at several well documented sites in Utah and has not been collected in Idaho since 1965. The Idaho locations include 4 sites in Latah, Blaine, and Teton counties. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This species is found in shallow, cold water ponds, or at the edges of moderately flowing rivers and streams. Eggs are laid in mid-June, remain dormant during the summer and winter, and hatch within 1 day after the snow melts (typically May).

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not be identified. In general, mayfly populations are affected by changes to aquatic habitat including alteration of flow patterns, streambed substrates, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Miner Bee

Andrena aculeata

Class: Insecta
Order: Hymenoptera
Family: Andrenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

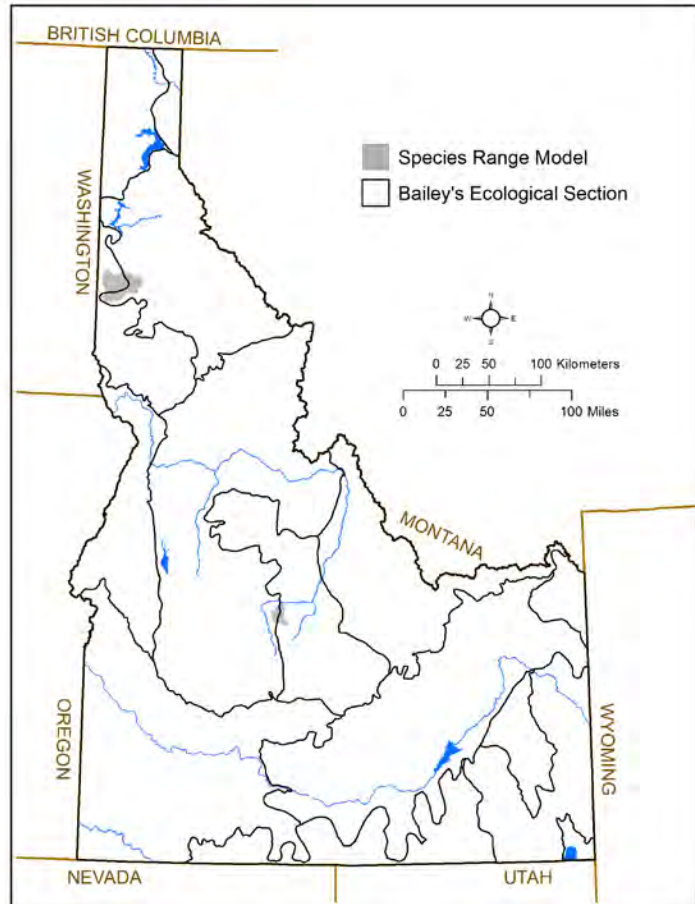
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,000 km² (~400 mi²)

Key Ecological Sections: Bitterroot Mountains, Challis Volcanics, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: This miner bee is endemic to the Columbia Basin. Although not many records of this species exist, it is thought to be fairly widespread in the region.

HABITAT & ECOLOGY

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

Description: All *Andrena* species nest in the ground, typically in sandy soil and often near or under shrubs. This species has been recorded in two habitat types in the region, Engelmann spruce–subalpine fir and agricultural lands. It has a long flight period (May to August) and is found at a wide range of elevations. Flower preferences are unknown, but are assumed to be varied.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not be identified.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council. Washington (DC): National Academies Press.; Shepherd MD, Vaughan DM, Black SH (eds.). Red List of Pollinator Insects of North America, CD-ROM Vers 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Shepherd MD. 2005. Species Profile: *Andrena aculeata*. In Shepherd MD, Vaughan DM, Black SH (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

A Miner Bee

Calliopsis barri

Class: Insecta
Order: Hymenoptera
Family: Andrenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

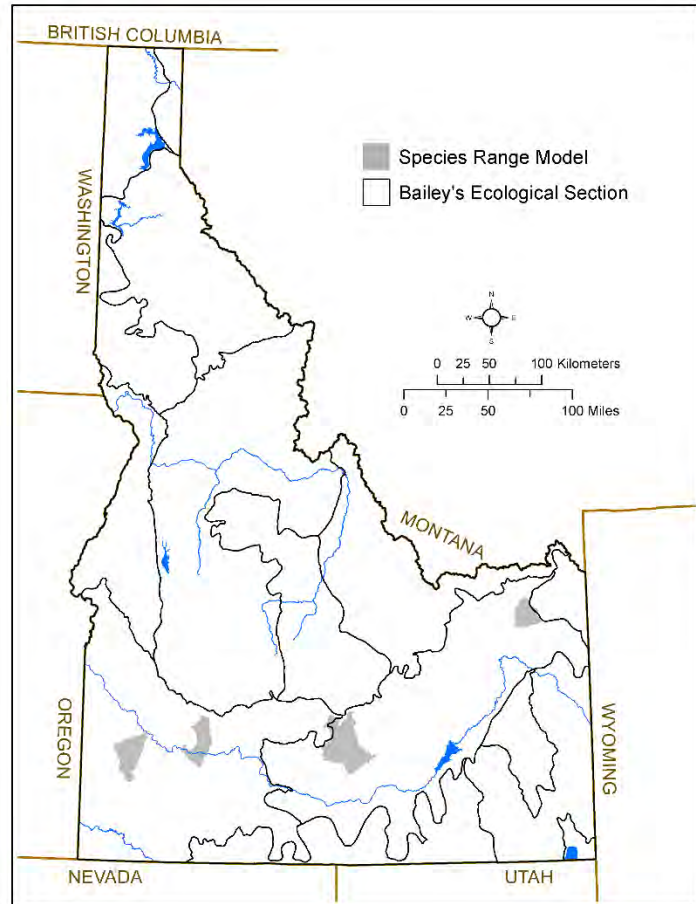
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S1

SGCN TIER: 2

Rationale: Regional endemic, data deficient, important pollinator, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,600 km² (~1,400 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This miner bee is a rare regional endemic known only from sand dunes in Rexburg, Idaho and Sisters, Oregon.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species is known to nest in sand dunes and has been recorded on small-flowered legumes, including picabo milkvetch a narrowly endemic plant in the upper Snake River Plain. It has a short flight season (July). Little else is known of its biology.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Tepedino, VJ and TL Griswold. 1995. The bees of the Columbia Basin. Final report. Portland (OR): USDA Forest Service.; Shepherd MD, Vaughan DM, Black SH (eds.) Red List of Pollinator Insects of North America. CD-ROM Vers 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

A Miner Bee

Perdita barri

Class: Insecta
Order: Hymenoptera
Family: Andrenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

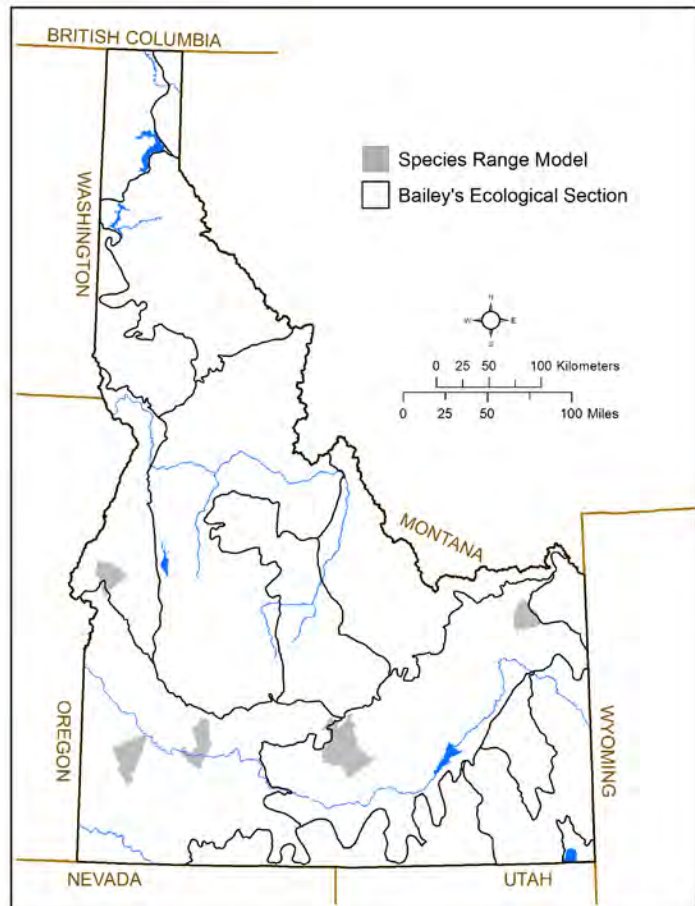
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, restricted range, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 600 km² (~200 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This miner bee is a rare Idaho endemic that has been collected only once, near the town of Midvale. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: The flight period of this species is thought to be June to July and, like all members of the genus, it nests in the ground. Other members of the genus are specialist foragers, thus this species may be dependent on Phacelia flowers. Little else is known of the species biology, ecology, or status.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Tepedino, VJ and TL Griswold. 1995. The bees of the Columbia Basin. Final report. Portland (OR): USDA Forest Service.; Shepherd MD, Vaughan DM, Black SH (eds.) Red List of Pollinator Insects of North America. CD-ROM Vers 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Shepherd MD. 2005. Species Profile: *Perdita barri*. In Shepherd MD, Vaughan DM, Black SH (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

A Miner Bee

Perdita salicis euxantha

Class: Insecta
Order: Hymenoptera
Family: Andrenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

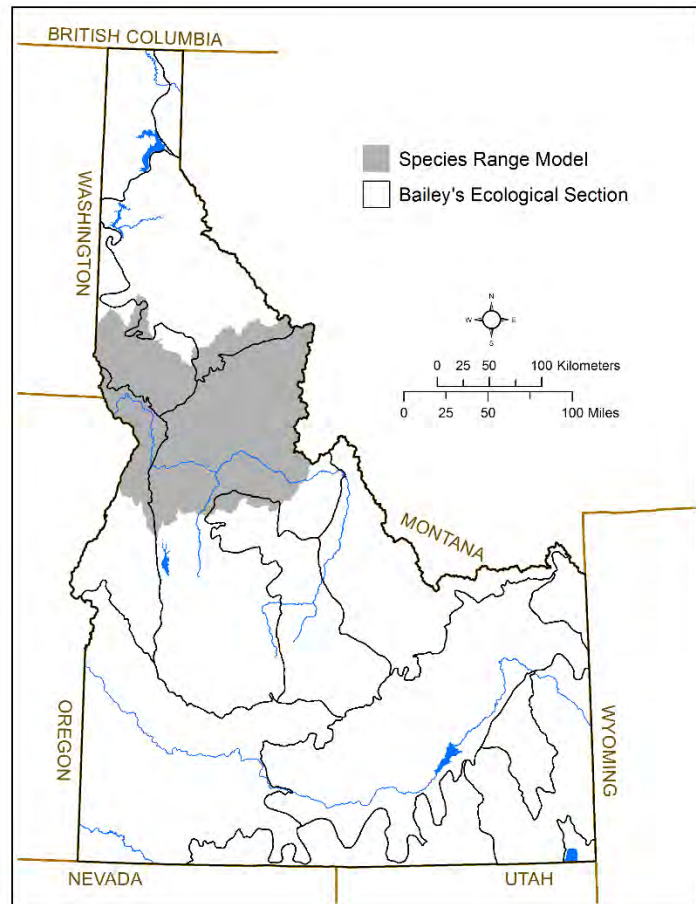
IDAPA: Unprotected Wildlife

G-rank: G5TNR

S-rank: S3

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 31,400 km² (~12,100 mi²)

Key Ecological Sections: Bitterroot Mountains, Blue Mountains, Idaho Batholith, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: This miner bee is a rare endemic to the Columbia River Basin and has been collected only from Kiger Island, Oregon and 2 sites in Idaho (in Idaho and Nez Perce counties).

HABITAT & ECOLOGY

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

Description: The flight period of this species is thought to be June to July and, like all members of the genus, it nests in the ground. Other members of the genus are specialist foragers, and this species is assumed to be dependent on willow flowers. Little else is known of the species biology, ecology, or status.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Tepedino, VJ and TL Griswold. 1995. The bees of the Columbia Basin. Final report. Portland (OR): USDA Forest Service.; Shepherd MD, Vaughan DM, Black SH (eds.) Red List of Pollinator Insects of North America. CD-ROM Vers 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Shepherd MD. 2005. Species Profile: *Perdita salicis euxantha*. In Shepherd MD, Vaughan DM, Black SH (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

A Miner Bee

Perdita wyomingensis sculleni

Class: Insecta
Order: Hymenoptera
Family: Andrenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

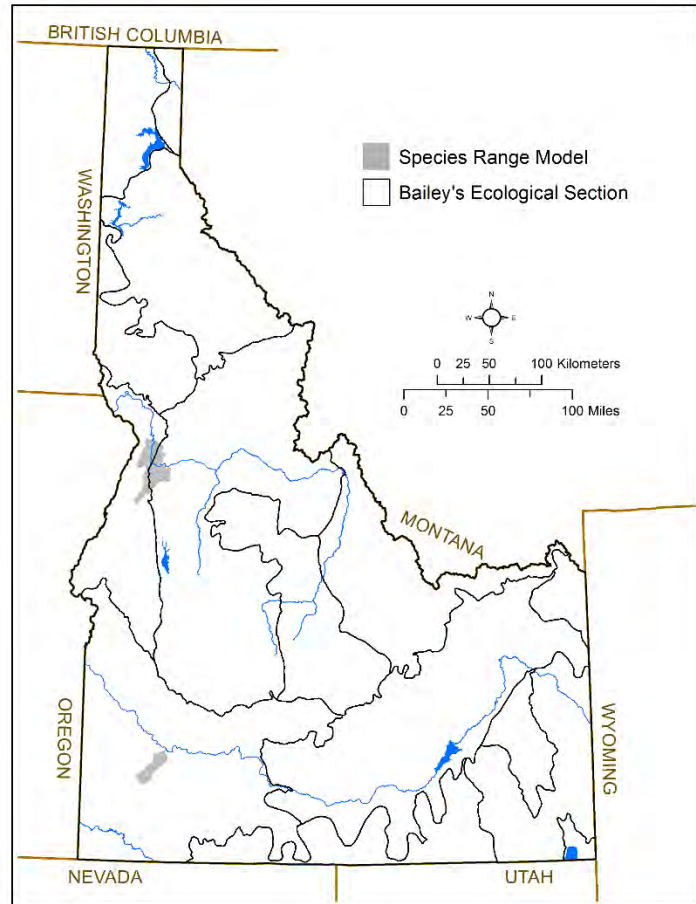
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,200 km² (~800 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This miner bee is endemic to the Columbia River Basin, but is fairly widespread in the region and appears to be relatively common.

HABITAT & ECOLOGY

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

Description: The flight period of this species is thought to be June to July and, like all members of the genus, it nests in the ground. Other members of the genus are specialist foragers, and although it is not known which plant this species forages at, it is thought to be mariposa lily. Little else is known of the species biology, ecology, or status.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Tepedino, VJ and TL Griswold. 1995. The bees of the Columbia Basin. Final report. Portland (OR): USDA Forest Service.; Shepherd MD, Vaughan DM, Black SH (eds.) Red List of Pollinator Insects of North America. CD-ROM Vers 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Shepherd MD. 2005. Species Profile: *Perdita wyomingensis sculleni*. In Shepherd MD, Vaughan DM, Black SH (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Yellow Bumble Bee

Bombus fervidus

Class: Insecta
Order: Hymenoptera
Family: Apidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

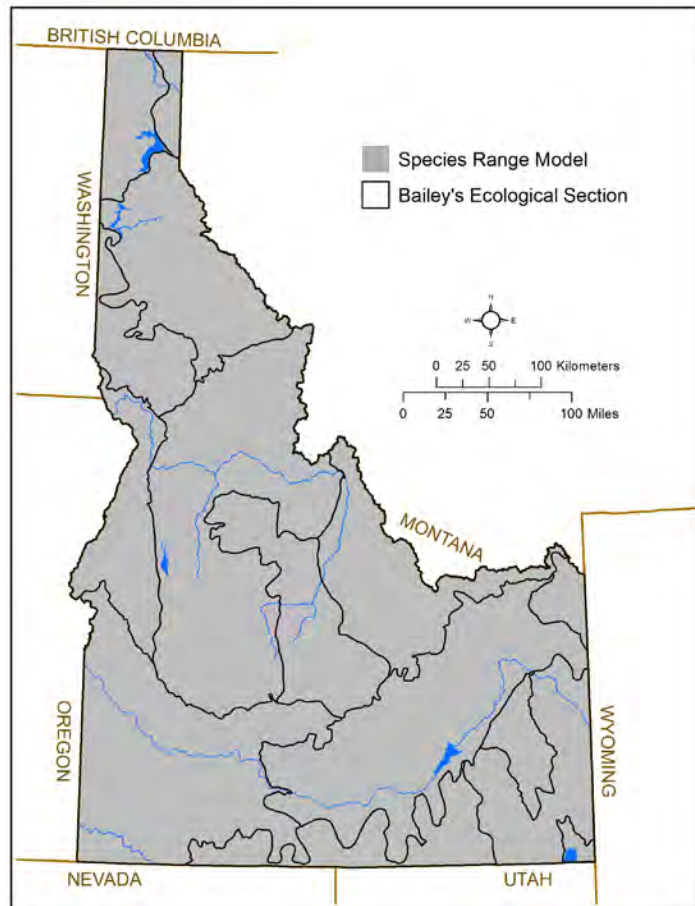
IDAPA: Unprotected Wildlife

G-rank: G4?

S-rank: S5

SGCN TIER: 3

Rationale: Rangewide declines, IUCN Vulnerable, primary pollinator of an ESA-listed plant (*Silene spaldingii*)



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 223,200 km² (~86,200 mi²)

Key Ecological Sections: Blue Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Yellow Bumble Bee is widespread across the US and southern Canada, but is experiencing declines in several parts of its range. Although information is generally lacking in Idaho, this species has been detected in low numbers in Palouse Prairie surveys in 2002 and 2003 (Hatten et al. 2013) and in moderate numbers in two southern Idaho sagebrush steppe communities in Bear Lake and Blaine counties from 2006-2009 (Cook et al. 2011).

HABITAT & ECOLOGY

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

Description: Like most bumble bees, the Yellow Bumble Bee is found in a variety of grasslands and shrublands where an abundance of diverse, native flowers occur. They are generalist foragers, feeding on a large variety of pollen and nectar resources. The Yellow Bumble Bee is known as a pollinator of many flowering plants, including being the only significant pollinator for *Silene spaldingii*, a rare plant currently listed as Threatened under the ESA. At Zumwalt Prairie in northeast Oregon, 90% of pollinators to *S. spaldingii* were Yellow Bumble Bee and 10% were the Mountain Bumble Bee (*Bombus appositus*) (Tubbesing et al. 2014). In contrast to honey bees, bumble bees are annual with only the queens living through the winter. The queens emerge from hibernation in the spring, start foraging, and begin a new nest, typically underground. New queens produced from the colony mate then leave the nest for an overwintering site. The remainder of the colony, including the original queen, die off at the end of the year.

Appendix F. Species Conservation Status Assessments

POPULATION TREND

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Population trends in Idaho have not been documented. However, long-term rangewide declines are evident and, since 2000, more significant declines in portions of the range have been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Not intrinsically vulnerable

Description: Species-specific threats in Idaho have not been identified. However, primary threats are thought to include habitat loss and fragmentation, pesticide use, nonnative pathogens, competition with honey bees, and climate change.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Hatfield R, Colla S, Jepsen S, Richardson L, Thorp R, Jordan SF. 2015. IUCN Assessments for North American *Bombus* spp. Technical Report for the North American IUCN Bumble Bee Specialist Group. Portland (OR): The Xerces Society for Invertebrate Conservation.; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA.; Hatten TD, Looney C, Strange JP, Bosque-Perez NA. 2013. Bumble bee fauna of Palouse Prairie: Survey of native bee pollinators in a fragmented ecosystem. *Journal of Insect Science* 13:1-26; Cook SP, Birch SM, Merickel FW, Lowe CC, Page-Dumroese D. 2011. Bumble bee (Hymenoptera: Apidae) community structure on two sagebrush steppe sites in southern Idaho. *The Pan-Pacific Entomologist* 87:161–171.; Kerr JT, Pindar A, Galpern P, Packer L, Potts SG, Roberts SM, Rasmont P, Schweiger O, Colla SR, Richardson LL, Wagner DL, Gall LF, Sikes DS, Pantoja A. 2015. Climate change impacts on bumblebees converge across continents. *Science* 349:177–180.; Hatfield R, Jepsen S, Mader E, Black SH, Shepherd M. 2012. *Conserving Bumble Bees: Guidelines for creating and managing habitat for America's declining pollinators*. Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org; Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA; Hatten TD, Looney C, Strange JP, Bosque-Perez NA. 2013. Bumble bee fauna of Palouse Prairie: Survey of native bee pollinators in a fragmented ecosystem. *Journal of Insect Science* 13:1-26; Bohart GE, Knowlton GF. 1973. The bees of Curlew Valley (Utah and Idaho). All PIRU Publications, Paper 790. http://digitalcommons.usu.edu/piru_pubs/

Hunt's Bumble Bee

Bombus huntii

Class: Insecta
Order: Hymenoptera
Family: Apidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

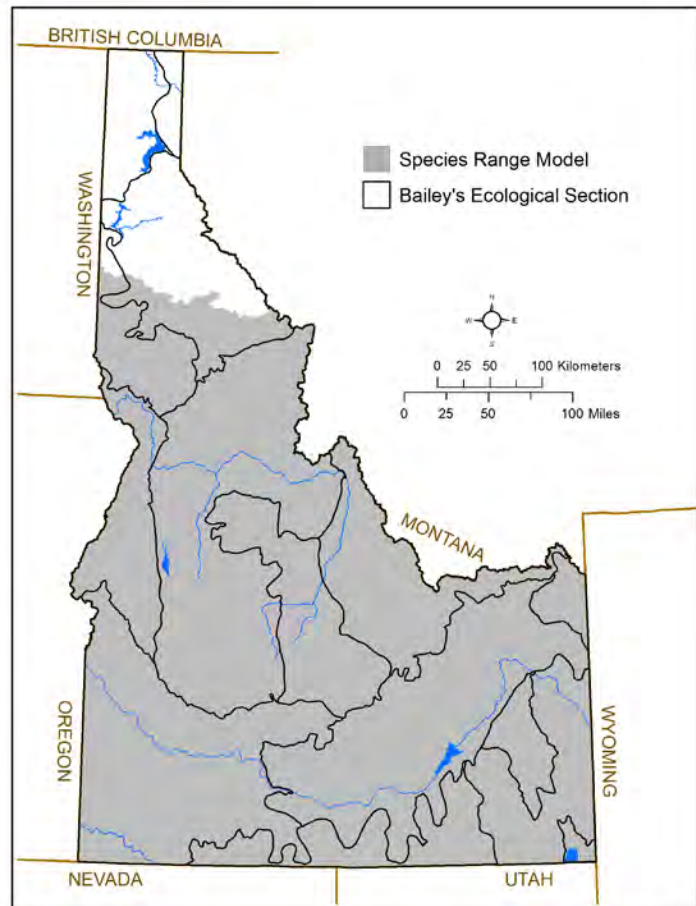
IDAPA: Unprotected Wildlife

G-rank: G5

S-rank: S5

SGCN TIER: 3

Rationale: Data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 204,000 km² (~78,800 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: Hunt's Bumble Bee is widespread across the western US and Canada. Although Idaho-specific information are generally lacking, it has been detected in low numbers on Palouse Prairie remnants in 2003 (Hatten et al. 2013), and on Red Mountain in Bear Lake County in 2006-2009 (Cook et al. 2011). It was not detected in the Cook et al. (2011) targeted survey in Blaine County in 2006-2009.

HABITAT & ECOLOGY

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

Description: Like most bumble bees, Hunt's Bumble Bee is found in a variety of grasslands and shrublands where an abundance of diverse, native flowers occur. They are generalist foragers, feeding on a large variety of pollen and nectar resources. In contrast to honey bees, bumble bees are annual with only the queens living through the winter. The queens emerge from hibernation in the spring, start foraging, and begin a new nest, typically underground. New queens produced from the colony mate then leave the nest for an overwintering site. The remainder of the colony, including the original queen, die off at the end of the year.

POPULATION TREND

Appendix F. Species Conservation Status Assessments

Short-term Trend: Decline 10–30%

Long-term Trend: Unknown

Description: Population trends in Idaho have not been documented. However, long-term rangewide declines appear to be stable to slightly decreasing.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Species-specific threats in Idaho have not been identified. However, primary threats are thought to include commercial collection of queens from the wild, habitat loss and fragmentation, pesticide use, nonnative pathogens, competition with honey bees, and climate change. A recent long-term study of 67 bumblebees in Europe and North America suggests that the southern range limits are shifting northward, in some cases up to 300km (186 mi) and more southern species are shifting to higher elevations in response to climate change.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Hatfield R, Colla S, Jepsen S, Richardson L, Thorp R, Jordan SF. 2015. IUCN Assessments for North American *Bombus* spp. Technical Report for the North American IUCN Bumble Bee Specialist Group. Portland (OR): The Xerces Society for Invertebrate Conservation.; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA; Hatten TD, Looney C, Strange JP, Bosque-Perez NA. 2013. Bumble bee fauna of Palouse Prairie: Survey of native bee pollinators in a fragmented ecosystem. *Journal of Insect Science* 13:1-26.; Hatfield R, Jepsen S, Mader E, Black SH, Shepherd M. 2012. Conserving Bumble Bees: Guidelines for creating and managing habitat for America's declining pollinators. Portland (OR): The Xerces Society for Invertebrate Conservation.; Cook SP, Birch SM, Merickel FW, Lowe CC, Page-Dumroese D. 2011. Bumble bee (Hymenoptera: Apidae) community structure on two sagebrush steppe sites in southern Idaho. *The Pan-Pacific Entomologist* 87:161–171

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA; Hatten TD, Looney C, Strange JP, Bosque-Perez NA. 2013. Bumble bee fauna of Palouse Prairie: Survey of native bee pollinators in a fragmented ecosystem. *Journal of Insect Science* 13:1-26; Bohart GE, Knowlton GF. 1973. The bees of Curlew Valley (Utah and Idaho). All PIRU Publications, Paper 790. http://digitalcommons.usu.edu/piru_pubs/

Morrison's Bumble Bee

Bombus morrisoni

Class: Insecta
Order: Hymenoptera
Family: Apidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

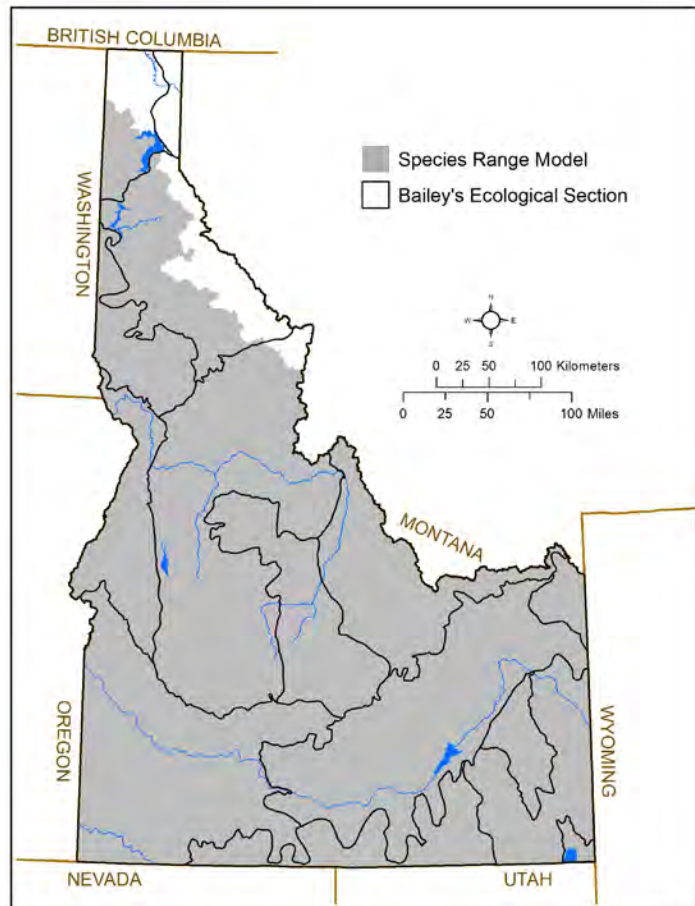
IDAPA: Unprotected Wildlife

G-rank: G4G5

S-rank: S4

SGCN TIER: 1

Rationale: Significant rangewide declines, data deficient, important pollinator, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 205,400 km² (~79,300 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: Morrison's Bumble Bee is widespread across the western US and British Columbia. Although it used to be rather common in southern Idaho, it was not detected in 2006-2009 surveys of 2 sagebrush steppe areas in Bear Lake and Blaine counties (Cook et al. 2011) and is now considered uncommon.

HABITAT & ECOLOGY

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

Description: This species is generally associated with arid environments, predominantly open dry shrub and scrub. Like most bumble bees, they are generalist foragers, feeding on a large variety of pollen and nectar resources. It typically nests underground, but will also use structures. In contrast to honey bees, bumble bees are annual with only the queens living through the winter. The queens emerge from hibernation in the spring, start foraging, and begin a new nest, typically underground. New queens produced from the colony mate then leave the nest for an overwintering site. The remainder of the colony, including the original queen, die off at the end of the year.

POPULATION TREND

Appendix F. Species Conservation Status Assessments

Short-term Trend: Decline 50–70%

Long-term Trend: Unknown

Description: Population trends in Idaho have not been documented and few surveys have been conducted for the species in the state. Rangewide, this species has declined in relative abundance over the past 10 years. Although most declines appear to have been in the interior of the species range (e.g., western Nevada, Four Corners area) other areas seem to be maintaining numbers (e.g., Utah).

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Species-specific threats in Idaho have not been identified. However, primary threats are thought to include habitat loss and fragmentation, pesticide use, nonnative pathogens, competition with honey bees, and climate change. A recent long-term study of 67 bumblebees in Europe and North America suggests that the southern range limits are shifting northward, in some cases up to 300km (186 mi) and more southern species are shifting to higher elevations in response to climate change.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Hatfield R, Colla S, Jepsen S, Richardson L, Thorp R, Jordan SF. 2015. IUCN Assessments for North American *Bombus* spp. Technical Report for the North American IUCN Bumble Bee Specialist Group. Portland (OR): The Xerces Society for Invertebrate Conservation.; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA.; Hatfield R, Jepsen S, Mader E, Black SH, Shepherd M. 2012. Conserving Bumble Bees: Guidelines for creating and managing habitat for America's declining pollinators. Portland (OR): The Xerces Society for Invertebrate Conservation.; Cook SP, Birch SM, Merickel FW, Lowe CC, Page-Dumroese D. 2011. Bumble bee (Hymenoptera: Apidae) community structure on two sagebrush steppe sites in southern Idaho. *The Pan-Pacific Entomologist* 87:161–171

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA.

Western Bumble Bee

Bombus occidentalis

Class: Insecta
Order: Hymenoptera
Family: Apidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

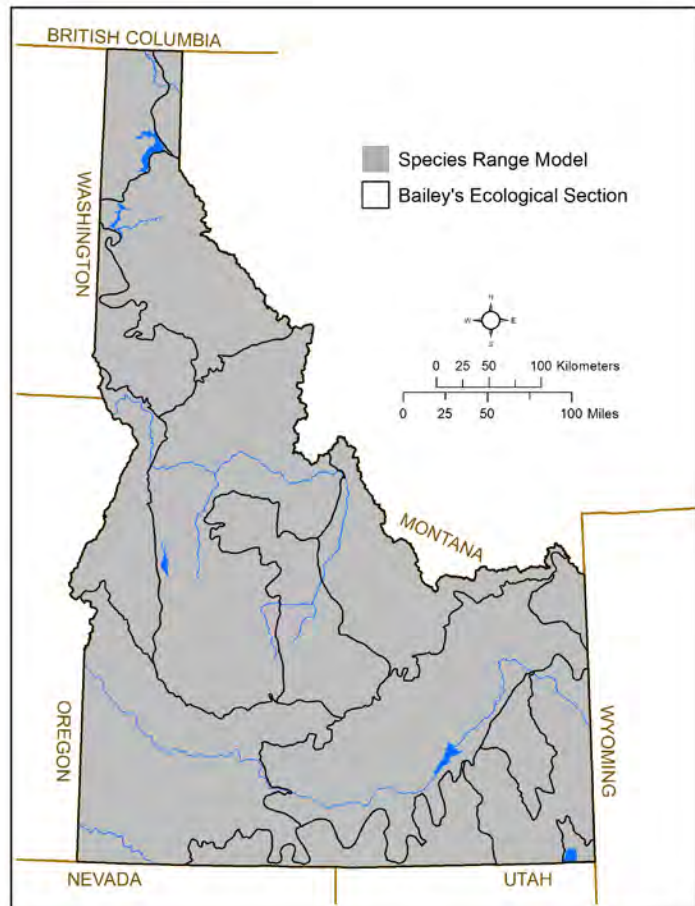
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S3

SGCN TIER: 1

Rationale: Significant rangewide declines, data deficient, important pollinator, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 216,900 km² (~83,700 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, Palouse Prairie, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Western Bumble Bee was once widespread across the western US and Canada. It is now, however, rarely recorded in habitats where it was formerly common, particularly on the western edge of its range from southern British Columbia to central California. In Idaho, Western Bumble Bees were historically documented in many areas of the state. Surveys on the Palouse Prairie in north-central Idaho in 2002-2003 however failed to detect the species as did 2006-2009 surveys in Blaine County. Only 7 were collected in 2006-2009 surveys in Bear Lake County and 3 were documented in the Idaho Panhandle in 2014.

HABITAT & ECOLOGY

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

Description: Like most bumble bees, the Western Bumble Bee is found in a variety of grasslands and shrublands where an abundance of diverse, native flowers occur. They are generalist foragers, feeding on a large variety of pollen and nectar resources and are an important pollinator of agricultural plants (e.g., alfalfa, apples, cherries). In contrast to honey bees, bumble bees are annual with only the queens living through the winter. The queens emerge from hibernation in the spring, start foraging, and begin a new nest, typically underground. New

Appendix F. Species Conservation Status Assessments

queens produced from the colony mate then leave the nest for an overwintering site. The remainder of the colony, including the original queen, die off at the end of the year.

POPULATION TREND

Short-term Trend: Decline 30–50%

Long-term Trend: Unknown

Description: Prior to 1998, the Western Bumble Bee was common and widespread across its range. Since that time, this species has undergone a drastic decline, particularly in southern British Columbia, Oregon, Washington, and central California. Once common populations in these areas have largely disappeared. Viable populations appear to still persist east of the Cascade Mountains and in the Rocky Mountains. Population trends in Idaho have not been documented.

THREATS

Overall Threat Impact: Very High–High

Intrinsic Vulnerability: Highly vulnerable

Description: Species-specific threats in Idaho have not been identified. However, primary threats are thought to include habitat loss and fragmentation, pesticide use, nonnative pathogens, competition with honey bees, and climate change. A recent long-term study of 67 bumblebees in Europe and North America suggests that the southern range limits are shifting northward, in some cases up to 300 km (186 mi) and more southern species are shifting to higher elevations in response to climate change.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

Several subspecies of Western Bumble Bee have been suggested and sometimes this species is considered a subspecies of the Yellow-banded Bumble Bee (*Bombus terricola*) and vice-versa. The species was petitioned for listing under the ESA in September, 2015, and is currently under review by FWS.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe; Hatfield R, Colla S, Jepsen S, Richardson L, Thorp R, Jordan SF. 2015. IUCN Assessments for North American *Bombus* spp. Technical Report for the North American IUCN Bumble Bee Specialist Group. The Xerces Society; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA; Cameron SA, Lozier JD, Strange JP, Koch JB, Cordes N, Solter LF, Griswold TL. 2011. Patterns of widespread decline in North American bumble bees. PNAS 108:662–667; Evans, E., R. Thorp, S. Jepsen, S. H. Black. 2008. Status review of three formerly common species of bumble bee in the subgenus *Bombus*. Portland (OR): The Xerces Society for Invertebrate Conservation.; Hatten TD, Looney C, Strange JP, Bosque-Perez NA. 2013. Bumble bee fauna of Palouse Prairie: Survey of native bee pollinators in a fragmented ecosystem. Journal of Insect Science 13:1-26.; Hatfield R, Jepsen S, Mader E, Black SH, Shepherd M. 2012. Conserving Bumble Bees: Guidelines for creating and managing habitat for America's declining pollinators. Portland (OR): The Xerces Society for Invertebrate Conservation.; Koch JB. 2011. The decline and conservation status of North American bumble bees. Master's Thesis. Logan (UT): Utah State University.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA; Bohart GE, Knowlton GF. 1973. The bees of Curlew Valley (Utah and Idaho). All PIRU Publications, Paper 790. http://digitalcommons.usu.edu/piru_pubs/

Suckley's Cuckoo Bumble Bee

Bombus suckleyi

Class: Insecta
Order: Hymenoptera
Family: Apidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

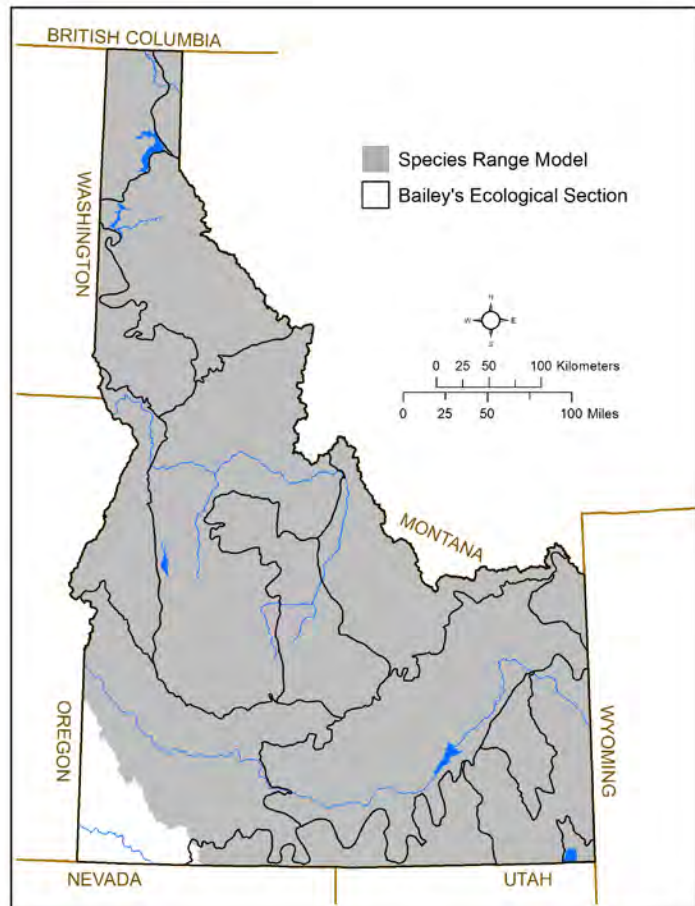
IDAPA: Unprotected Wildlife

G-rank: GU

S-rank: S2

SGCN TIER: 1

Rationale: IUCN Critically Endangered, significant rangewide declines, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 210,500 km² (~81,300 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, Palouse Prairie, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: Suckley's Cuckoo Bumble Bee is, or recently was, widespread in the western US and Canada. Few records document its distribution in Idaho.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species is a cuckoo bee, a term used for a specialized group of bumble bees that have lost the ability to collect pollen and to rear their brood. Thus, these species do not build their own nests, but instead usurp the colonies of other bumble bees. To do this, a mated female enters the nest of another bumble bee, kills or subdues the queen of the colony, and forcibly enslaves (using pheromones and/or physical attacks) the worker bees to feed her and her young. Although Suckley's Cuckoo Bumble Bees have been recorded in the nests of several different bumble bees, the only successful host (i.e., produced adults) is the Western Bumble Bee.

POPULATION TREND

Short-term Trend: Decline 70–80%

Long-term Trend: Unknown

Appendix F. Species Conservation Status Assessments

Description: Population trends in Idaho have not been documented. However, in many parts of its range, a gradual decline in relative abundance in the 1940s has become a much steeper, and significant, decline since the 1970s. These declines are presumably linked to declines of its hosts.

THREATS

Overall Threat Impact: Very High–High

Intrinsic Vulnerability: Highly vulnerable

Description: Given its dependence on Western Bumble Bees, the primary threats for this species are likely due to indirect threats (e.g., disease, habitat loss) resulting in the loss of its hosts.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Haffield R, Colla S, Jepsen S, Richardson L, Thorp R, Jordan SF. 2015. IUCN Assessments for North American *Bombus* spp. Technical Report for the North American IUCN Bumble Bee Specialist Group. Portland (OR): The Xerces Society for Invertebrate Conservation.; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA.; Haffield R, Jepsen S, Mader E, Black SH, Shepherd M. 2012. Conserving Bumble Bees: Guidelines for creating and managing habitat for America's declining pollinators. Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org; Koch J, Strange J, Williams P. 2012. Bumble Bees of the Western United States. Washington (DC): US Forest Service and the Pollinator Partnership, USDA.

A Yellow-masked Bee

Hylaeus lunicraterius

Class: Insecta
Order: Hymenoptera
Family: Colletidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

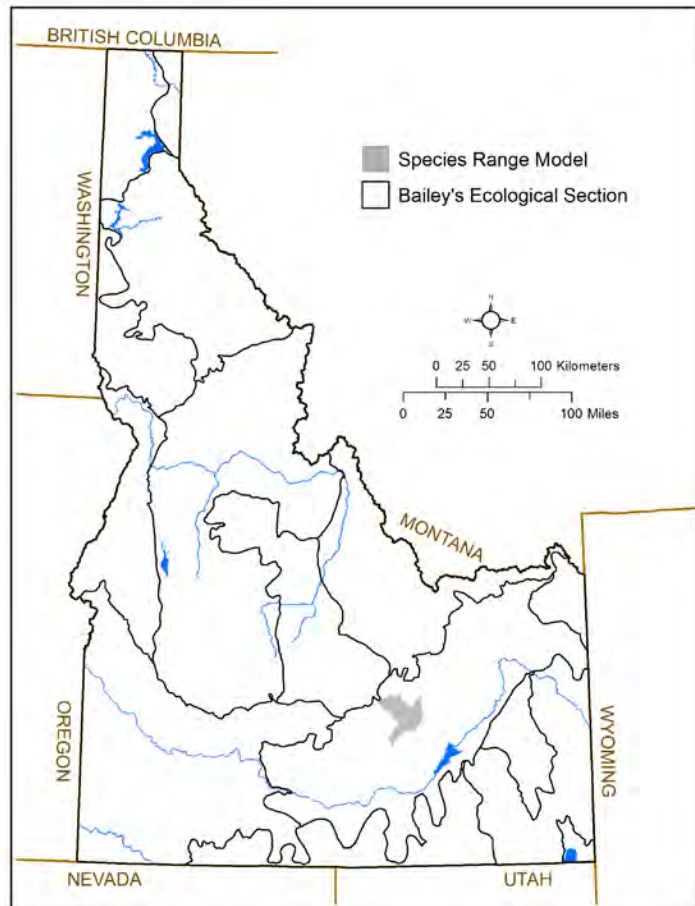
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S3

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,000 km² (~400 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This Yellow-masked Bee is only known from the Craters of the Moon National Monument and Preserve.

HABITAT & ECOLOGY

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

Description: Little is known of this species biology, but it appears to be a generalist forager and may nest in snags or rock crevices.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

CONSERVATION ACTIONS

Appendix F. Species Conservation Status Assessments

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Shepherd MD, Vaughan DM, Black SH (Eds). 2005. Red List of Pollinator Insects of North America, Portland, OR. The Xerces Society for Invertebrate Conservation.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

A Leafcutting Bee

Ashmeadiella sculleni

Class: Insecta
Order: Hymenoptera
Family: Megachilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

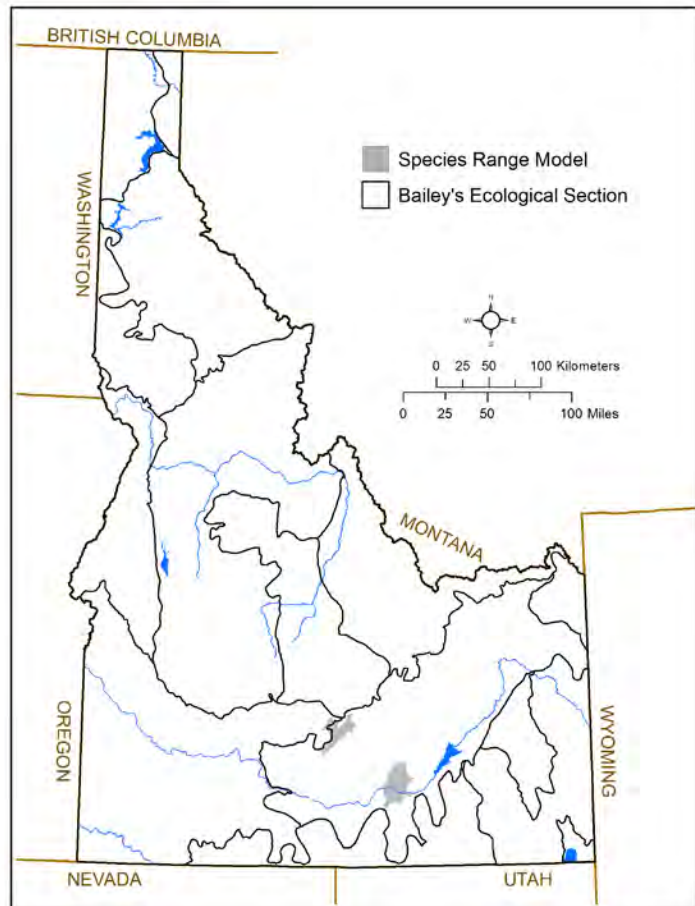
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,300 km² (~500 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: This leafcutting bee is known from only a few locations in Oregon, Nevada, and Idaho (2 observations in Lincoln and Blaine counties). Given the distance between occurrences, it is possible that this bee is more widely distributed.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Little is known of this species biology but, bees in this genus tend to prefer dry desert environments and this species appears to be a specialist forager on flowers in the genus *Penstemon*. Nesting is thought to occur in snags and stumps.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Shepherd MD, Vaughan DM, Black SH (eds.) Red List of Pollinator Insects of North America, CD-ROM Vers 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.

A Mason Bee

Hoplitis orthognathus

Class: Insecta
Order: Hymenoptera
Family: Megachilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

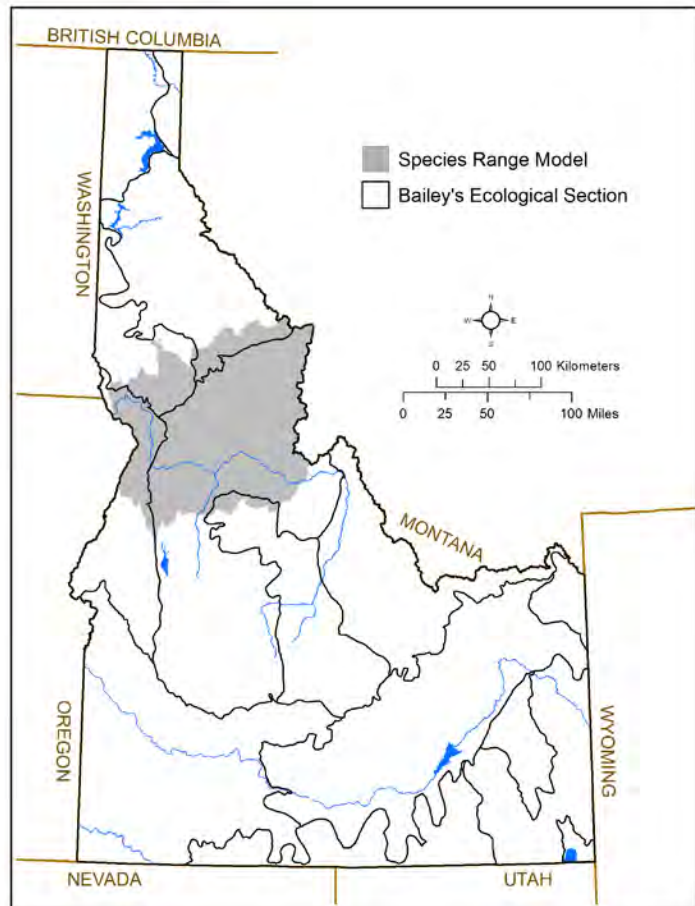
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S4

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 27,700 km² (~10,700 mi²)

Key Ecological Sections: Bitterroot Mountains, Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This Mason bee is endemic to the Columbia River Basin and has been found in only 3 locations (Baker County, Oregon, Asotin County, Washington, and Idaho County, Idaho).

HABITAT & ECOLOGY

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

Description: This species has been found in ponderosa pine and Idaho fescue grasslands. Although little is known of its nesting and foraging needs, other members of this genus are generalists and it is likely that this species forages on a range of plants. Records indicate its flight period is June–July.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Shepherd MD, Vaughan DM, Black SH (Eds). 2005. Red List of Pollinator Insects of North America, Portland, OR. The Xerces Society for Invertebrate Conservation.

Map Sources: Shepherd MD. 2005. Species Profile: *Hoplitis orthognathus*. In Shepherd MD, Vaughan DM, Black SH (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

A Mason Bee

Hoplitis producta subgracilis

Class: Insecta
Order: Hymenoptera
Family: Megachilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

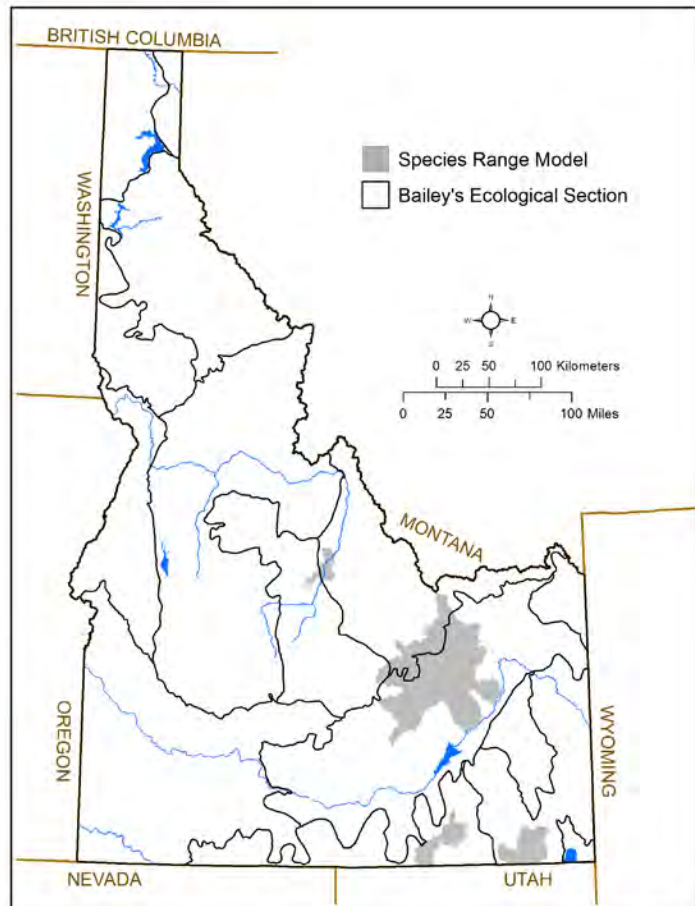
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S4

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 11,000 km² (~4,200 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: This subspecies is a solitary bee endemic to the Columbia Basin. It appears to be fairly widespread in the region but the limits of its distribution are uncertain.

HABITAT & ECOLOGY

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

Description: This subspecies has been found in a range of habitats including ponderosa pine, Engelmann spruce, Idaho fescue, and agriculture. Although little is known of its nesting and foraging needs, other members of this genus are generalists and it is likely that this subspecies forages on a range of plants. Based on records, it appears the flight season is July to August.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented. Based on the number of sites and range of habitats this species has been documented in, it is probably more secure than many of the other endemic bees in the region.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Shepherd MD, Vaughan DM, Black SH (Eds). 2005. Red List of Pollinator Insects of North America, Portland, OR. The Xerces Society for Invertebrate Conservation.; Michener CD. 1947. A revision of the American species of *Hoplitis* (Hymenoptera, Megachilidae). Bulletin of the American Museum of Natural History 89:257-318.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Hampton N. 2005. Insects of the Idaho National Laboratory: A compilation and review. In: Shaw NL, Pellant M, Monsen SB, comps. Sage-grouse habitat restoration symposium proceedings, USDA Forest Service, RMRS-P38.

A Miner Bee

Hesperapis kayella

Class: Insecta
Order: Hymenoptera
Family: Melittidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

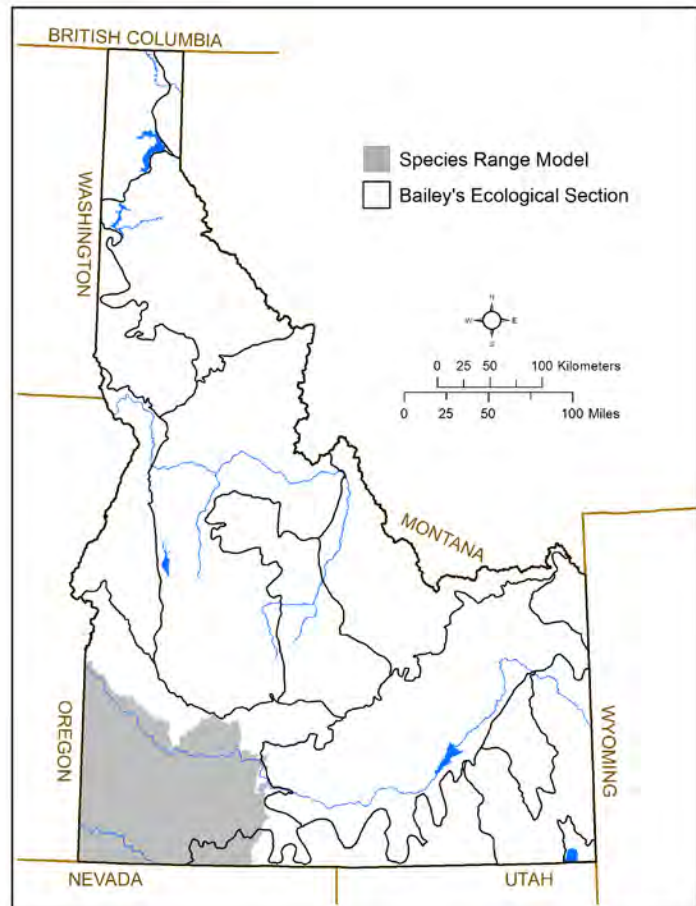
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 24,700 km² (~9,500 mi²)

Key Ecological Sections: Northwestern Basin and Range, Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: This Miner bee is endemic to the Columbia River Basin and is known from only 4 locations (1 in Owyhee County, Idaho, and 3 in Washoe County, Nevada).

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Little is known of this species biology, however it appears to be a foodplant specialist on plants in the genus *Tiquilia*, is thought to nest in the ground in sandy river-bottom soils, and has a short flight season (June).

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Shepherd MD, Vaughan DM, Black SH (Eds). 2005. Red List of Pollinator Insects of North America, Portland, OR. The Xerces Society for Invertebrate Conservation.

Map Sources: Shepherd MD. 2005. Species Profile: *Hesperapis kayella*. In Shepherd MD, Vaughan DM, Black SH (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland (OR): The Xerces Society for Invertebrate Conservation.

A Grammid Moth

Grammia eureka

Class: Insecta
Order: Lepidoptera
Family: Erebidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

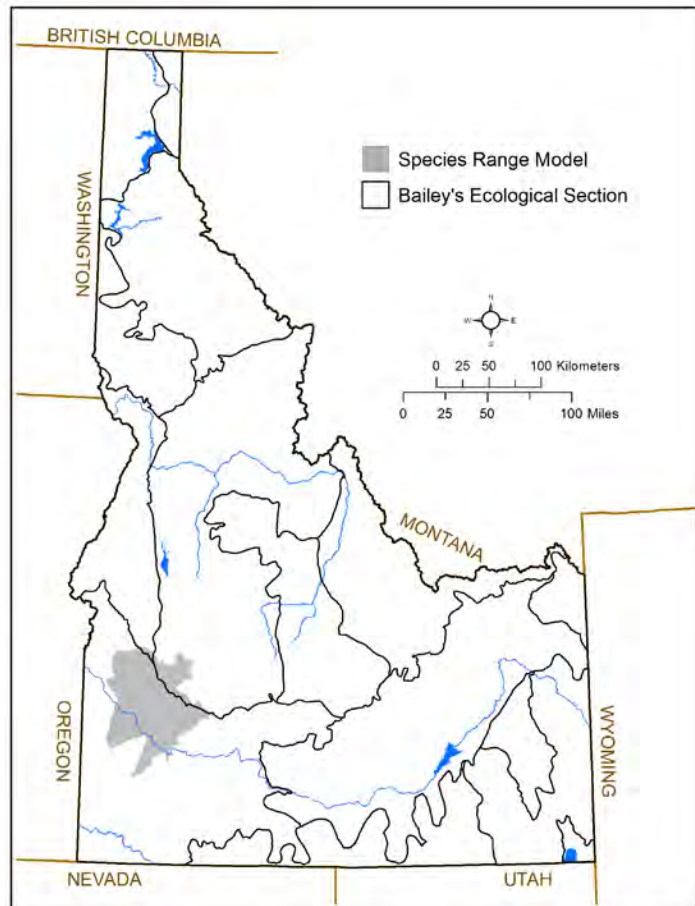
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 7,000 km² (~2,700 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This recently described (2007) moth is known only from two historical locations, one in central Utah and one in southwestern Idaho (Ada County). No occurrences of the species have been recorded since the type material was collected in the early 1900s and the Idaho location is somewhat uncertain. Whether the species is extant in the state is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Little is known of this species biology. Collection dates indicate it has an early flight period (April – May) and may be diurnal. Habitat is unknown.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been identified.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Pacific Northwest Moth Database. 2014. [Accessed Oct–Dec, 2014] pnwmoths.biol.wvu.edu; Schmidt BC. 2009. Taxonomic revision of the genus *Grammia* Rambur (Lepidoptera: Noctuidae: Arctiinae). *Zoological Journal of the Linnean Society* 156:507–597.

Map Sources: Schmidt BC. 2009. Taxonomic revision of the genus *Grammia* Rambur (Lepidoptera: Noctuidae: Arctiinae). *Zoological Journal of the Linnean Society* 156:507–597; Pacific Northwest Moth Database. 2014. [Accessed Oct–Dec, 2014] pnwmoths.biol.wvu.edu

Johnson's Hairstreak

Callophrys johnsoni

Class: Insecta
Order: Lepidoptera
Family: Lycaenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

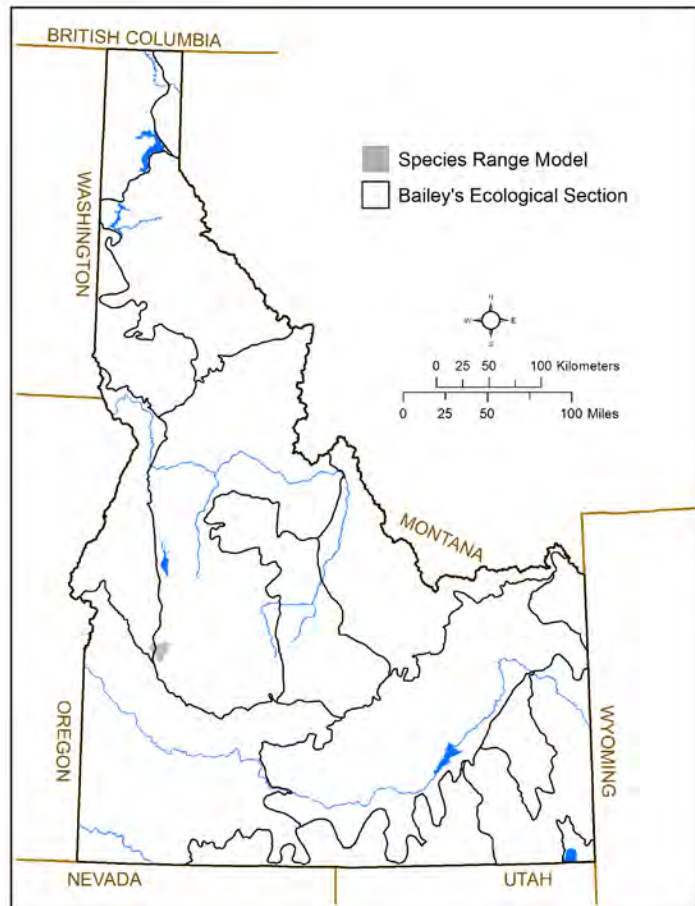
IDAPA: Unprotected Wildlife

G-rank: G3G4

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient, rangewide declines, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 500 km² (~200 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The historic range of Johnson's Hairstreak included much of the western US, from southern British Columbia to central California. Its current range however, is uncertain and is thought to be localized and scarce. In Idaho, there is one known disjunct population along Hells Canyon in eastern Oregon and Adams County, Idaho, and another population near the town of Horseshoe Bend, Boise County. Another population in Whitman County, Washington is thought to extend north and east into Idaho, but no observations in this area of Idaho have yet been recorded. Abundances tend to be highly variable between years with few adults recorded most years.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This species depends on coniferous forests that contain dwarf mistletoes (genus *Arceuthobium*), typically old-growth and late successional second growth western hemlock and firs (but the eastern Washington population has been found in ponderosa pine). It spends much of its time in the forest canopy, thus likely contributing to the rarity of sightings.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Appendix F. Species Conservation Status Assessments

Description: Although population trends have not been documented, the range of the species appears to be declining. Prior to 1900, this butterfly was thought to occur throughout much of the old-growth coniferous forests in the Pacific Northwest. Most records of the species are from before the 1970s and 1980s.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Although species-specific threats in Idaho have not been identified, the primary threats to this species are thought to include logging of old growth forests, hybridization with the Thicket Hairstreak, and use of insecticides, predominantly Btk, a Lepidoptera-specific pesticide used to treat defoliators (Btk).

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Miller JC, Hammond PC. 2007. Butterflies and Moths of Pacific Northwest Forests and Woodlands: Rare, endangered, and management sensitive species. Forest Health Technology Enterprise Team, USDA Forest Service, Washington, DC; Hammond PC. 1994. Rare butterfly assessment for the Columbia River Basin in the Pacific Northwest. Eastside Ecosystems Management Strategy Project, part of the Interior Columbia Basin Ecosystem Management Project. [Accessed Feb 13, 2015] www.icbemp.gov/science/hammond2.pdf; Xerces Society. 2005. Fact sheet for the Johnson's Hairstreak (*Callophrys johnsoni*). [Accessed Feb 19, 2015] www.xerces.org/johnsons-hairstreak; Pacific Northwest Moth Database. 2014. [Accessed Oct-Dec, 2014] pnwmoths.biol.wvu.edu

Map Sources: Lepidopterists' Society Season Summary database. [Accessed March 18, 2015].; Lotts K, Naberhaus T, coordinators. 2015. Butterflies and Moths of North America. [Accessed November 2014]. www.butterfliesandmoths.org.

Beartooth Copper

Lycaena phlaeas arctodon

Class: Insecta
Order: Lepidoptera
Family: Lycaenidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

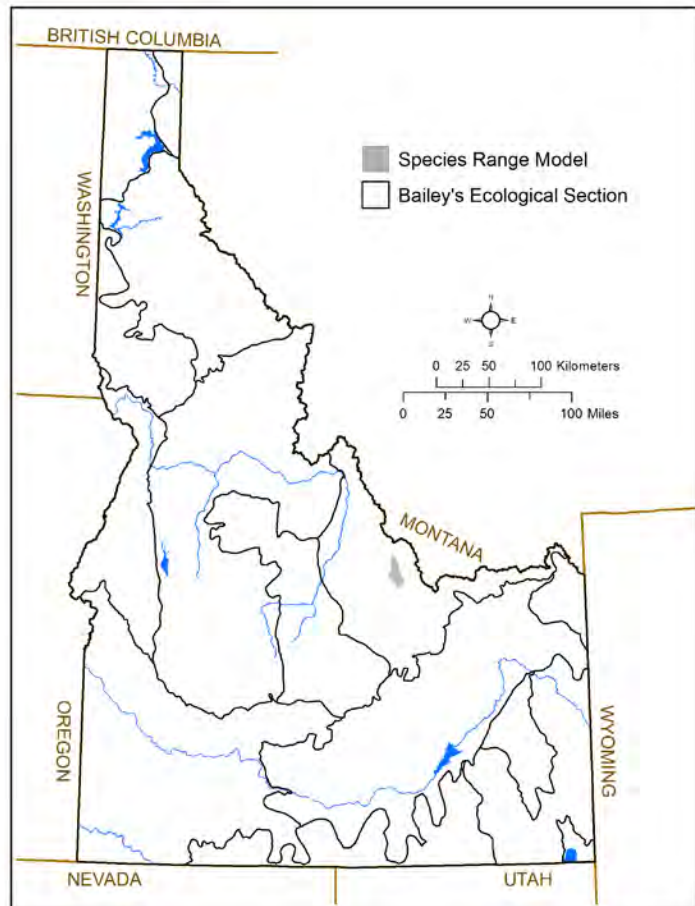
IDAPA: Unprotected Wildlife

G-rank: G5T3T5

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 300 km² (~100 mi²)

Key Ecological Sections: Beaverhead Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Beartooth Copper is endemic to the northern Rocky Mountains and is currently known from several scattered areas in Montana, Wyoming, and Idaho. In Idaho, it has only been recorded at Meadow Creek Lake, approximately 6 km (4 mi) west of Gilmore, but it likely occurs elsewhere in contiguous areas of appropriate habitat. Generally considered rare, it can be moderately common once the correct habitat has been located.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: A high-elevation species, the Beartooth Copper is found in open alpine meadows and rocky slopes at or above treeline. It is a foodplant specialist on sorrel (*Rumex* spp.) and adults do not stray more than 4.5–9 m (15–30 ft) from the host plant. In known localities, the plant grows in depressions in open meadows where moisture remains after spring snow melt.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats in Idaho have not been identified. However, given its habitat preferences, the Beartooth Copper is considered to be sensitive to climate change.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Ferris CD. 1974. Distribution of arctic-alpine *Lycaena phlaeas* L. (Lycaenidae) in North America with designation of a new subspecies. Bulletin of the Allyn Museum 18:1-14.; Miller JC, Hammond PC. 2007. Butterflies and Moths of Pacific Northwest Forests and Woodlands: Rare, endangered, and management sensitive species. Forest Health Technology Enterprise Team, USDA Forest Service, Washington, DC; Kohler S. 2007. A description of a new subspecies of *Lycaena phlaeas* (Lycaenidae: Lycaeninae) from Montana, United States, with a comparative study of Old and New World populations. The Taxonomic Report 7:1-20.

Map Sources: Ferris CD. 1974. Distribution of arctic-alpine *Lycaena phlaeas* L. (Lycaenidae) in North America with designation of a new subspecies. Bulletin of the Allyn Museum 18:1-14.

Kriemhild Fritillary

Boloria kriemhild

Class: Insecta
Order: Lepidoptera
Family: Nymphalidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

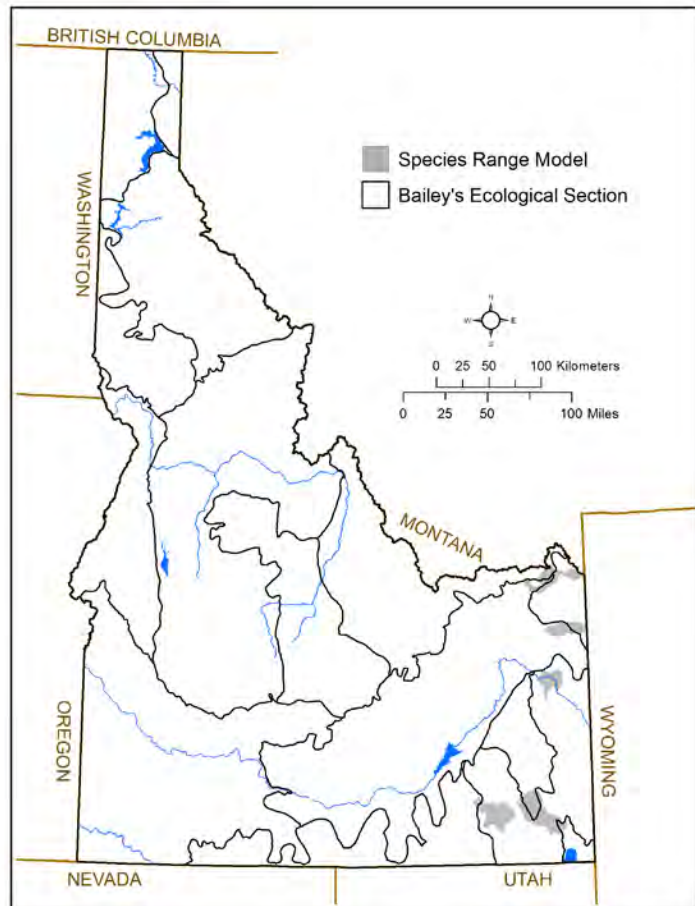
IDAPA: Unprotected Wildlife

G-rank: G3G4

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,000 km² (~1,200 mi²)

Key Ecological Sections: Bear Lake, Northwestern Basin and Range, Overthrust Mountains, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: Endemic to the northern Rocky Mountains, the Kriemhild Fritillary (also known as Relict Fritillary) occurs in Montana, Idaho, Wyoming, and Utah. In Idaho, its range is restricted to a narrow region that extends along the length of the Idaho/Wyoming border. Within this restricted range and appropriate habitats, it can be moderately common. Idaho populations are considered to be globally important.

HABITAT & ECOLOGY

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

Description: This butterfly occurs in mountain meadows and moist forest openings and edges where its host plant (Violets) can be found. Adults fly from mid-June to early August, depending on elevation and annual variability.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats in Idaho have not been identified. However, it is likely affected by intensive use of national forests and is considered climate sensitive due to its preferred habitat.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Clark TW, Harvey AH, Dorn RD, Genter DL, Groves C, eds. 1989. Rare, sensitive and threatened species of the Greater Yellowstone Ecosystem. Northern Rockies Conservation Cooperative, Montana Natural Heritage Program, The Nature Conservancy, and Mountain West Environmental Services.; Lotts K, Naberhaus T, coordinators. 2015. Butterflies and Moths of North America. [Accessed November 2014]. www.butterfliesandmoths.org

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Lepidopterists' Society Season Summary database. [Accessed March 18, 2015].

Monarch

Danaus plexippus

Class: Insecta
Order: Lepidoptera
Family: Nymphalidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

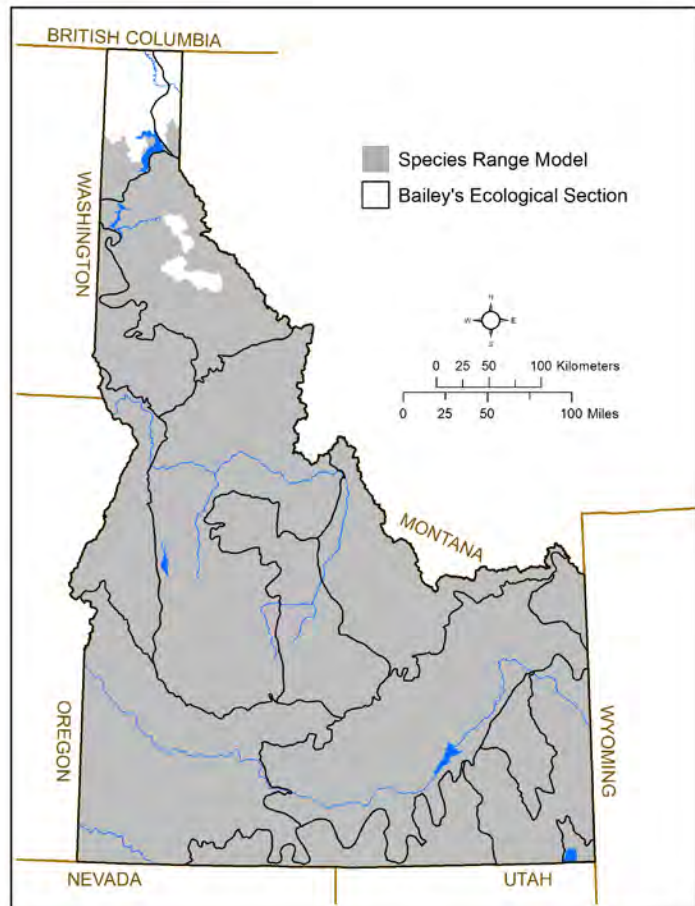
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S2

SGCN TIER: 3

Rationale: Data deficient, significant rangewide declines



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 224,500 km² (~86,700 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, Palouse Prairie, Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: Monarch butterflies are widespread in North America, but appear to be experiencing large rangewide declines. In Idaho, the species is assumed to be migratory or non-resident, breeding here during the summer with the resulting adults heading south to coastal California and Mexico for winter. Breeding records in Idaho are few in number and scattered in distribution (Kootenai, Canyon, Jerome, and Bonneville counties). A recent survey by IDFG also documented breeding populations in Lemhi County. However, other targeted surveys over the last 10 years in southern Idaho have not detected the species (Leavitt, pers. comm.).

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: During the breeding season, Monarchs rely on native milkweeds as their larval host plant. Thus, they can be found in any open habitats such as grasslands, meadows, fields, and along roads where milkweed is present. This species has a complex life cycle that results in two different generations; the summer (or breeding) generation that lives 2–5 weeks and the migratory (or wintering) generation that lives 5–9 months. Immature Monarchs produced in late summer and early fall react to environmental triggers (e.g., shorter day length, declining

Appendix F. Species Conservation Status Assessments

temperatures) to emerge as longer-lived migratory butterflies. Wintering Monarchs begin mating in mid-January then disperse to breeding grounds where females lay their eggs on emerging milkweed. These are the first of several summer generations.

POPULATION TREND

Short-term Trend: Decline 50–70%

Long-term Trend: Unknown

Description: Although monitoring of the western population began in the 1980s, large-scale yearly assessments did not begin until 1997. In 1997, there were more than 1.2 million Monarchs overwintering in California, but by 2014 only about 234,000 were counted. Assessment of 15 overwintering locations monitored during the Western Monarch Thanksgiving Count every year since 1997 indicate that the steepest decline occurred prior to 2002 and numbers have remained low, but steady, since 2010. Population trends in Idaho have not been documented.

THREATS

Overall Threat Impact: Medium

Intrinsic Vulnerability: Moderately vulnerable

Description: The primary threat to this species is the loss and degradation of native milkweed habitat due to several factors including urban development, broad-scale use of post-emergent herbicides, and intensive management of roadside vegetation (e.g., herbicide application, mowing). In addition, changing temperature and precipitation patterns will also likely affect Monarch reproduction, larval development, and migration.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the appropriate section plans. Recommended strategies for this species include working with partners to protect, create, and enhance milkweed habitats, increasing public awareness of Monarchs and their host plants, and continuing to document and monitor breeding populations.

ADDITIONAL COMMENTS

In 2014, the Monarch was petitioned for listing under the ESA. The FWS is currently conducting a 12-month status review to determine if listing is warranted.

Information Sources: Leavitt H, College of Western Idaho, pers. comm.; Lotts K, Naberhaus T, coordinators. 2015. Butterflies and Moths of North America. [Accessed November 2014]. www.butterfliesandmoths.org; Stevens SR, Frey DF. 2010. Host plant pattern and variation in climate predict the location of natal grounds for migratory monarch butterflies in western North America. *Journal of Insect Conservation* 14:731–744; Jepsen S, Schweitzer DF, Young B, Sears N, Ormes M, Black SH. 2015. Conservation status and ecology of the monarch butterfly in the United States. Arlington (VA): NatureServe and Portland (OR): The Xerces Society for Invertebrate Conservation.; Commission for Environmental Cooperation. 2008. North American Monarch Conservation Plan. Montreal, Quebec, Canada; Monroe M, Fallon C, Frey D, Stevens S. 2015. Western Monarch Thanksgiving Count Data from 1997-2014. [Accessed December 2015] <http://www.xerces.org/western-monarch-thanksgiving-count/>; Waterbury B, Ruth T. 2015. A survey for milkweed (*Asclepias* spp.) and monarch butterflies (*Danaus plexippus*) in Lemhi County, Idaho. Boise (ID): Idaho Department of Fish and Game.

Map Sources: Lepidopterists' Society Season Summary database. [Accessed March 18, 2015].; USGS. 2002. Butterfly Occurrence Database. National Atlas of the United States, Reston, VA. <http://nationalatlas.gov/atlasftp.html?openChapters=chpbio#chpbio> [Accessed 9/29/2014]; Stephens GM, Ferris CD. 2002. Butterflies (Lepidoptera: Rhopalocera) of Cecil D. Andrus Wildlife Management Area, Washington C, Idaho. *Journal of the Idaho Academy of Science* 38:7–11; Stephens GM, Ferris CD. 2002. Butterflies (Lepidoptera: Rhopalocera) of the Mud Flat Road, Owyhee C, Idaho, with comments on the discovery of *Thessalia leanira* (C. & R. felder) (Lepidoptera: Nymphalidae) in Idaho. *Journal of the Idaho Academy of Science* 38:1–5; Digital Atlas of Idaho, <http://imnh.isu.edu/digitalatlas/bio/insects/butrfly/btrfrm.htm> [Accessed 12/09/2014]; Stefanic T. 2014. Butterflies and moths (Lepidoptera) of CRMO. Craters of the Moon National Monument and Preserve, National Park Service, US Dept of Interior

Gillette's Checkerspot

Euphydryas gillettii

Class: Insecta
Order: Lepidoptera
Family: Nymphalidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

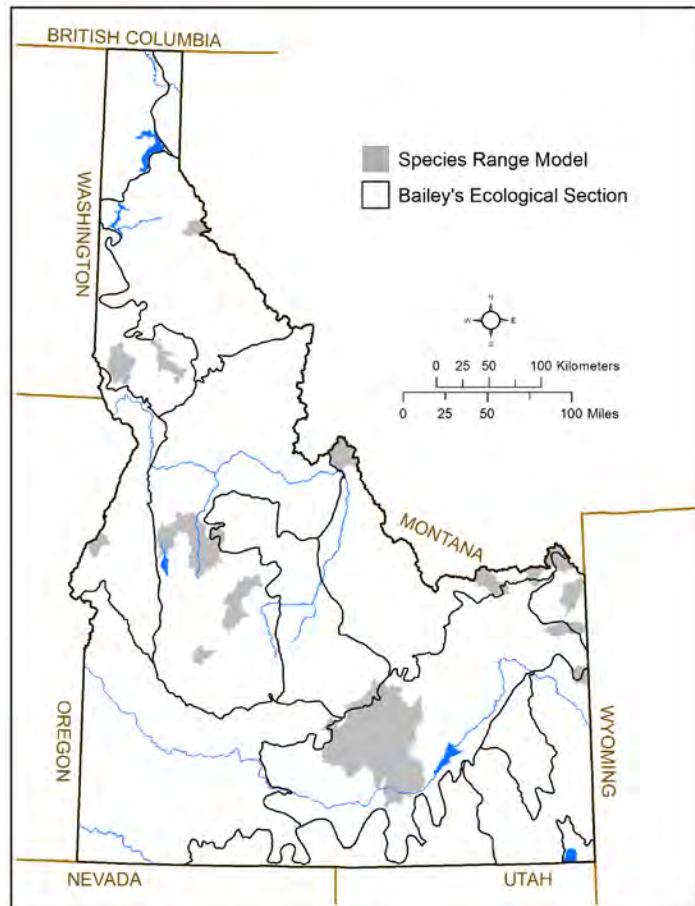
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient, important pollinator, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 14,700 km² (~5,700 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Idaho Batholith, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: Gillette's Checkerspot is endemic to the northern Rocky Mountains, ranging from northwestern Wyoming to southern Alberta, in widely separated and isolated colonies. Although rare and restricted, it can be abundant once a colony has been located (C. Ferris, expert opinion). Idaho populations are globally important, but information on the current status is lacking.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This butterfly is restricted to moist, open, sunny, mostly montane meadows that support the primary larval host, twinberry. Caterpillars can only complete their development on host plants that are growing in direct sunlight. This species is extremely sedentary and is an important pollinator for several montane flowering plant species.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Appendix F. Species Conservation Status Assessments

Description: In 1988, Williams (1988) noted several populations in the Greater Yellowstone Ecosystem and along the Idaho–Montana border that had not been recorded since 1960. However, current population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Relying on sufficient habitats in appropriate successional condition, Gillette's Checkerspot is sensitive to forest management and can benefit from infrequent, controlled ground fires and prescribed forest thinning to maintain open meadow habitats. Conversely, fire suppression can be detrimental. Given its local and sedentary nature, it is highly vulnerable to herbicide and pesticide spraying.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Miller JC, Hammond PC. 2007. Butterflies and Moths of Pacific Northwest Forests and Woodlands: Rare, endangered, and management sensitive species. Forest Health Technology Enterprise Team. Washington (DC): USDA Forest Service.; Committee on the Status of Pollinators in North America. 2007. Status of Pollinators in North America. Natural Research Council, Washington (DC): National Academies Press.; Clark TW, Harvey AH, Dorn RD, Genter DL, Groves C, eds. 1989. Rare, sensitive and threatened species of the Greater Yellowstone Ecosystem. Northern Rockies Conservation Cooperative, Montana Natural Heritage Program, The Nature Conservancy, and Mountain West Environmental Services. 153 pp.; Williams EH. 1988. Habitat and range of *Euphydryas gillettii* (Nymphalidae). *Journal of the Lepidopterists' Society* 42:37–45.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Lepidopterists' Society Season Summary database. [Accessed March 18, 2015].; Stefanic T. 2014. Butterflies and moths (Lepidoptera) of CRMO. Craters of the Moon National Monument and Preserve, National Park Service, US Dept of Interior.

Wiest's Primrose Sphinx

Euproserpinus wiesti

Class: Insecta
Order: Lepidoptera
Family: Sphingidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

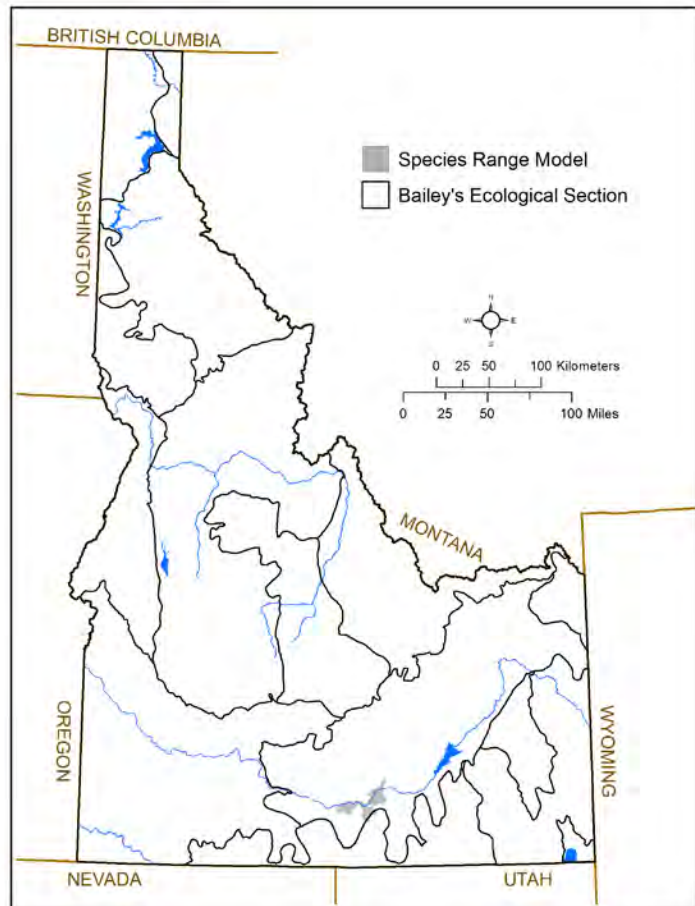
IDAPA: Unprotected Wildlife

G-rank: G3G4

S-rank: S1

SGCN TIER: 3

Rationale: IUCN Critically Endangered,
data deficient, habitat specialist



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 600 km² (~200 mi²)

Key Ecological Sections: Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: Wiest's Primrose Sphinx has been recorded from less than about 20 localities across the western US. In Idaho, it is known from a single site near Rupert. Although it is rarely collected, it may be more common than records indicate.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: A sand dunes specialist, this moth is restricted to sandy wash areas where its larval host plant (Evening primrose) grows. Adults are diurnal and fly in sunshine. Records suggest the flight period is April-May.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats in Idaho have not been documented. However, the most likely threats are loss of sand dune habitat and larval host plants.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species in Idaho. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Pacific Northwest Moth Database. 2014. [Accessed Oct-Dec, 2014] pnwmoths.biol.wvu.edu

Map Sources: Pacific Northwest Moth Database. 2014. [Accessed Oct-Dec, 2014] pnwmoths.biol.wvu.edu

Idaho Point-headed Grasshopper

Acrolophitus pulchellus

Class: Insecta
Order: Orthoptera
Family: Acrididae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: Type 2

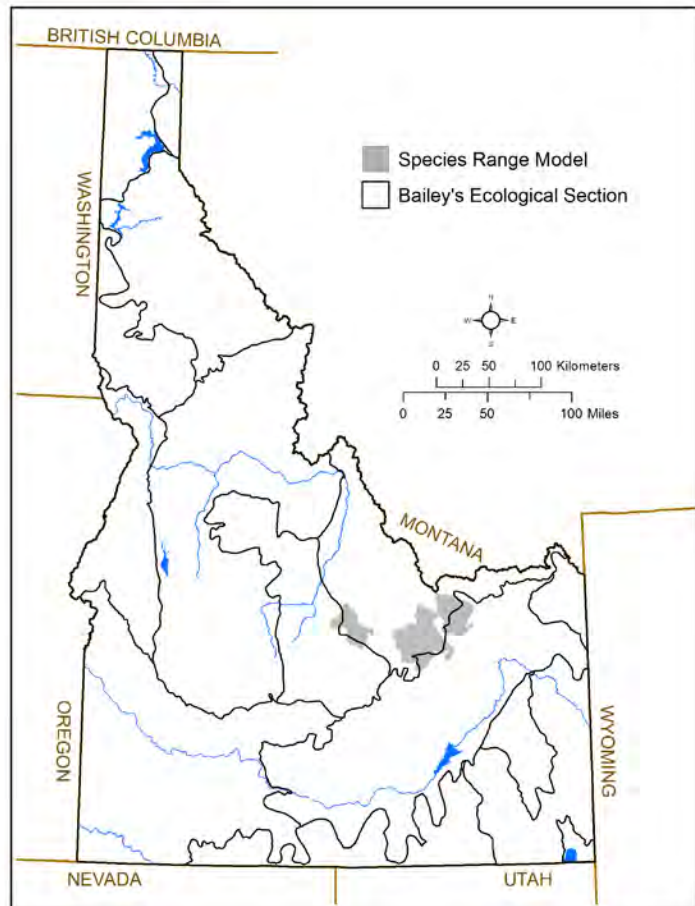
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S2

SGCN TIER: 2

Rationale: Idaho endemic, restricted range, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,800 km² (~1,500 mi²)

Key Ecological Sections: Beaverhead Mountains, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: The Idaho Point-headed Grasshopper is a rare Idaho endemic found in the Birch Creek and Big Lost River drainages. Prior to 2010, the species was known from only 17 records dating from 1883 to 1993. Surveys in 2010 confirmed its persistence at historical localities.

HABITAT & ECOLOGY

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

Description: This grasshopper is found in dwarf-shrubland and steppe habitats on alluvial fan and stream terrace landforms characterized by sparse vegetation, surface gravels, vagrant lichens, and intact biological soil crusts. The species is thought to be ground-dwelling and a specialist feeder on stemless mock goldenweed, a cushion-form forb common to the area.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Threats to these populations are widespread, but low in magnitude, and include invasive plants, OHV use, conversion to agriculture, and improper livestock grazing management. The species is also thought to be negatively influenced by drought.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Beaverhead Mountains Section plan. In short, recommended strategies for this species include continuing to investigate the ecology of the species and encouraging land management that promotes proper livestock grazing management, restricts OHV travel to designated routes, controls noxious weeds, and uses native species for range restoration.

ADDITIONAL COMMENTS

None.

Information Sources: Waterbury BA. 2014. Rediscovered populations of the Idaho Point-Headed Grasshopper, *Acrolophitus pulchellus* (Bruner), 1890 (Orthoptera: Acrididae). *Western North American Naturalist* 74:349–355.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Waterbury BA. 2014. Rediscovered populations of the Idaho Point-Headed Grasshopper, *Acrolophitus pulchellus* (Bruner), 1890 (Orthoptera: Acrididae). *Western North American Naturalist* 74:349–355.

A Grasshopper

Argiacris amissuli

Class: Insecta
Order: Orthoptera
Family: Acrididae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region1: No status

Region 4: No status

BLM: No status

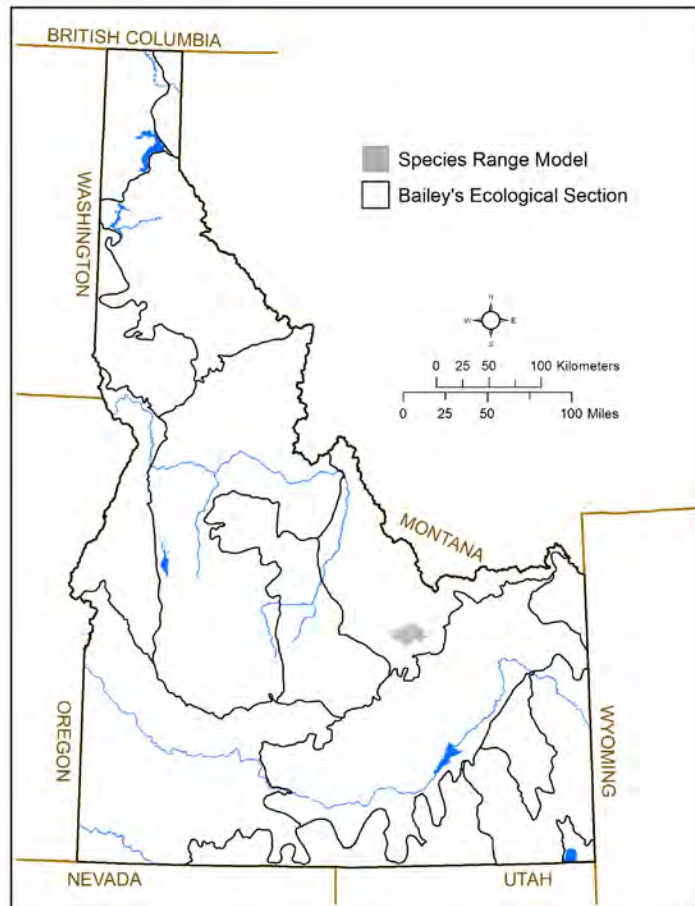
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 400 km² (~200 mi²)

Key Ecological Sections: Beaverhead Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: An Idaho endemic, this grasshopper has not been collected since 1965 when the type specimen was found at a single location in Butte County. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Species-specific habitat requirements have not been documented. However, the specimen was collected at about 1500m elevation in xeric habitat sparsely vegetated with sagebrush.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been documented. However, in general, threats to grasshoppers include pesticides, habitat modification, and drought.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Gurney AB. 1971. North American grasshoppers of the genus *Argia*, including two new species from Idaho (Orthoptera: Acrididae: Catantopinae). *Proceedings of the Entomological Society of Washington* 73:292–303.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Grasshopper

Argia keithi

Class: Insecta
Order: Orthoptera
Family: Acrididae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

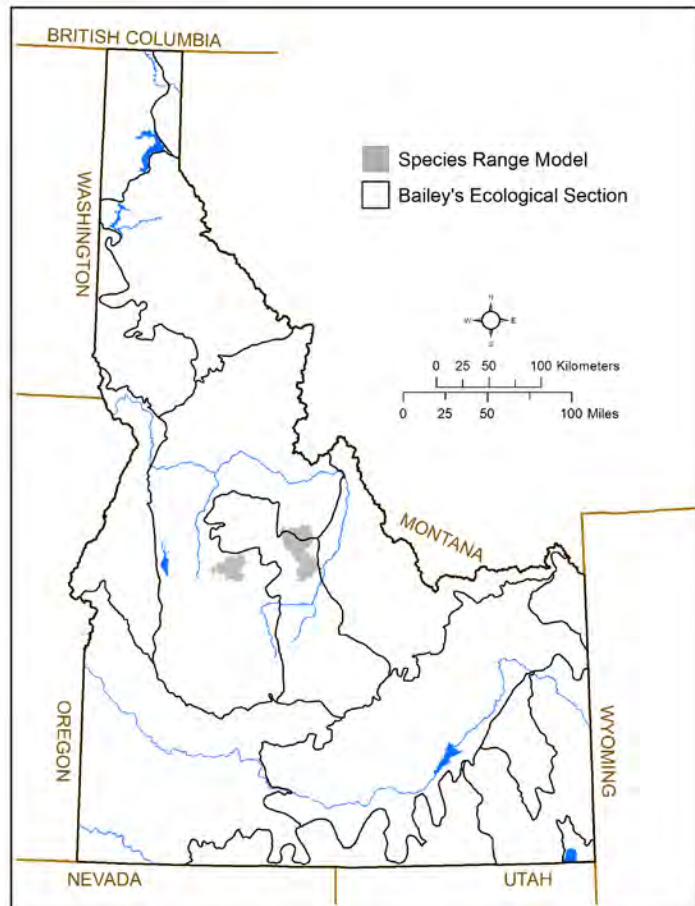
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,700 km² (~700 mi²)

Key Ecological Sections: Challis Volcanics, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: An Idaho endemic, this grasshopper has not been collected since 1970 in Custer and Lemhi Counties. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This species has been found in rugged, mountainous terrain at approximately 2500–3000m elevation. Little is known of species current status, ecology, or conservation needs.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been documented. However, in general, threats to grasshoppers include pesticides, habitat modification, and drought.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Gurney AB. 1971. North American grasshoppers of the genus *Argia*, including two new species from Idaho (Orthoptera: Acrididae: Catantopinae). *Proceedings of the Entomological Society of Washington* 73:292–303.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

A Grasshopper

Argia cris militaris

Class: Insecta
Order: Orthoptera
Family: Acrididae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

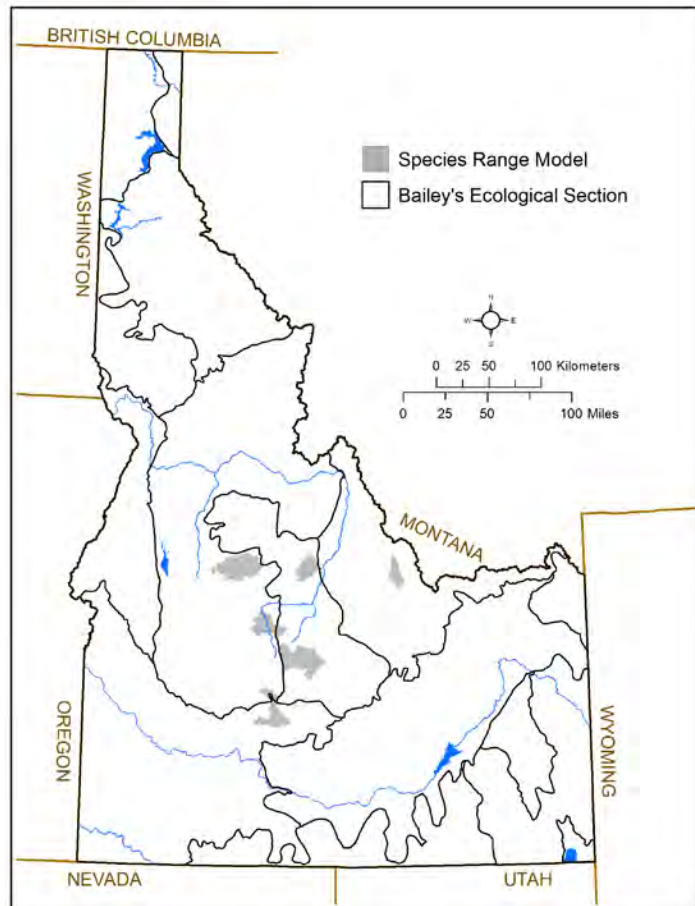
IDAPA: Unprotected Wildlife

G-rank: G3G4

S-rank: S2

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,800 km² (~1,500 mi²)

Key Ecological Sections: Beaverhead Mountains, Challis Volcanics, Idaho Batholith, Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: This grasshopper is an Idaho endemic occurring in Camas, Blaine, Lemhi, and Custer counties but has not been collected since 1970. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This species has typically been found in rocky, sparsely-vegetated areas between 2500 and 2800m elevation. Little is known of species current status, ecology, or conservation needs.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been documented. However, in general, threats to grasshoppers include pesticides, habitat modification, and drought.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Gurney AB. 1971. North American grasshoppers of the genus *Argia*, including two new species from Idaho (Orthoptera: Acrididae: Catantopinae). *Proceedings of the Entomological Society of Washington* 73:292–303.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

A Grasshopper

Barracris petraea

Class: Insecta
Order: Orthoptera
Family: Acrididae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

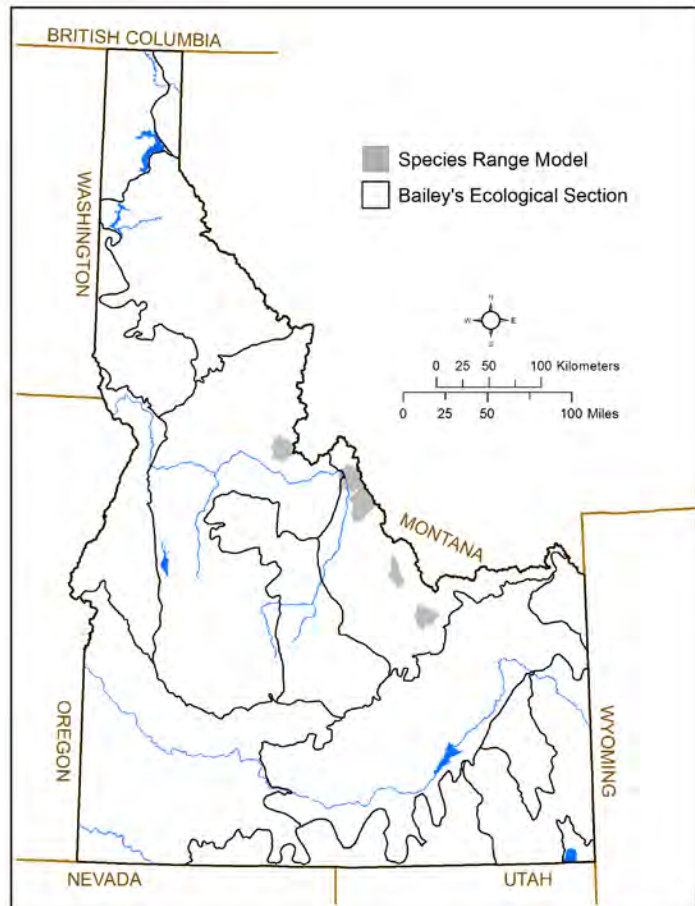
IDAPA: Unprotected Wildlife

G-rank: G3?

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,000 km² (~800 mi²)

Key Ecological Sections: Beaverhead Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This grasshopper occurs in Idaho and Montana. In Idaho, it has been found in Lemhi County, Clark County, and southeast Idaho County. Current status of the species is unknown.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: The species has been found above timberline in bare rock, talus, and scree. However specific habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Specific threats to this species are not known. However, given the association with alpine habitats, changes in climatic conditions is a potential threat.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Spur-throated Grasshopper Species Group

Melanoplus Species Group

Class: Insecta
Order: Orthoptera
Family: Acrididae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

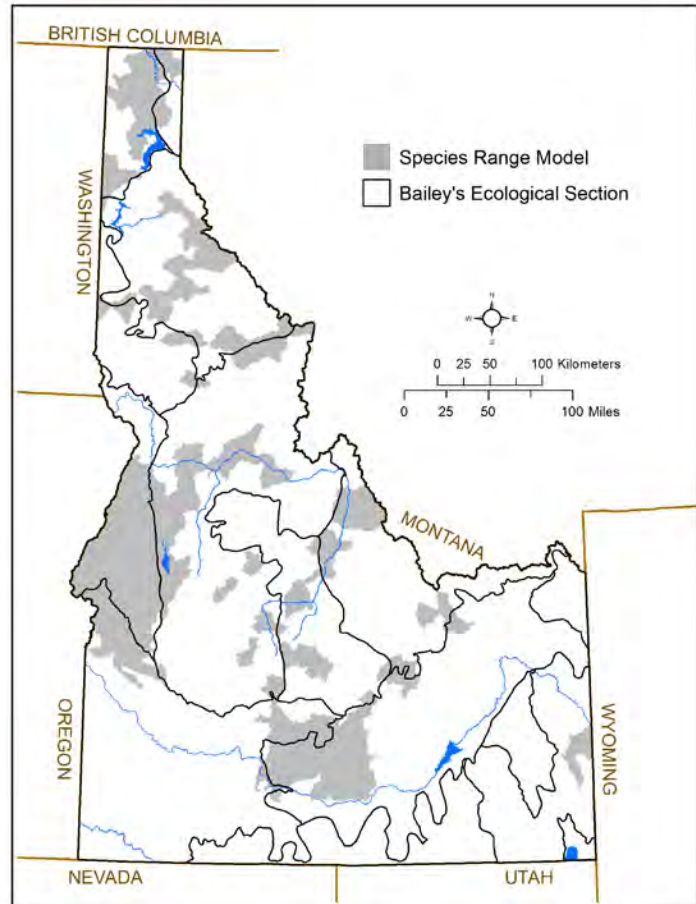
IDAPA: Unprotected Wildlife

G-rank: GNR

S-rank: S2Q

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 83,800 km² (~32,400 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: This species group consists of 32 Spur-throated Grasshoppers in the genus *Melanoplus*. All of these species are currently thought to be either Idaho or regional endemics. Many of the species are known from few localities and have not been observed for decades. Nothing is known of these species current status, ecology, or conservation needs. The species include: *M. aix*, *M. alector*, *M. artemesiaae*, *M. baldi*, *M. daemon*, *M. digitifer*, *M. idaho*, *M. illash*, *M. indigens*, *M. ixalus*, *M. latah*, *M. lemhiensis*, *M. lemurus*, *M. lolo*, *M. militaris*, *M. obex*, *M. ohadi*, *M. papooseense*, *M. papyraedus*, *M. payettei*, *M. phobeticus*, *M. pyro*, *M. salmonis*, *M. shoshoni*, *M. sol*, *M. stipes*, *M. tendoyense*, *M. tincupense*, *M. trigeminus*, *M. washingtonius*, *M. xenus*, and *M. zeus*.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Most grasshoppers are generalists, but some have narrow habitat requirements. Although many of the species in this group have limited ranges, it cannot be assumed that they are specialists.

POPULATION TREND

Appendix F. Species Conservation Status Assessments

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Species-specific threats have not been documented. However, in general, threats to grasshoppers include pesticides, habitat modification, and drought.

CONSERVATION ACTIONS

Priority conservation strategies for this genus includes surveys to determine if many of these species are extant in Idaho and genetic work needed to determine taxonomic uniqueness of these species.

ADDITIONAL COMMENTS

Although the taxonomy of this genus has been recently revised with several new species added (Otte 2012), it is incredibly difficult to understand and distinction among species is often based on locality and male genitalia. Extensive examination of the group and collaboration with Dan Otte is needed to determine the status.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe.; Otte D. 2012. Eighty New *Melanoplus* Species from the United States (Acrididae: Melanoplinae). Transactions of the American Entomological Society 138:73–167.; Strohecker HF. 1963. New Acrididae from western North America (Orthoptera). Pan-Pacific Entomologist 39(3): 157–174.; Hebard M. 1937. New genera and species of the *Melanopli* found within the United States and Canada (Orthoptera: Acrididae): Parts X to XIV. Transactions of the American Entomological Society 63: 147–173.; Hebard M. 1936. New genera and species of the *Melanopli* found within the United States and Canada (Orthoptera: Acrididae): Parts VII, VIII and IX). Transactions of the American Entomological Society 62:167-222.; Hebard M. 1935. New genera and species of the *Melanopli* found within the United States and Canada (Orthoptera, Acrididae): Parts V and VI. Transactions of the American Entomological Society 60:337–390.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Integrated digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Otte D. 2012. Eighty new *Melanoplus* species from the United States (Acrididae: Melanoplinae). Transactions of the American Entomological Society 138:73–167.

Straight Snowfly

Capnia lineata

Class: Insecta
Order: Plecoptera
Family: Capniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

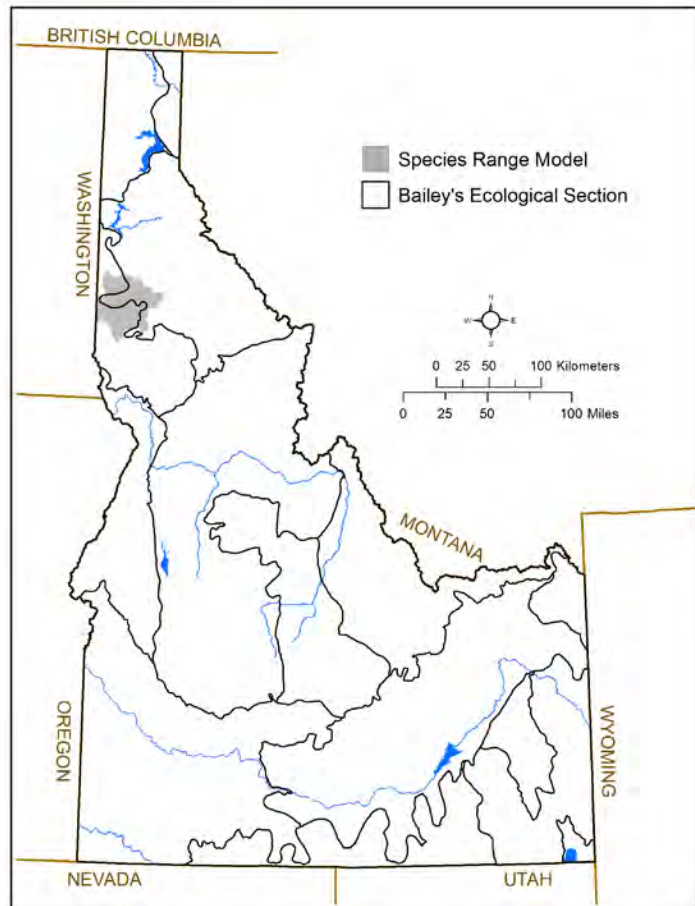
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 3,400 km² (~1,300 mi²)

Key Ecological Sections: Bitterroot Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Straight Snowfly is endemic to Idaho (Latah County), a previous report of a specimen in California was shown to be erroneous. It has been collected from several creeks near the small towns of Troy and Deary and was last recorded in 1989. Current status of the population is not known, however it has been described as "rare" in the past.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Life history and ecology requirements for many *Capnia* species, including this species, are poorly known. It is known that *Capnia* nymphs require cool water temperatures for development. After hatching in early spring, the nymphs move into the hyporheic zone and undergo diapause, remaining inactive until the water cools in late fall and winter, at which time they feed (probably by shredding detritus) and rapidly grow to maturity. Adults emerge in late February to June and are usually univoltine.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Threats to this species have not been specifically identified, but could include any changes to the water quality and quantity of occupied creeks primarily sedimentation and increasing water temperatures.

CONSERVATION ACTIONS

Surveys are needed to determine the true distribution of this species, status and size of existing populations, and potential presence of additional populations. Known locations in Latah County overlap with areas surveyed by Potlatch watershed fish crews, therefore Multispecies survey collaborations may be possible.

ADDITIONAL COMMENTS

The Straight Snowfly was petitioned for listing under the ESA in 2010, but was declined due to a lack of information.

Information Sources: Mazzacano C. 2009. *Capnia lineata* (Hanson 1943) Straight stonefly Plecoptera: Capniidae. The Xerces Society for Invertebrate Conservation. Available http://www.xerces.org/wp-content/uploads/2009/12/capnia_lineata_profile_v2.pdf; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Jordan SF, Mazzacano C, Jepsen S, Black SH. 2010. Petition to list the Straight Snowfly (*Capnia lineata* Hanson, 1943) and the Idaho Snowfly (*Capnia zukeli* Hanson, 1943) as endangered species under the US Endangered Species Act.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.

Idaho Snowfly

Capnia zukeli

Class: Insecta
Order: Plecoptera
Family: Capniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

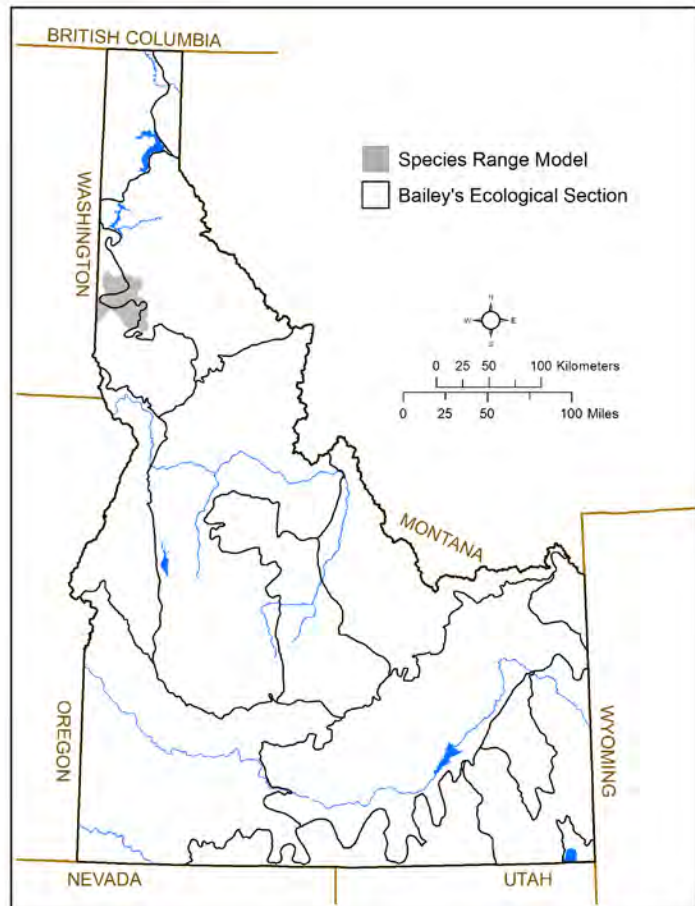
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient, range restricted



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,900 km² (~700 mi²)

Key Ecological Sections: Bitterroot Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Idaho Snowfly is endemic to Idaho (Latah county). It has been collected from several creeks near the small town of Troy and was last recorded in 1986. Current status of the population is not known, however it has been described as "rare" in the past.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Life history and ecology requirements for many *Capnia* species, including this species are poorly known. It is known that *Capnia* nymphs require cool water temperatures for development. After hatching in early spring, the nymphs move into the hyporheic zone and undergo diapause, remaining inactive until the water cools in late fall and winter, at which time they feed (probably by shredding detritus) and rapidly grow to maturity. Adults emerge in late February to June and are usually univoltine.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Threats to this species have not been specifically identified, but could include any changes to the water quality and quantity of occupied creeks primarily sedimentation and increasing water temperatures.

CONSERVATION ACTIONS

Surveys are needed to determine the true distribution of this species, status and size of existing populations, and potential presence of additional populations. Known locations in Latah County overlap with areas surveyed by Potlatch watershed fish crews, therefore multispecies survey collaborations may be possible.

ADDITIONAL COMMENTS

The Idaho Snowfly was petitioned for listing under the ESA in 2010, but was declined due to a lack of information.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Jordan SF, Mazzacano C, Jepsen S, Black SH. 2010. Petition to list the Straight Snowfly (*Capnia lineata* Hanson, 1943) and the Idaho Snowfly (*Capnia zukeli* Hanson, 1943) as endangered species under the US Endangered Species Act; Mazzacano, C. 2008. *Capnia zukeli* (Hanson 1943). The Xerces Society for Invertebrates Conservation. http://www.xerces.org/wp-content/uploads/2008/09/capnia_zukeli.pdf

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Duckhead Snowfly

Capnura anas

Class: Insecta
Order: Plecoptera
Family: Capniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

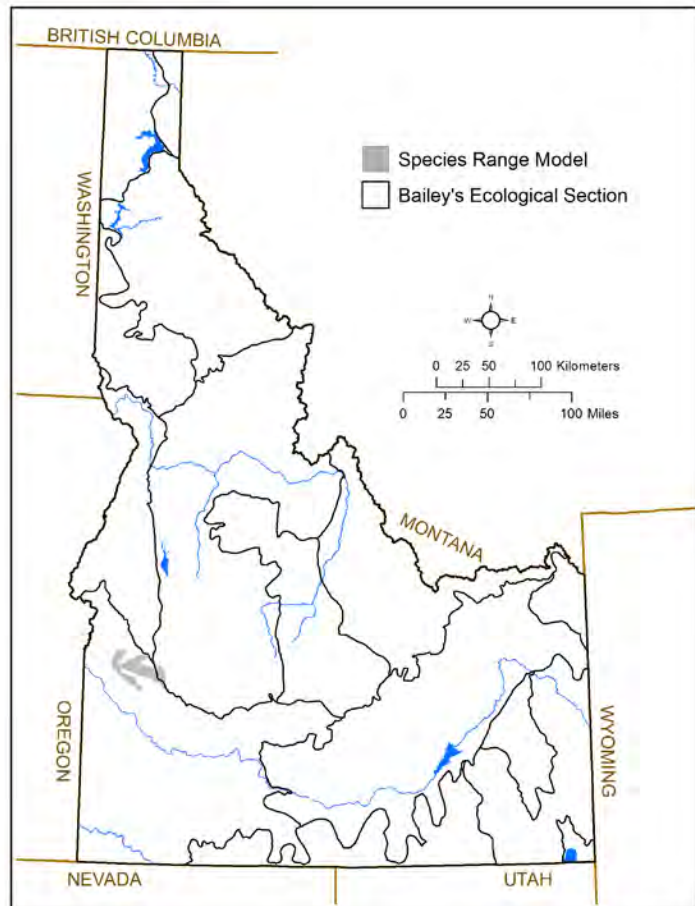
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 900 km² (~300 mi²)

Key Ecological Sections: Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Duckhead Snowfly is known from only a few locations in Oregon and Idaho. The Idaho locality is recent (2004) and near Boise.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Specific habitat requirements have not been documented, however, the species is generally found in small intermittent streams, some of apparent low water quality.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Specific threats to this species are not known. However, stonefly populations are generally affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Nelson CR, Baumann RW. 1987. The winter stonefly genus *Capnura* (Plecoptera: Capniida) in North America: Systematics, phylogeny, and zoogeography. Transactions of the American Entomological Society 113:1-28.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Palouse Snowfly

Isocapnia palousa

Class: Insecta
Order: Plecoptera
Family: Capniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

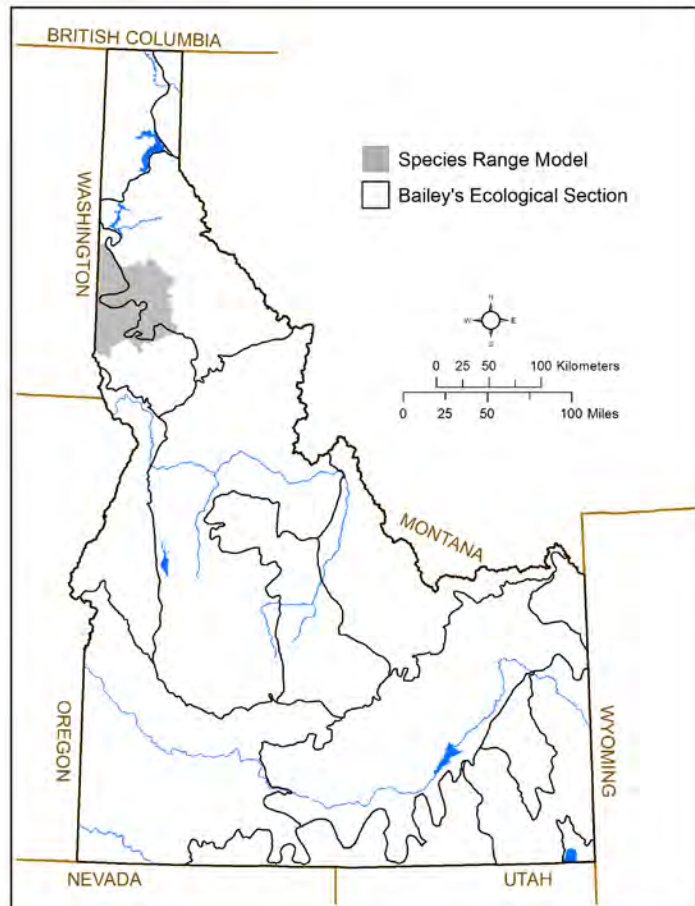
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S3

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 5,800 km² (~2,200 mi²)

Key Ecological Sections: Bitterroot Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Palouse Snowfly is a newly described species of stonefly that is restricted to southeast Washington, northeast Oregon, and northwest Idaho. In Idaho, the species has been found in several tributaries of the Potlatch River in the southern portion of Latah County. Although described in 2004, collections of this species in Idaho are from 1969 and 1984.

HABITAT & ECOLOGY

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

Description: Species-specific habitat requirements have not been documented. However, this genus is generally associated with relatively pristine, gravel-based streams and rivers.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats to this species are not known. However, stonefly populations are generally affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Zenger JT, Baumann RW. 2004. The Holarctic winter stonefly genus *Isocapnia*, with an emphasis on the North American fauna (Plecoptera: Capniidae). Monographs of the Western North American Naturalist 2:65–95.

Map Sources: Zenger JT, Baumann RW. 2004. The Holarctic winter stonefly genus *Isocapnia*, with an emphasis on the North American fauna (Plecoptera: Capniidae). Monographs of the Western North American Naturalist 2:65–95.

Boise Snowfly

Utacapnia nedia

Class: Insecta
Order: Plecoptera
Family: Capniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

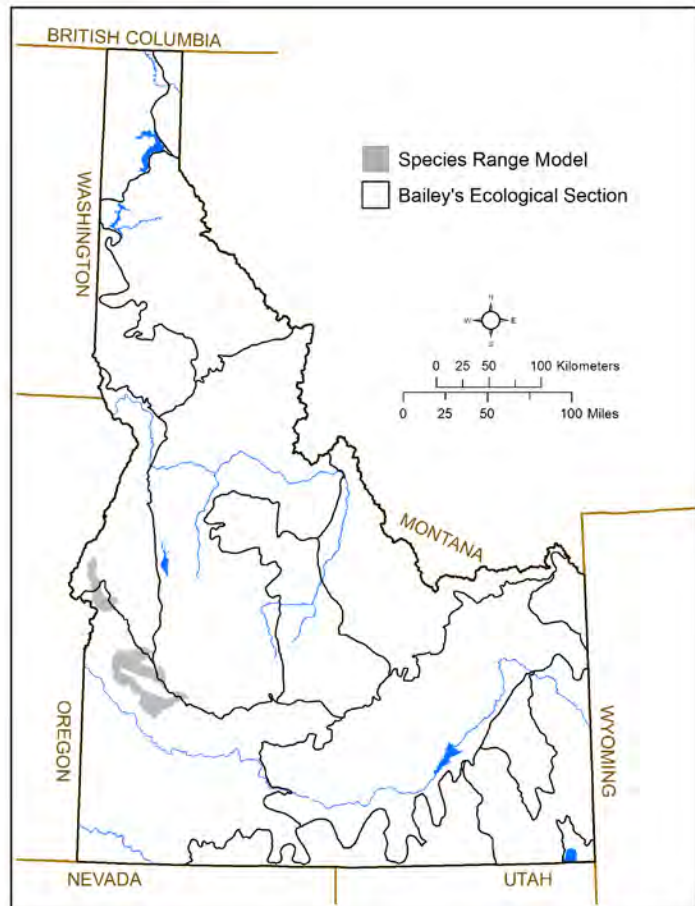
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Blue Mountains, Owyhee Uplands

Population Size in Idaho: Not applicable for invertebrates.

Description: The Boise Snowfly occurs in southeast Oregon and southwest Idaho, with the Idaho distribution including Ada and Washington counties. Current status of the population is unknown, but it is considered to be "rare".

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This stonefly has been found in small mountain streams, but details of habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Specific threats to this species are not known. However, stonefly populations are generally affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Lolo Sawfly

Sweltsa durfee

Class: Insecta
Order: Plecoptera
Family: Chloroperlidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

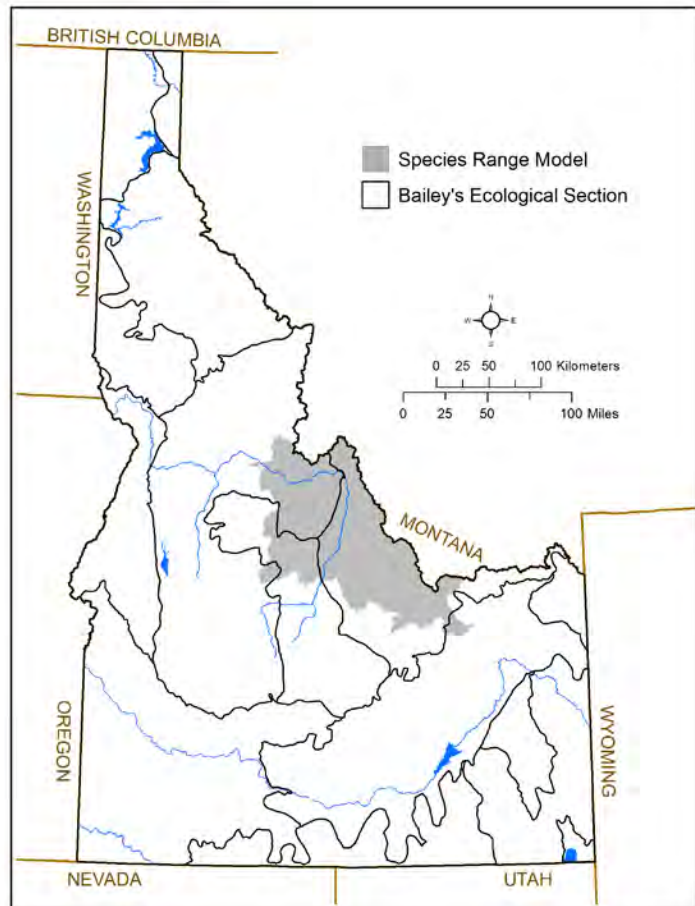
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 18,200 km² (~7,000 mi²)

Key Ecological Sections: Beaverhead Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Lolo Sawfly is a recently described species known only from Idaho (Lemhi County) and Montana (Mineral and Ravalli counties) and is likely endemic to the Northern Rocky Mountain Refugium. Although described in 2009, the Montana collections are dated from 1995–2008 and the Idaho collection is from 1979.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This stonefly has been found in small mountain streams, but details of habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Specific threats to this species are not known. However, stonefly populations are generally affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Kondratieff BC, Baumann RW. 2009. A contribution to the knowledge of *Sweltsa exquisita* (Frison) and *S. occidentis* (Frison) and description of a new species of *Sweltsa* from the northern Rocky Mountains, USA (Plecoptera: Chloroperlidae). *Illiesia* 5:20-29.

Map Sources: Kondratieff BC, Baumann RW. 2009. A contribution to the knowledge of *Sweltsa exquisita* (Frison) and *S. occidentis* (Frison) and description of a new species of *Sweltsa* from the northern Rocky Mountains, USA (Plecoptera: Chloroperlidae). *Illiesia* 5:20-29.

Utah Sallfly

Sweltsa gaufini

Class: Insecta
Order: Plecoptera
Family: Chloroperlidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

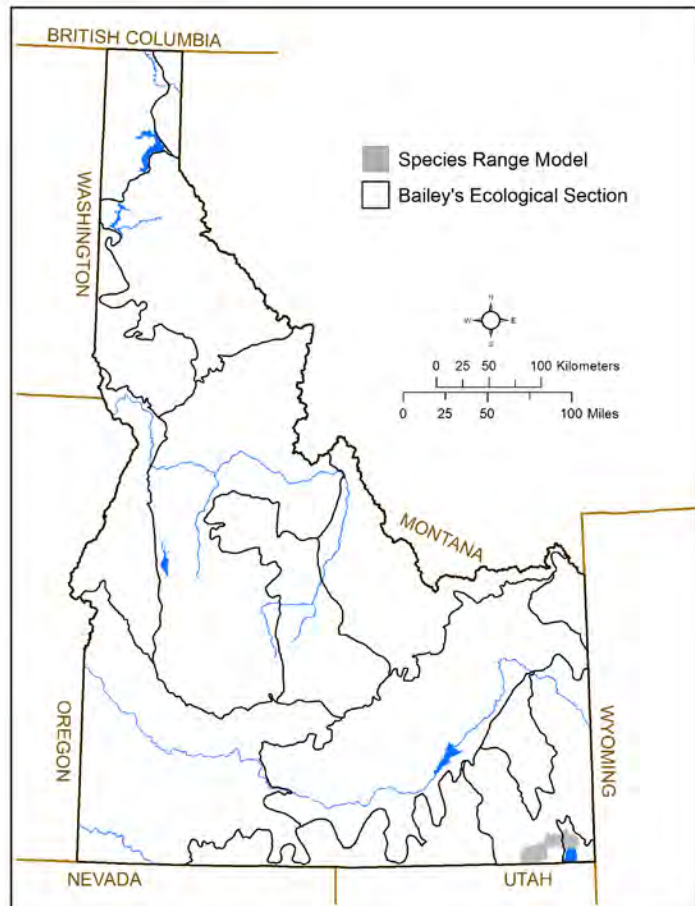
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 900 km² (~300 mi²)

Key Ecological Sections: Bear Lake, Overthrust Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Utah Sallfly is restricted to the Bear River area of southeast Idaho and northern Utah. In Idaho, it can be locally abundant, but is possibly extirpated from Utah.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This stonefly has been found in small mountain streams, but details of habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Specific threats to this species are not known. However, stonefly populations are generally affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Cascades Needlefly

Megaleuctra kincaidi

Class: Insecta
Order: Plecoptera
Family: Leuctridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

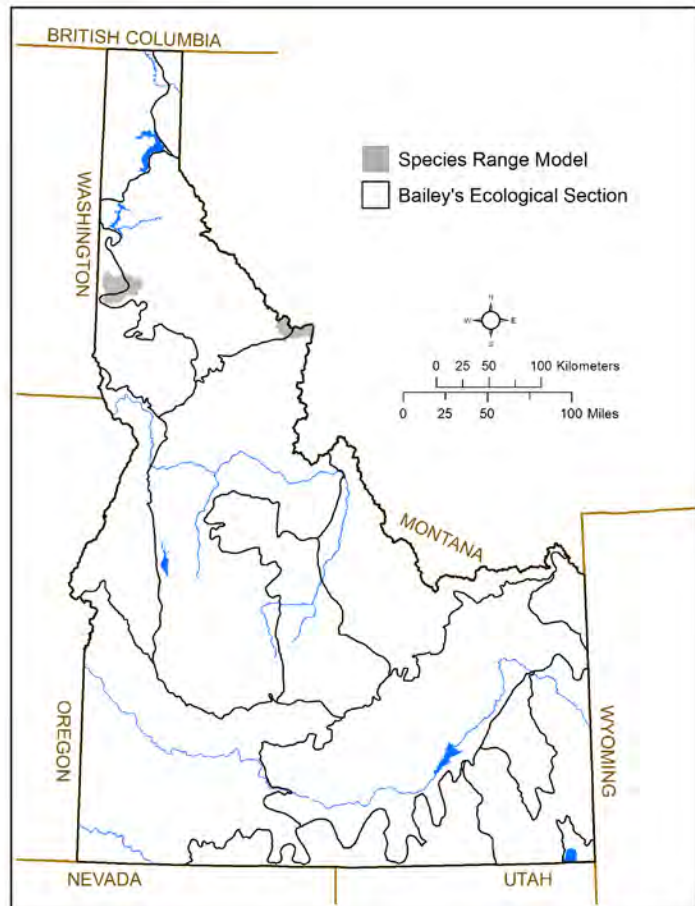
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,300 km² (~500 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Cascades Needlefly is known from a small number of locations in Idaho (Clearwater and Latah counties), Oregon, Washington, and Montana. Occurrences in Idaho and Montana are likely due to the area being a Pacific Coast refugium. It is known to co-occur with the Giant Needlefly (*M. stigmata*) in Idaho and Montana and, although species-specific abundances are unknown, *Megaleuctra* is considered to be one of the rarest of stonefly genera (Baumann and Stark 2013).

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This stonefly is generally associated with seeps and springs with cold, clean water.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Specific threats to this species are not known. However, stonefly populations are generally affected by changes to aquatic habitat such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Stagliano DM, Stephens GM, Bosworth WR. 2007. Aquatic invertebrate species of concern on USFS Northern Region lands. Report prepared for USDA Forest Service, Northern Region, Missoula, Montana. Helena (MT): Montana Natural Heritage Program and Boise (ID): Idaho Conservation Data Center; Baumann RW, Stark BP. 2013. The genus *Megaleuctra* Neave (Plecoptera: Leuctridae) in North America. *Illiesia* 9:65–93.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Baumann RW, Stark BP. 2013. The genus *Megaleuctra* Neave (Plecoptera: Leuctridae) in North America. *Illiesia* 9:65–93.

Tiny Forestfly

Malenka tina

Class: Insecta
Order: Plecoptera
Family: Nemouridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

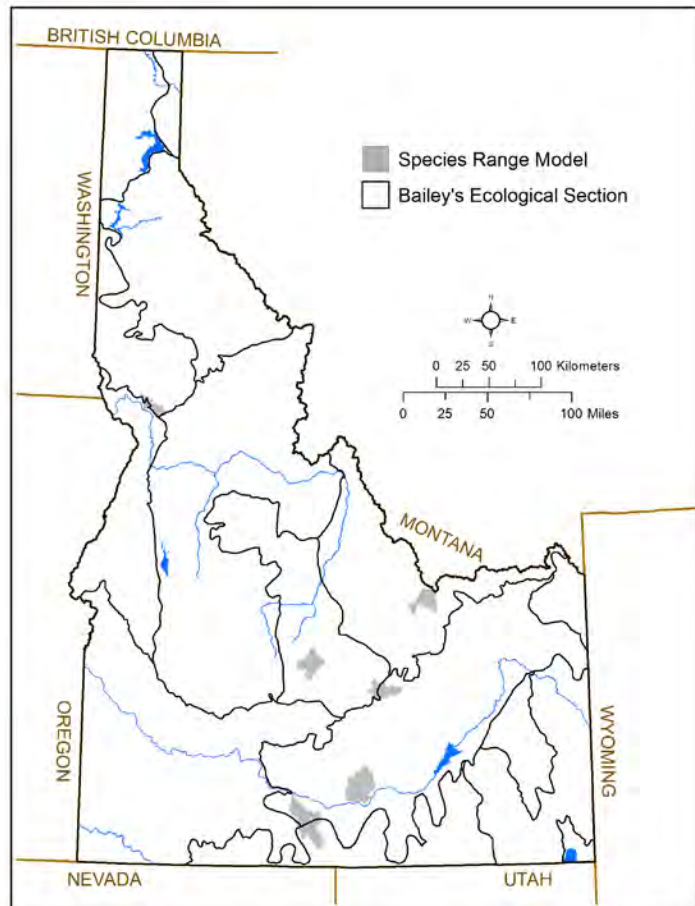
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,900 km² (~1,100 mi²)

Key Ecological Sections: Beaverhead Mountains, Challis Volcanics

Population Size in Idaho: Not applicable for invertebrates.

Description: The Tiny Forestfly is widespread, but rare, with occurrences from Washington, Idaho, Oregon, Utah, Montana, and Nevada. In Idaho, the species has been recorded from Blaine, Butte, Custer, Idaho, Lemhi, Minidoka, and Twin Falls counties, but all are from pre-1970s. Current information on the species status are lacking.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This stonefly has been found in small mountain streams, but details of habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Specific threats to Idaho populations have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Newell RL, Minshall GW. 1976. An annotated list of the aquatic insects of Southeastern Idaho. Part I. Plecoptera. Great Basin Naturalist. 36:501–504.

Idaho Forestfly

Soyedina potteri

Class: Insecta
Order: Plecoptera
Family: Nemouridae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

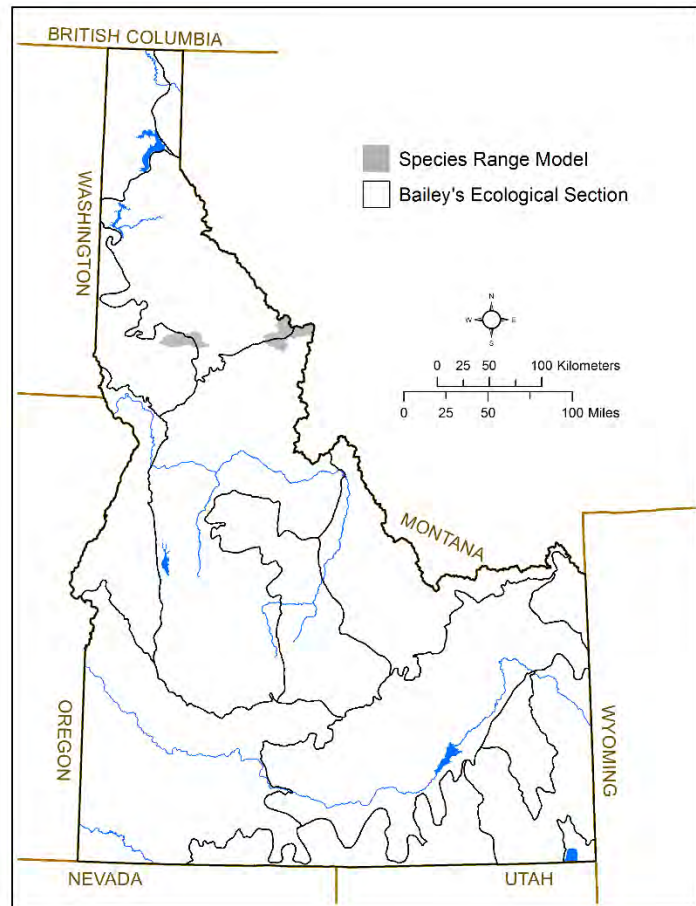
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,200 km² (~500 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Idaho Forestfly is known from few locations in Idaho (Clearwater and Idaho counties), Montana, and Alberta. It is always reported in low abundance.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This stonefly is generally associated with headwater springs and seeps. The adults emerge from April to July.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: The primary threats to this species are the loss of source headwater habitats and degradation of aquatic habitats.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Clearwater Roachfly

Soliperla salish

Class: Insecta
Order: Plecoptera
Family: Peltoperlidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

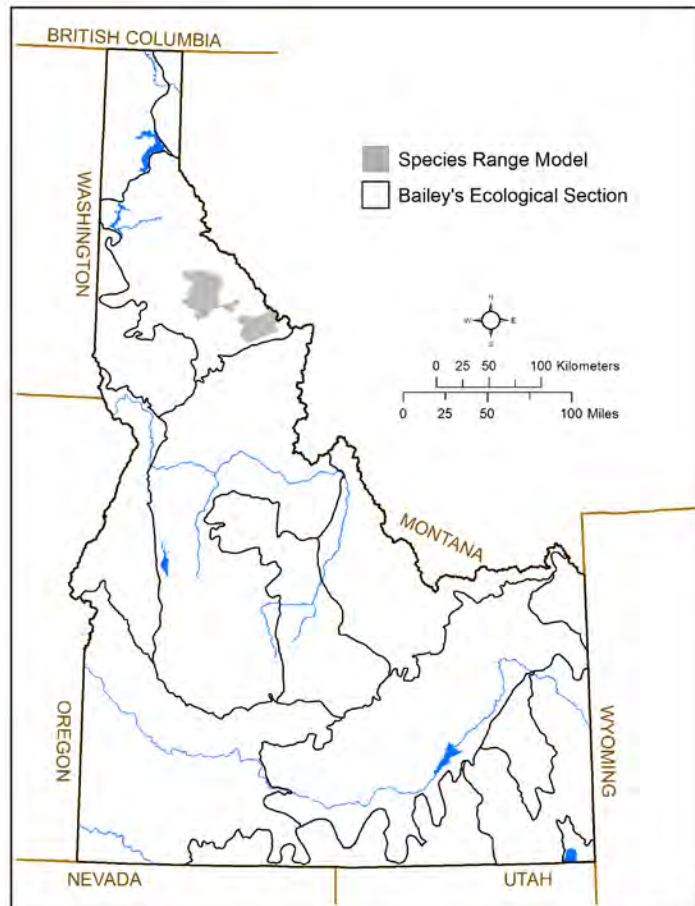
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 2,200 km² (~800 mi²)

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: The Clearwater Roachfly is a recently described species endemic to the Northern Rocky Mountains Refugium in north-central Idaho and western Montana. It appears to be narrowly distributed in the headwaters of the North Fork Clearwater River in Idaho (Shoshone and Clearwater counties) and adjacent areas of the Clark Fork River in Montana (Mineral County). Collections are from 2002–2003.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: This stonefly occurs in seeps and splash zones of small, high elevation streams near their headwater sources. It is probably cold-water adapted. Forest conditions vary at the collection sites but western red cedar and dense deciduous brush were consistently present. Collection of full-grown and half-grown nymphs together at several sites suggests that more than one year is needed to complete the life cycle.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Primary threats to this species are loss of source headwater habitats and stream sedimentation (both suspended and bedload) due to forest practices, mining, roads, and other human disturbances.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Stark BP, Gustafson DL. 2004. New species and records of *Soliperla* Ricker, 1952 from western North America (Insecta, Plecoptera, Peltoperlidae). *Spixiana* 27:97–105.

Map Sources: Stagliano DM, Stephens GM, Bosworth WR. 2007. Aquatic invertebrate species of concern on USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program. and Idaho Conservation Data Center, Boise, ID; Stark BP, Gustafson DL. 2004. New species and records of *Soliperla* Ricker, 1952 from western North America (Insecta, Plecoptera, Peltoperlidae). *Spixiana* 27:97–105

Umatilla Willowfly

Taenionema umatilla

Class: Insecta

Order: Plecoptera

Family: Taeniopterygidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

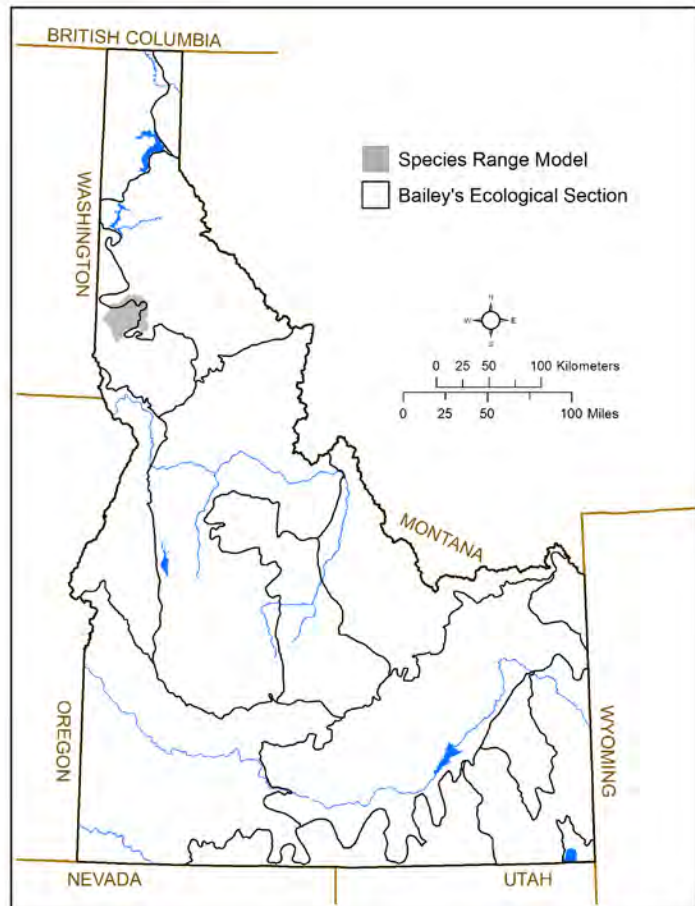
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,200 km² (~500 mi²)

Key Ecological Sections: Bitterroot Mountains, Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Umatilla Willowfly is known only from Idaho (Latah County) and eastern Oregon. It is a rarely collected species that has not been recorded in Idaho since 1986. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: The species is known to occur in creeks and small rivers. Adults tend to emerge in spring and early summer (April–May) and are often found on willows along stream banks when the willow buds begin to open. It is considered an important food source for trout and other fish.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, stonefly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Furniss RL, Carolin VM. 1977. Western Forest Insects. Miscellaneous Publication No. 1339. Washington (DC): USDA Forest Service; Stanger JA, Baumann RW. 1993. A revision of the stonefly genus *Taenionema* (Plecoptera: Taeniopterygidae). Transactions of the American Entomological Society 119:171-229.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].; Stanger JA, Baumann RW. 1993. A revision of the stonefly genus *Taenionema* (Plecoptera: Taeniopterygidae). Transactions of the American Entomological Society 119:171-229.

A Caddisfly

Apatania barri

Class: Insecta
Order: Trichoptera
Family: Apataniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

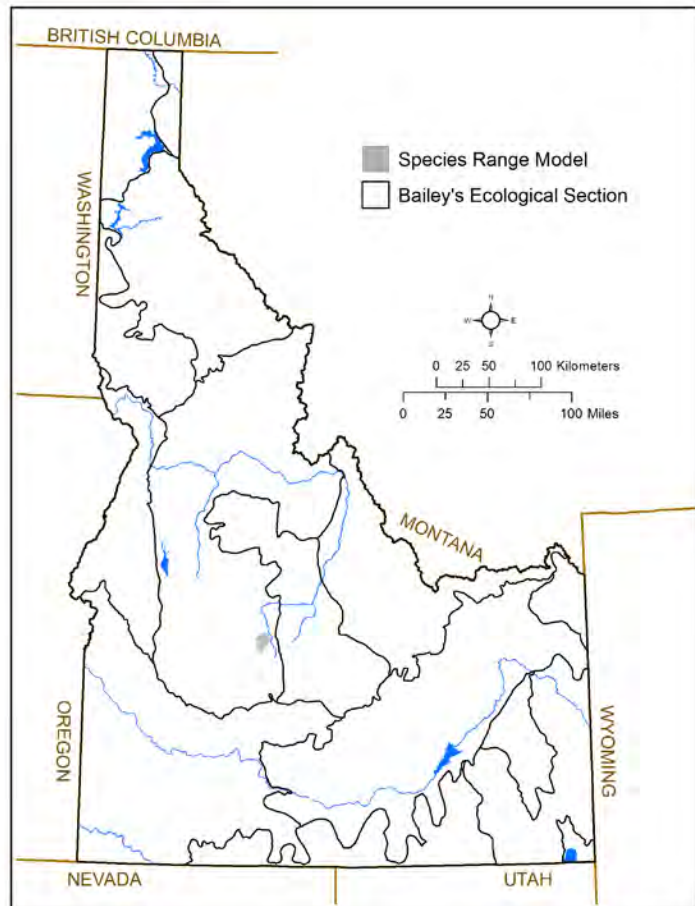
IDAPA: Unprotected Wildlife

G-rank: GU

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is known to occur in Idaho (Alturas Lake, Blaine County) and Montana. In Idaho, it was last collected in 1965 and whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Smith SD. 1969. Two new species of Idaho Trichoptera with distributional and taxonomic notes on other species. *Journal of Kansas Entomological Society* 42:46–53.

Map Sources: Smith SD. 1969. Two new species of Idaho Trichoptera with distributional and taxonomic notes on other species. *Journal of the Kansas Entomological Society* 42:46–53.

A Caddisfly

Manophylax annulatus

Class: Insecta
Order: Trichoptera
Family: Apataniidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

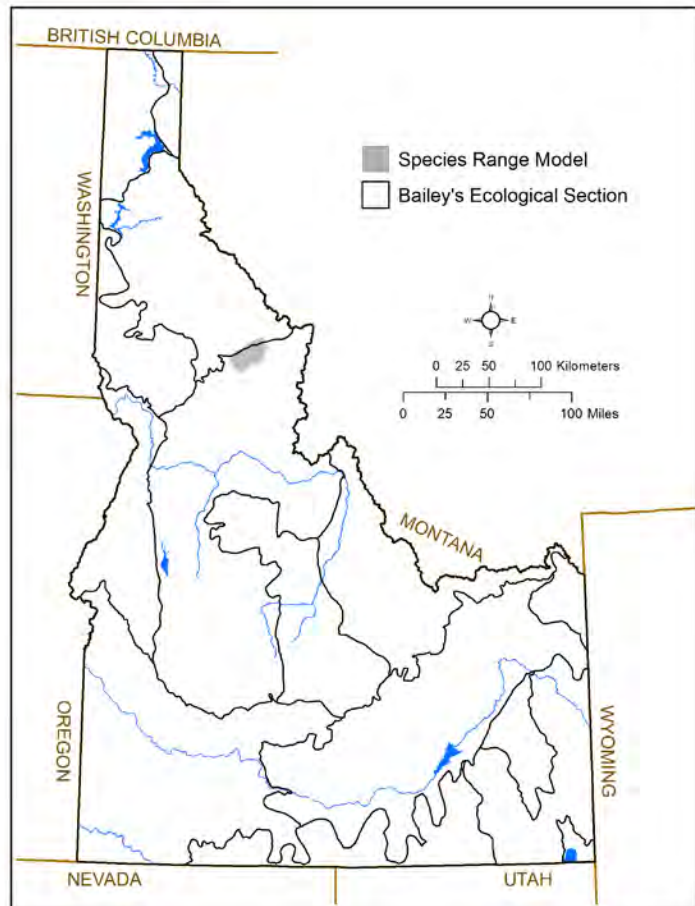
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 700 km² (~300 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is an Idaho endemic, incredibly localized and rare (thus, the genus name "mano"). It is only known from one location in Idaho County, northeast of Lowell, and was collected in 1968. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Details of habitat requirements have not been documented. However, the species was collected in a small, fast-flowing, high-elevation stream. The larvae were found on flat rocks in a thin film of flowing water.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Wiggins GB. 1973. Contributions to the systematics of the caddisfly family Limnephilidae (Trichoptera). I. Life Sciences Contributions, Royal Ontario Museum, Number 94.; Wiggins GB. 2015. Larvae of the North American caddisfly genera (trichoptera) second edition. Toronto (Canada): University of Toronto Press; Chuluunbat S, Morse JC, Lessard JL, Benbow ME, Wesener MD, Hudson J. 2010. Evolution of terrestrial habitat in *Manophylax* species (Trichoptera: Apataniidae), with a new species from Alaska. Journal of the North American Benthological Society 29:413–430.

Map Sources: Wiggins GB. 1973. Contributions to the systematics of the caddisfly family Limnephilidae (Trichoptera). I. Life Sciences contribution Royal Ontario Museum 94, Toronto, Canada.

A Caddisfly

Glossosoma idaho

Class: Insecta

Order: Trichoptera

Family: Glossosomatidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

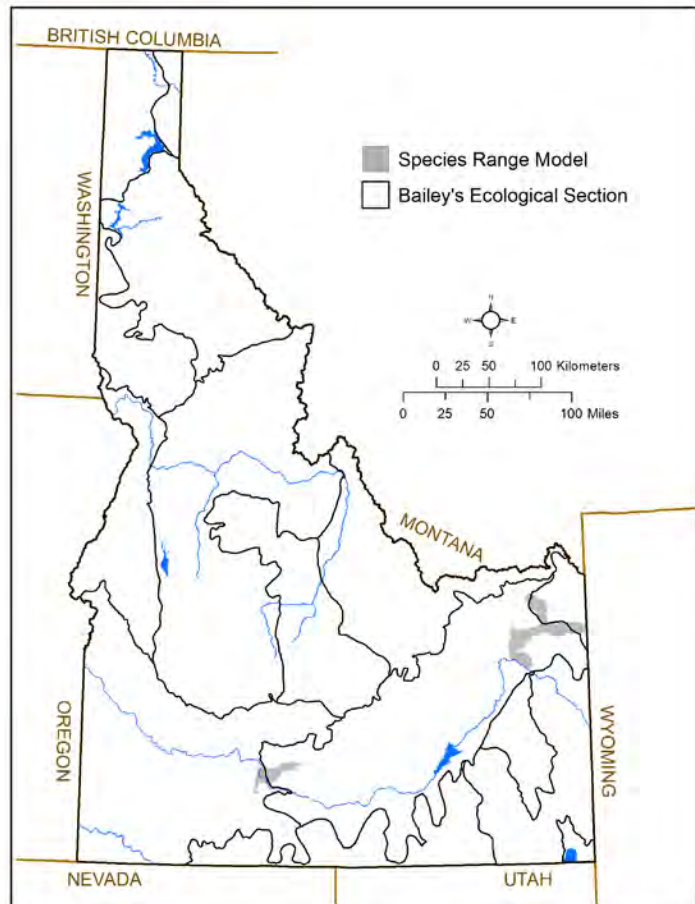
IDAPA: Unprotected Wildlife

G-rank: G2G3

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Snake River Basalts, Yellowstone Highlands

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly occurs in Idaho and Montana. In Idaho, it has been recorded from Niagara Springs (Gooding County) and Falls River (Fremont County). It is reported as rare and infrequently collected. Whether the species is extant is not known.

HABITAT & ECOLOGY

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

Description: Details of this species habitat requirements have not been documented however, it appears to occur mainly in larger, open canopied mountain streams.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Newell RL, Minshall GW. 1979. Aquatic invertebrates of southeastern Idaho II. Trichoptera (Caddisflies). *Journal of the Idaho Academy of Science* 15:33–51; Roemhild G. 1982. The Trichoptera of Montana with distributional and ecology notes. *Northwest Science* 56: 8–13.

Map Sources: Global Biodiversity Information Facility. [Accessed November 20, 2014] www.gbif.org.; Integrated Digitized Biocollections (iDigBio) Specimen Portal, [accessed December 10, 2014] www.idigbio.org.; Newell RL, Minshall GW. 1977. An annotated list of the aquatic insects of Southeastern Idaho, Part II: Trichoptera. *Great Basin Naturalist* 37:253-257

A Caddisfly

Cheumatopsyche logani

Class: Insecta
Order: Trichoptera
Family: Hydropsychidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

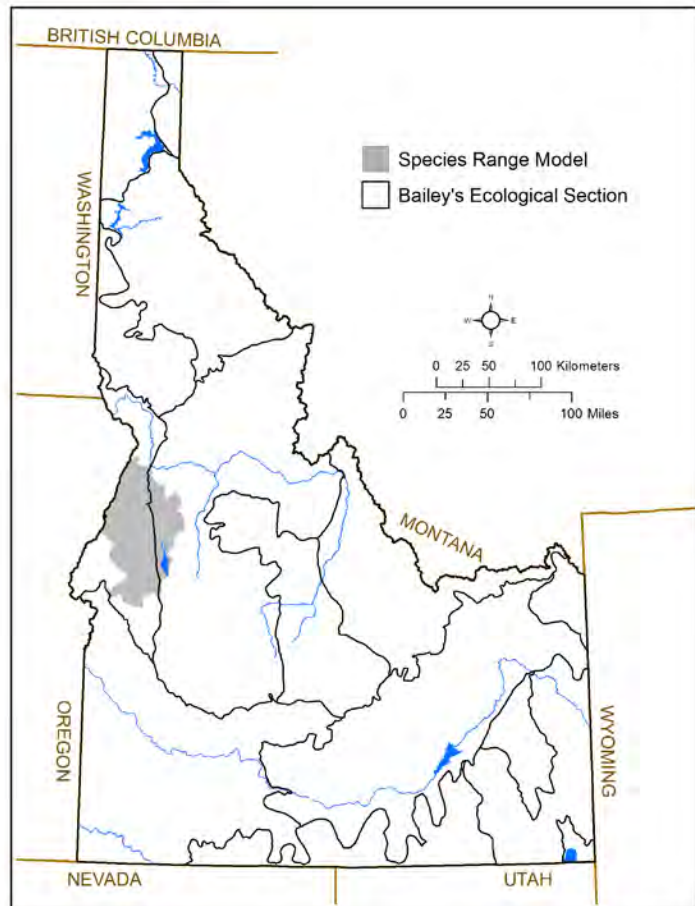
IDAPA: Unprotected Wildlife

G-rank: G3G5

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 7,000 km² (~2,700 mi²)

Key Ecological Sections: Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is known only from Washington, Montana, and Idaho. In Idaho, the type specimen was collected in 1965 on the Little Salmon River in Adams County. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Nimmo AP. 1987. The adult Arctopsychidae and Hydropsychidae (Trichoptera) of Canada and adjacent United States. *Quaestiones Entomologicae* 23:1–189; Roemhild G. 1982. The Trichoptera of Montana with distributional and ecology notes. *Northwest Science* 56: 8–13.

Map Sources: Gordon, A. E. and S. D. Smith. 1974. A new species of *Cheumatopsyche* (Trichoptera, Hydropsychidae) from the northwestern United States. *Notulae Naturae* 450:1-2.

A Caddisfly

Arctopora salmon

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

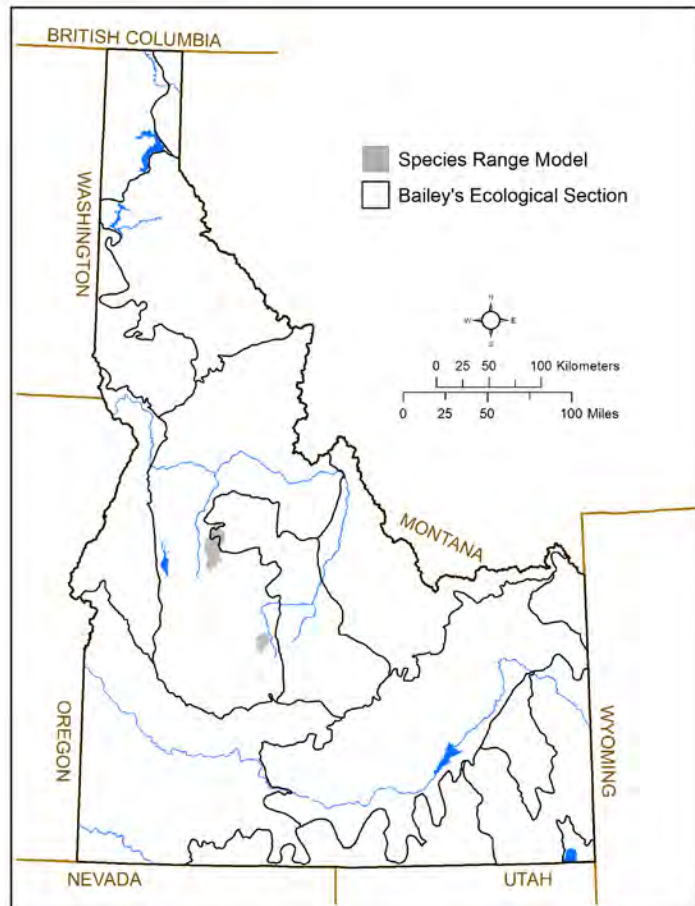
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S3Q

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 700 km² (~300 mi²)

Key Ecological Sections: Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: Originally thought to be endemic to Idaho, this caddisfly is now known to occur in northwest Montana as well. In Idaho, the species is known from the type specimen collected in 1965 near Landmark in Valley County as well as a 1985 collection in Alturas Lake (Blaine county). Surveys in 2010 in Glacier County, Montana, identified two additional collections. The lack of collections suggests low densities, but also highlights the need for additional sampling.

HABITAT & ECOLOGY

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

Description: Details of this species habitat requirements have not been documented however, the species has been collected in wet meadows and small wetlands.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

Given the recent sampling, expert D. Ruiter suspects that this species is a synonym but additional work comparing all *Arctopora* types needs to be done to be sure how many species there really are.

Information Sources: Hossack BR, Newell RL, Ruiter DE. 2011. New collection records and range extension for the caddisfly *Arctopora salmon* (Smith, 1969) (Trichoptera: Limnephilidae). *Pan-Pacific Entomologist* 87:206-208.

Map Sources: Hossack BR, Newell RL, Ruiter DE. 2011. New collection records and range extension for the caddisfly *Arctopora salmon* (Smith, 1969) (Trichoptera: Limnephilidae). *Pan-Pacific Entomologist* 87:206-208; Smith SD. 1969. Two new species of Idaho Trichoptera with distributional and taxonomic notes on other species. *Journal of the Kansas Entomological Society* 42:46-53.

A Caddisfly

Eocosmoecus schmidi

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

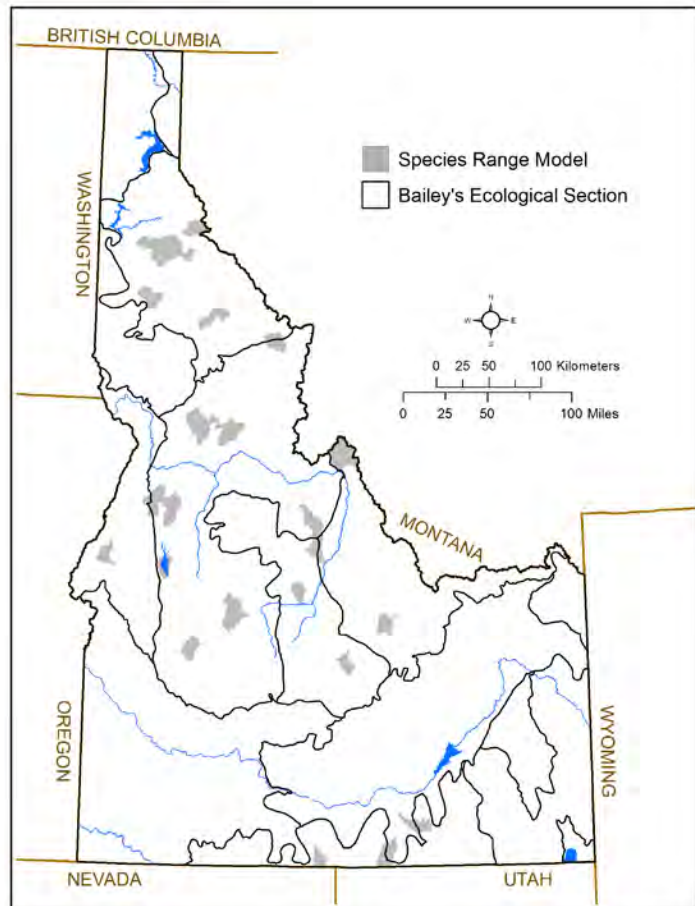
IDAPA: Unprotected Wildlife

G-rank: G4

S-rank: S2

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 7,600 km² (~2,900 mi²)

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

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly occurs in British Columbia, Washington, Idaho, and Montana. In Idaho, it has been recorded in several areas of the state, mainly in the mid-1990s. The most recent observation (2008) was in Lemhi County. It appears to be relatively uncommon and infrequently collected, but may be more common and simply under-collected.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: The species is found in small, cold streams in subalpine habitat. It feeds on plant detritus and is thought to require two years to complete its life cycle. This species is considered a good surrogate indicator for other species of subalpine small, cold streams.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats to populations have not been documented, however the primary threat is thought to be the loss and/or degradation of source headwater habitats. In addition, the species may be vulnerable to climate change due to its habitat preferences.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Wisseman R, Aquatic Biology Associates, pers. comm.; Wiggins GB, Richardson JS. 1989. Biosystematics of *Eocosmoecus*, a new Nearctic caddisfly genus (Trichoptera: Limnephilidae, Dicosmoecinae). Journal of the North American Benthological Society 8:355–369; Wiggins GB. 1975. Contributions to the systematics of the caddisfly family Limnephilidae (Trichoptera). II. Canadian Entomologist 107:325–336.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Wiggins GB, Richardson JS. 1989. Biosystematics of *Eocosmoecus*, a new Nearctic caddisfly genus (Trichoptera: Limnephilidae, Dicosmoecinae). Journal of the North American Benthological Society 8:355–369; Wisseman R, Ruiter D, Aquatic Biology Associates, unpublished data.

A Caddisfly

Homophylax acutus

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

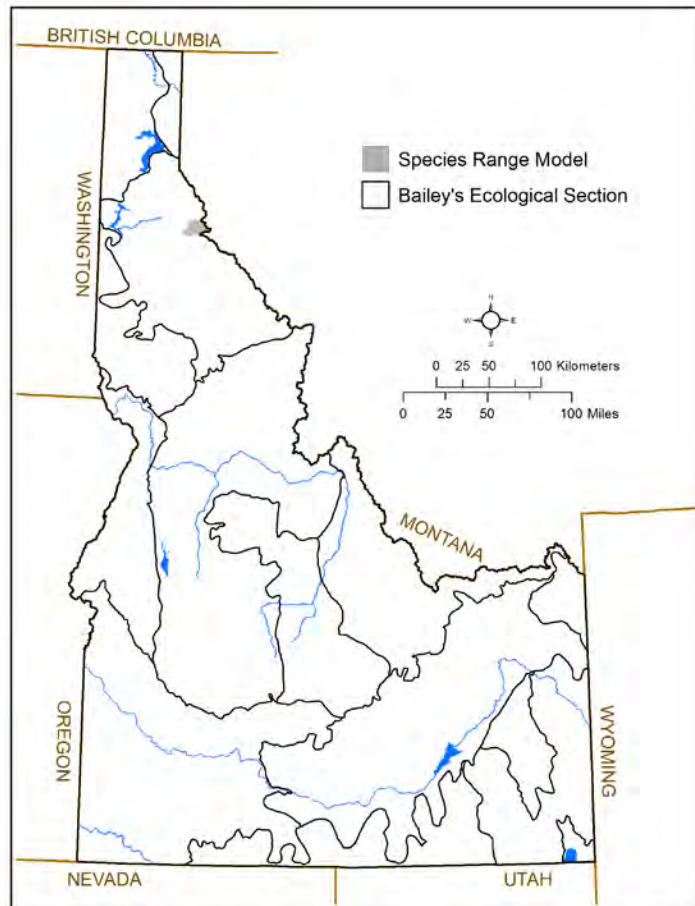
IDAPA: Unprotected Wildlife

G-rank: G3G5

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 300 km² (~100 mi²)

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is known to occur in Idaho, Montana, Alberta, and British Columbia. The only known location in Idaho is from Wallace. Most known species in this genus are localized in distribution and rarely collected. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented however, it appears to be a subalpine–alpine species and has been found in small high-elevation creeks and pools.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Ruitter D, pers.comm.; Wisseman R, Aquatic Biology Associates, pers. comm.; Denning DG. 1964. The genus *Homophylax* (Trichoptera: Limnephilidae). Annals of the Entomological Society of America 57: 253-260; Roemhild G. 1982. The Trichoptera of Montana with distributional and ecology notes. Northwest Science 56: 8-13.

Map Sources: Denning DG. 1964. The genus *Homophylax* (Trichoptera: Limnephilidae). Annals of the Entomological Society of America 57: 253-260.

A Caddisfly

Homophylax auricularis

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

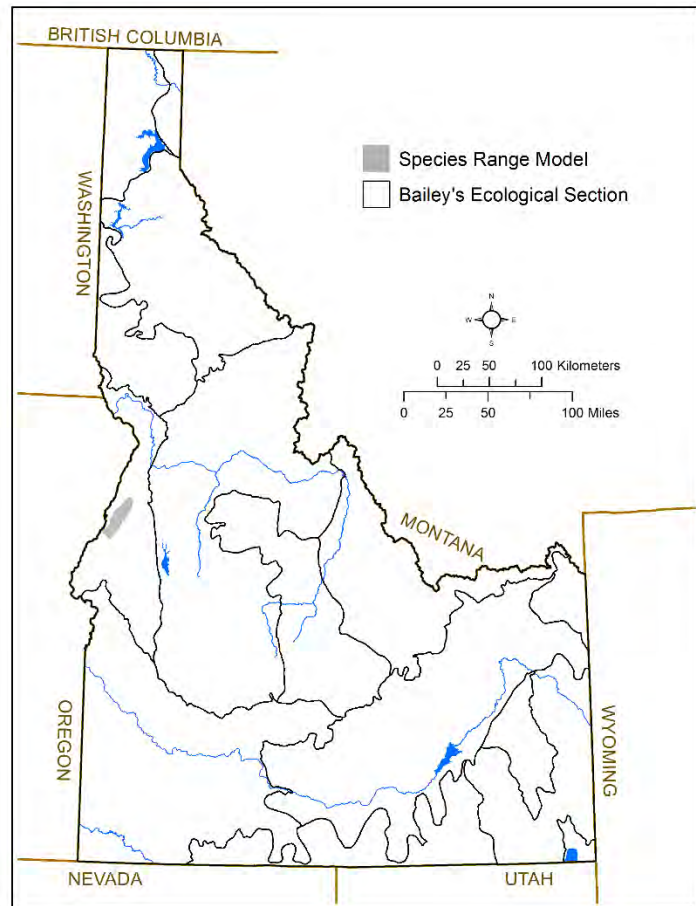
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: SNR

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 500 km² (~200 mi²)

Key Ecological Sections: Blue Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is an Idaho endemic that was described from specimens collected near the town of Bear in Adams County in 1951. Most known species in this genus are localized in distribution and rarely collected. Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented however, it has been found in mountain streams and lakes.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Denning DG. 1964. The genus *Homophylax* (Trichoptera: Limnephilidae). *Annals of the Entomological Society of America* 57: 253-260; Smith SD. 1971. Notes and new species of Limnephilid caddisflies from Idaho (Trichoptera: Limnephilidae). *The Pan-Pacific Entomologist* 47:184-188.

Map Sources: Denning DG. 1964. The genus *Homophylax* (Trichoptera: Limnephilidae). *Annals of the Entomological Society of America* 57: 253-260.

A Caddisfly

Limnephilus challisa

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

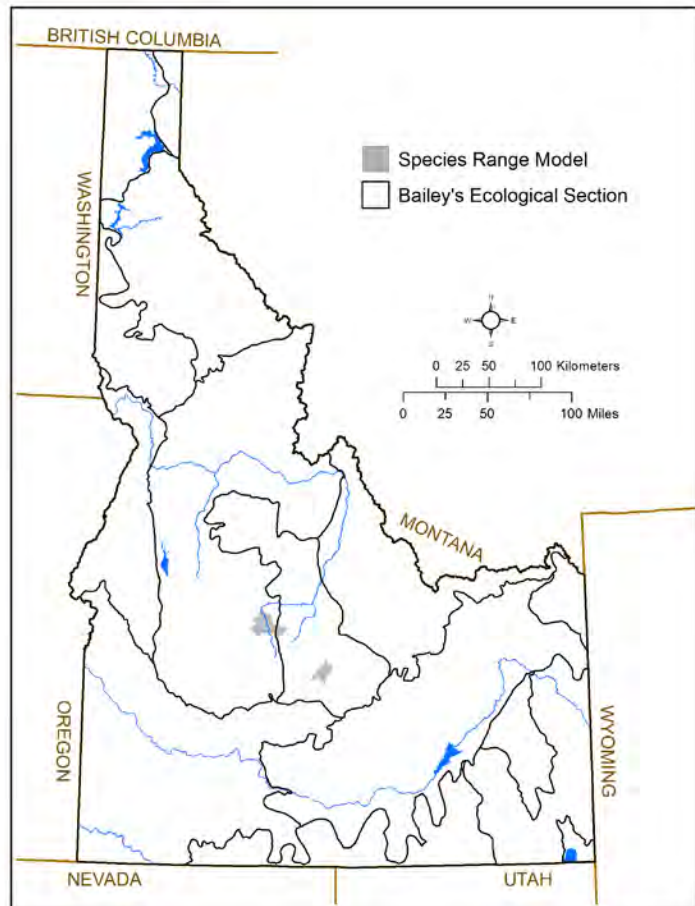
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: SNR

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 700 km² (~300 mi²)

Key Ecological Sections: Challis Volcanics, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is an Idaho endemic, known only from Hyndman Creek (Blaine County, 1952) and the Salmon River near Stanley (Custer County, 1965). Whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

Surveys are needed to determine if this species is extant in Idaho.

ADDITIONAL COMMENTS

None.

Information Sources: Ruiter DE. 1995. The adult *Limnephilus* Leach (Trichoptera: Limnephilidae) of the New World. Ohio Biological Survey Bulletin Vol 11, No 1, 206 pp; Newell RL, Minshall GW. 1979. Aquatic invertebrates of southeastern Idaho II. Trichoptera (Caddisflies). Journal of the Idaho Academy of Science 15:33–51.

Map Sources: Ruiter DE, unpublished data; Ruiter DE. 1995. The adult *Limnephilus* Leach (Trichoptera: Limnephilidae) of the New World. Ohio Biological Survey Bulletin Vol 11, No 1, 206pp.; Smith SD. 1969. Two new species of Idaho Trichoptera with distributional and taxonomic notes on other species. Journal of the Kansas Entomological Society 42:46–53.

A Caddisfly

Philocasca antennata

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

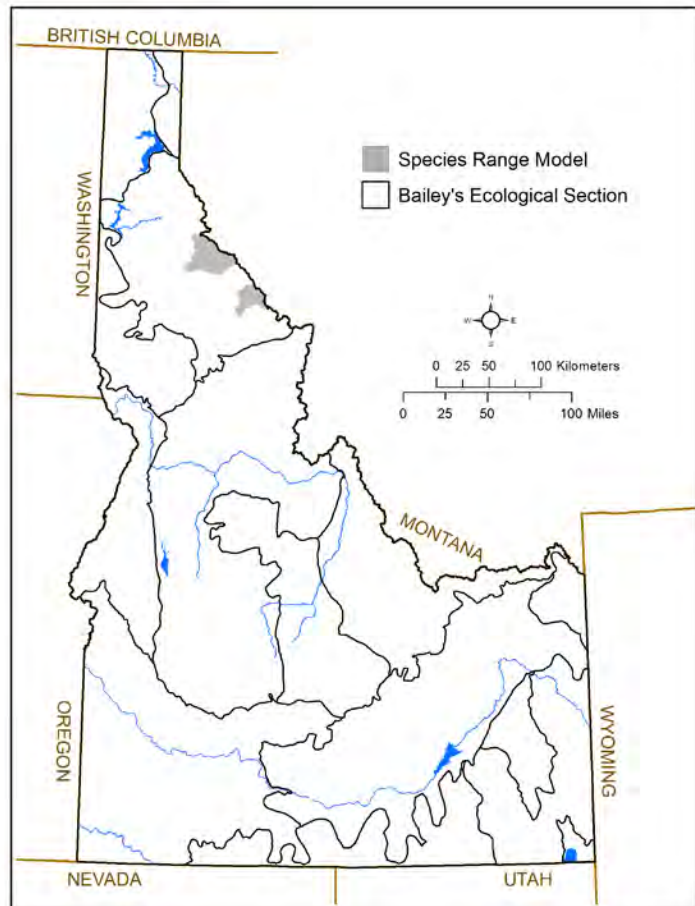
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is known to occur in Idaho, Montana, and Washington. In Idaho, it is known from only 1 collection near Wallace. It appears to be rare and is infrequently collected.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Details of this species habitat requirements have not been documented however, it appears to be more highly habitat specific than other species in the region. Adults have been collected from small, cold, low-gradient, conifer-forested streams with loose gravel in the stream bed. Larvae of this species have not been described. Larvae of other species in the genus have been known to spend part of their life cycle terrestrially, leaving the stream channel during cool, wet seasons and returning to the stream when the forest floor dries out.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Unknown

Description: Specific threats to populations have not been documented, however the primary threat is thought to be the loss and/or degradation of source headwater habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Wiggins GB, Anderson NH. 1968. Contributions to the systematics of the caddisfly genera *Pseudostenophylax* and *Philocasca* with special reference to the immature stages (Trichoptera: Limnephilidae). Canadian Journal of Zoology 46:61–75.

A Caddisfly

Philocasca banksi

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

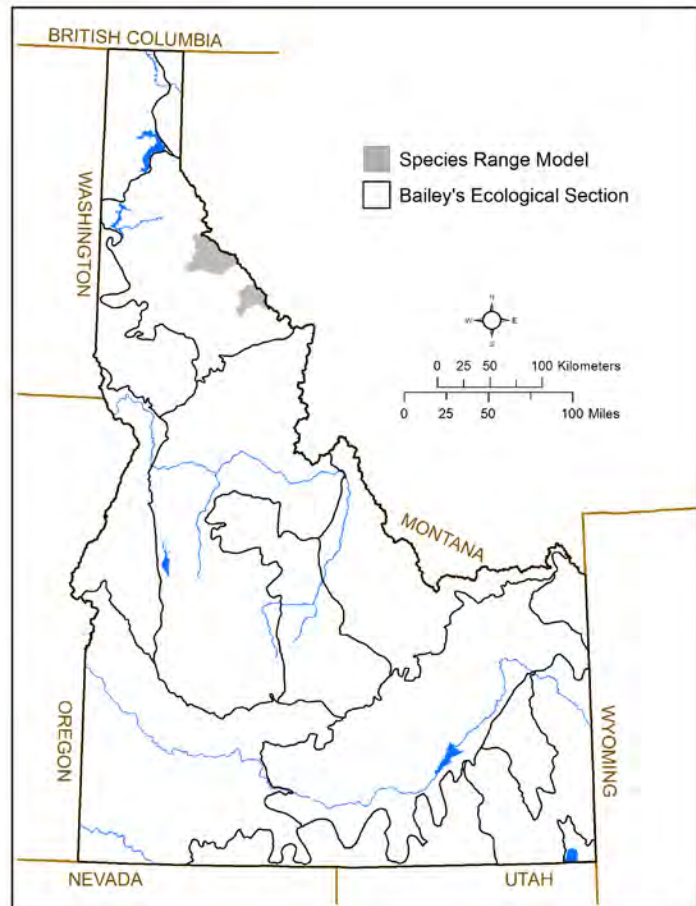
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly occurs in Idaho and Montana and is endemic to the Northern Rocky Mountain Refugium. It appears to be rare and is infrequently collected with only a few known localities. The holotype was collected near Wallace in 1941.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Details of this species habitat requirements have not been documented however, it appears to be more highly habitat specific than other species in the region. Adults have been collected from small, cold, low-gradient, conifer-forested streams with loose gravel in the stream bed. Larvae of this species have not been described. Larvae of other species in the genus have been known to spend part of their life cycle terrestrially, leaving the stream channel during cool, wet seasons and returning to the stream when the forest floor dries out.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Appendix F. Species Conservation Status Assessments

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Description: Specific threats to populations have not been documented, however the primary threat is thought to be the loss and/or degradation of source headwater habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Wiggins GB, Anderson NH. 1968. Contributions to the systematics of the caddisfly genera *Pseudostenophylax* and *Philocasca* with special reference to the immature stages (Trichoptera: Limnephiliidae). *Canadian Journal of Zoology* 46:61–75.

A Caddisfly

Psychoglypha smithi

Class: Insecta
Order: Trichoptera
Family: Limnephilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

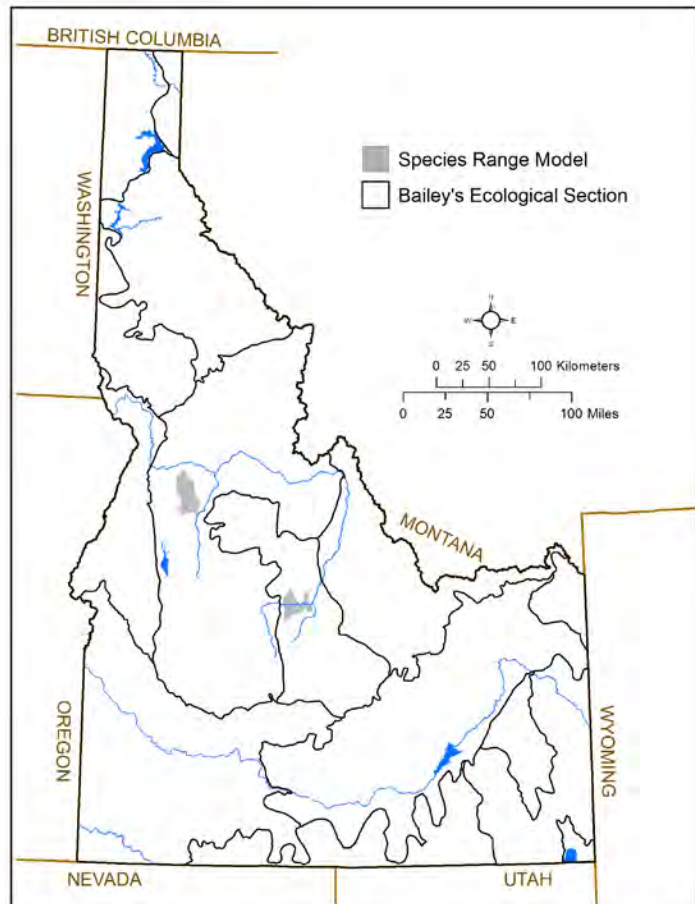
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: S2

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 1,100 km² (~400 mi²)

Key Ecological Sections: Challis Volcanics, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is an Idaho endemic, known from only 2 locations in Custer and Idaho counties. It is one of the smallest species in the genus.

HABITAT & ECOLOGY

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

Description: Details of this species habitat requirements have not been documented however, it has been found in small, fast-flowing, cold streams. Most species in this genus are cold-adapted and are frequently found in the late fall, winter or early spring, often on snow.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: D Ruiter, unpublished data; Denning DG. 1970. The genus *Psychoglypha* (Trichoptera: Limnephilidae). The Canadian Entomologist 102:15-30.

Map Sources: Ruiter DE, unpublished data; Denning DG. 1970. The genus *Psychoglypha* (Trichoptera: Limnephilidae). The Canadian Entomologist 102:15-30

A Caddisfly

Rhyacophila oreia

Class: Insecta
Order: Trichoptera
Family: Rhyacophilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

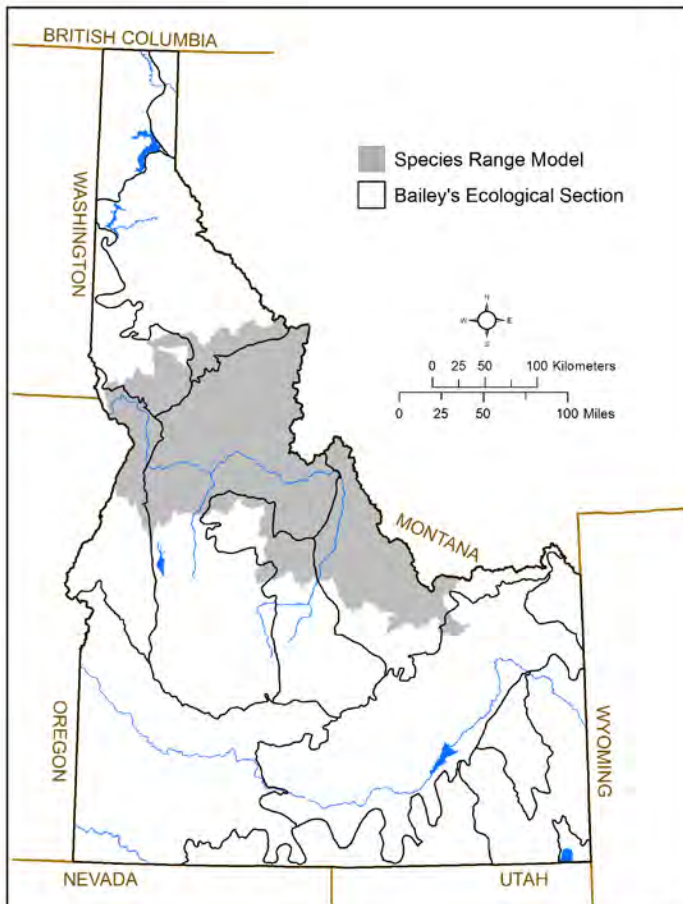
IDAPA: Unprotected Wildlife

G-rank: G1G3

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 44,500 km² (~17,200 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is known to occur in Montana, Wyoming, and Idaho. In Idaho, it has been recorded in the South Fork area of the Salmon River drainage in Valley County, near Gibbonsville in Lemhi County and at Lolo Pass in Idaho County. All collections are from before 1970. It is a small, uncommon species.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented. However, it tends to be found in small, fast-flowing, cold streams typically in forested habitats. Most species in this genus are predators feeding on aquatic insects, especially midges and blackflies.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Appendix F. Species Conservation Status Assessments

Intrinsic Vulnerability: Unknown

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Wold JL. 1974. Systematics of the Genus *Rhyacophila* (Trichoptera: Rhyacophilidae) in Western North America with special reference to the immature stages. Master's Thesis. Corvallis (OR): Oregon State University; Smith SD. 1968. The *Rhyacophila* of the Salmon River drainage of Idaho with special reference to larvae. Annals of the Entomological Society of America 61:655-674.

Map Sources: Wold JL. 1974. Systematics of the Genus *Rhyacophila* (Trichoptera: Rhyacophilidae) in Western North America with special reference to the immature stages. Master's Thesis. Corvallis (OR): Oregon State University.

A Caddisfly

Rhyacophila robusta

Class: Insecta

Order: Trichoptera

Family: Rhyacophilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

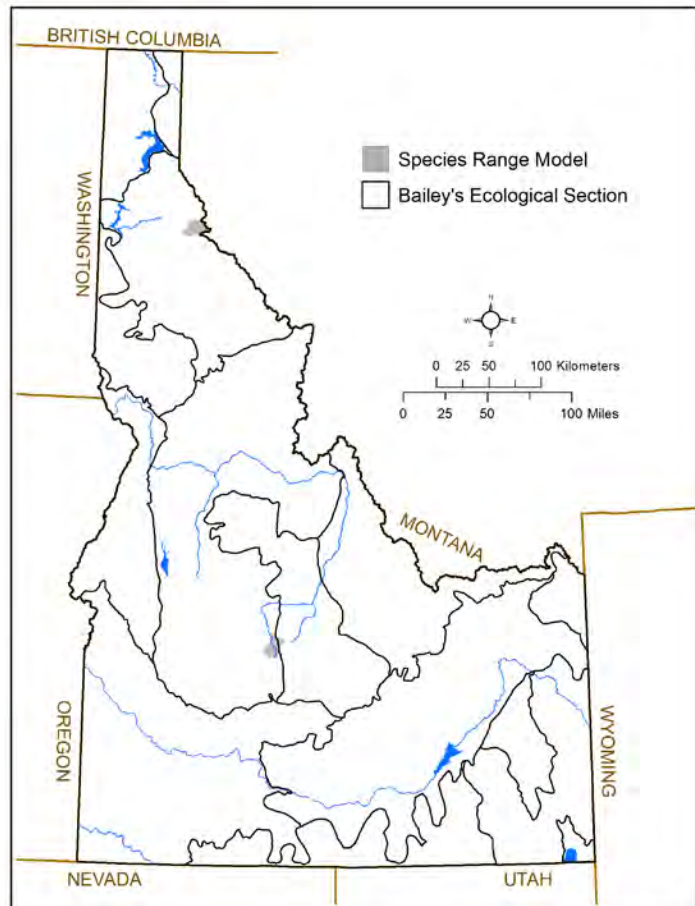
IDAPA: Unprotected Wildlife

G-rank: G2G3

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 500 km² (~200 mi²)

Key Ecological Sections: Bitterroot Mountains, Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is known from Montana, Idaho, British Columbia, and Alberta. In Idaho, it was documented in Shoshone and Blaine counties in 1996.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented. However, it tends to be found in small, fast-flowing, cold streams typically in forested habitats. Most species in this genus are predators feeding on aquatic insects, especially midges and blackflies.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Roemhild G. 1982. The Trichoptera of Montana with distributional and ecology notes. Northwest Science 56: 8–13.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].

A Caddisfly

Rhyacophila velora

Class: Insecta

Order: Trichoptera

Family: Rhyacophilidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

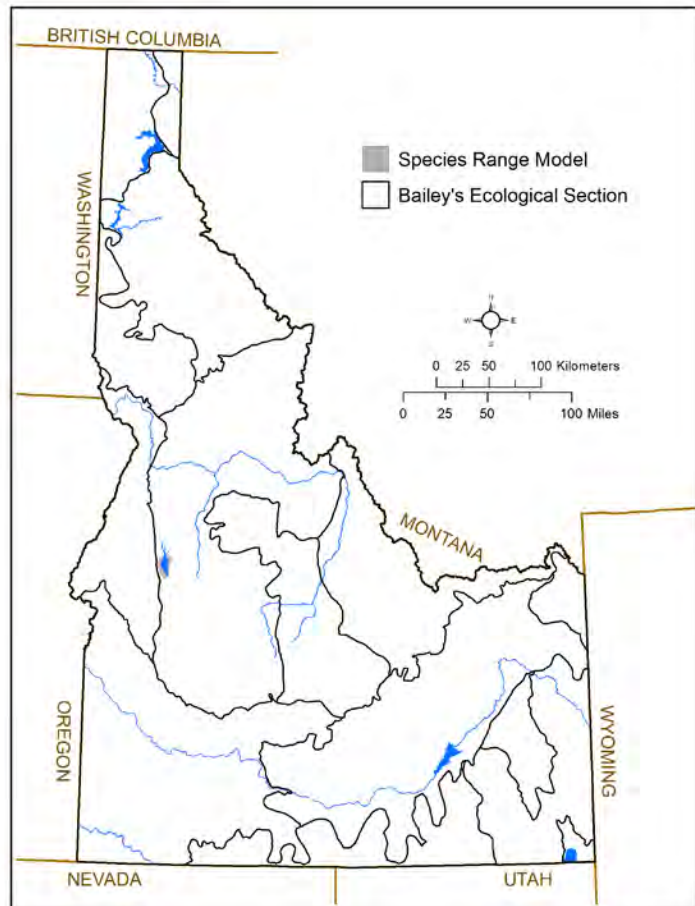
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: SNR

SGCN TIER: 3

Rationale: Data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly was previously known from only a few sites in California and Oregon, but has been collected by the Idaho Department of Environmental Quality at Campbell Creek, Valley County, in 1995.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: Details of this species habitat requirements have not been documented. However, it tends to be found in small, fast-flowing, cold streams typically in forested habitats. Most species in this genus are predators feeding on aquatic insects, especially midges and blackflies.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified. In general, caddisfly populations are affected by changes to aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life. Version 7.1. Arlington (VA): NatureServe. <http://explorer.natureserve.org>; Wold JL. 1974. Systematics of the Genus *Rhyacophila* (Trichoptera: Rhyacophilidae) in Western North America with special reference to the immature stages. Master's Thesis. Corvallis (OR): Oregon State University.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].

A Caddisfly

Goereilla baumanni

Class: Insecta
Order: Trichoptera
Family: Rossianidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

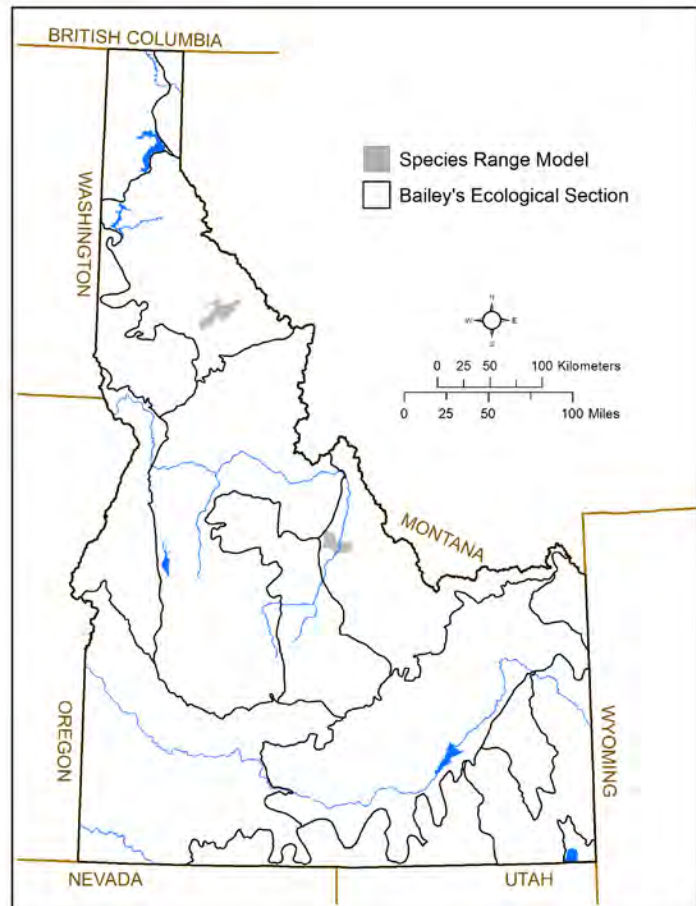
IDAPA: Unprotected Wildlife

G-rank: G2

S-rank: S1

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is endemic to the Northern Rocky Mountain Refugium in north-central Idaho and western Montana. In 2007, it was known from only 6 occurrences, 5 in Montana and 1 in Idaho (Clearwater County). When found, it is always reported in low abundance.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Little is known of this species' biology and ecology, however it has been found in headwater springs and seeps.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats to populations have not been documented, however the primary threat is thought to be the loss and/or degradation of source headwater habitats.

Appendix F. Species Conservation Status Assessments

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.

Map Sources: Wisseman R, Ruitter DE, Aquatic Biology Associates, unpublished data; Northern Rocky Mountain Refugium Caddisfly – *Goereilla baumanni*. Montana Field Guide. Montana natural Heritage Program <http://FieldGuide.mt.gov> [Accessed Jan 12, 2015]; Stagliano DM, Stephens GM, Bosworth WR. 2007. Aquatic Invertebrate Species of Concern on USFS Northern Region Lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program and Boise (ID): Idaho Conservation Data Center.

A Caddisfly

Sericostriata surdickae

Class: Insecta
Order: Trichoptera
Family: Uenoidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

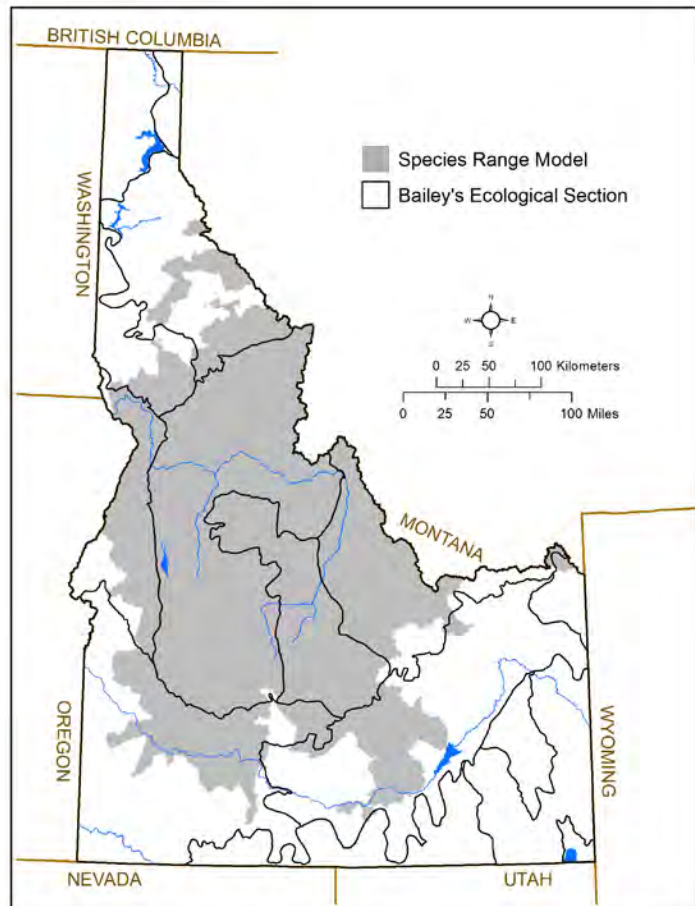
IDAPA: Unprotected Wildlife

G-rank: G3

S-rank: S3

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 121,600 km² (~47,000 mi²)

Key Ecological Sections: Beaverhead Mountains, Bitterroot Mountains, Blue Mountains, Challis Volcanics

Population Size in Idaho: Not applicable for invertebrates.

Description: This caddisfly is endemic to northern and central Idaho and western Montana, but is patchily distributed across this area. It has been documented in several Idaho counties. Recent sampling efforts have found new locations in Montana and modeling suggests a high likelihood of finding occurrences in previously undocumented sites.

HABITAT & ECOLOGY

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

Description: This species is found in cold, fast-flowing streams, typically in mid-elevation and subalpine forested habitats. The larvae occur on the upper surfaces of rocks, especially in the splash zones, and are often found in aggregates. They are distinctive and diagnostic making them hard to miss or misidentify. Adults emerge mid-July to mid-August. The species is thought to require at least 2 years to complete its life cycle.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Moderately vulnerable

Description: Specific threats to populations have not been documented, however the primary threat is thought to be the loss and/or degradation of source headwater habitats.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Stagliano DM, Maxell BA. 2010. Aquatic invertebrate species of concern: updated distributions, vital watersheds, and predicted sites within USFS Northern Region lands. Report to USDA Forest Service, Northern Region. Helena (MT): Montana Natural Heritage Program.; Mazzacano C. 2008. *Sericostriata surdickae* (Wiggins, Weaver and Unzicker 1995) A northern Rocky Mountain Refugium caddisfly Trichoptera: Uenoidae. The Xerces Society for Invertebrate Species Conservation. [Accessed Jan 12, 2015] www.xerces.org/wp-content/uploads/2008/09/sericostriata_surdickae.pdf; Wiggins GB, Weaver JS III, Unzicker JD. 1985. Revision of the caddisfly family Uenoidae (Trichoptera). The Canadian Entomologist 117:763–800.

Map Sources: Wisseman R, Ruitter DE, Aquatic Biology Associates, unpublished data; Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Mazzacano C. 2008. *Sericostriata surdickae* (Wiggins, Weaver and Unzicker 1995) A northern Rocky Mountain Refugium caddisfly Trichoptera: Uenoidae. Portland (OR): The Xerces Society for Invertebrate Conservation. [Accessed Jan 12, 2015] www.xerces.org/wp-content/uploads/2008/09/sericostriata_surdickae.pdf

Idaho Amphipod

Stygobromus idahoensis

Class: Malacostraca

Order: Amphipoda

Family: Crangonyctidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

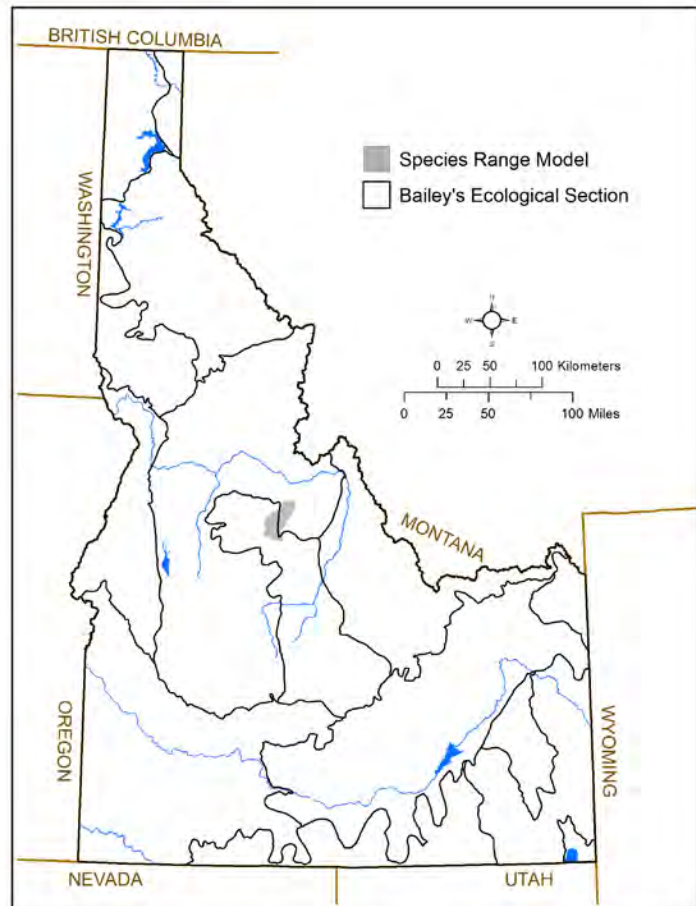
IDAPA: Unprotected Wildlife

G-rank: G1G2

S-rank: S1

SGCN TIER: 3

Rationale: Idaho endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 600 km² (~200 mi²)

Key Ecological Sections: Idaho Batholith

Population Size in Idaho: Not applicable for invertebrates.

Description: The Idaho Amphipod is an Idaho endemic, known only from the mouth of a tributary to the Middle Fork Salmon River, Lemhi County. It was last collected in 1986 and whether the species is extant is not known.

HABITAT & ECOLOGY

Environmental Specificity: Very narrow: Specialist—key requirements are scarce.

Description: Little is known of this species' biology and ecology, however it has been found in shallow water habitat.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented for this species.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Appendix F. Species Conservation Status Assessments

Description: Species-specific threats have not been identified but likely include any changes to its aquatic habitat, such as alteration of flow patterns, streambed substrate, thermal characteristics, and water quality.

CONSERVATION ACTIONS

We have an inadequate understanding of the current population status for this species. Conservation actions should therefore focus on improving our knowledge of distribution and abundance, and clarifying the nature and extent of threats where appropriate.

ADDITIONAL COMMENTS

None.

Information Sources: Wang D, Holsinger JR. 2001. Systematics of the subterranean amphipod genus *Stygobromus* (Crangonyctidae) in Western North America, with emphasis on species of the *hubbsi* group. *Amphipacifica* 3(2):39–147; JR Holsinger, Old Dominion University, pers. comm.

Map Sources: Idaho Department of Fish and Game. Idaho Fish and Wildlife Information System, Species Diversity Database. [Accessed July 1, 2014].

Snake River Pilose Crayfish

Pacifastacus connectens

Class: Malacostraca

Order: Decapoda

Family: Astacidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

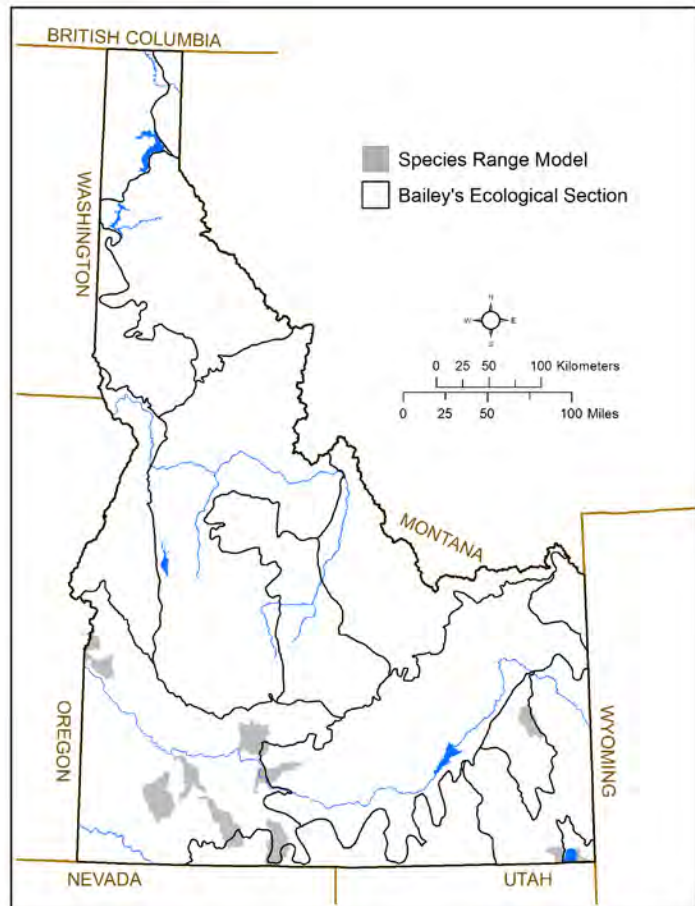
IDAPA: Game Fish

G-rank: G3G4

S-rank: SNR

SGCN TIER: 3

Rationale: Regional endemic, data deficient



DISTRIBUTION & ABUNDANCE

Range Extent in Idaho: 5,400 km² (~2,100 mi²)

Key Ecological Sections: Northwestern Basin and Range, Owyhee Uplands, Snake River Basalts

Population Size in Idaho: Not applicable for invertebrates.

Description: Historically, the range of the Snake River Pilose Crayfish extended from southeastern Oregon, across the Snake River plain of southern Idaho and into northern Nevada. Little is known of its contemporary distribution or conservation status.

HABITAT & ECOLOGY

Environmental Specificity: Unknown

Description: This species is found in lotic habitats and is sensitive to water quality, however, little else is known of the ecology and life history of the species.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Unknown

Appendix F. Species Conservation Status Assessments

Description: Threats to the population are not specifically identified but could include land use change and/or habitat loss or degradation affecting water quality. The introduction of invasive crayfish species in southern Idaho have also likely affected the species.

CONSERVATION ACTIONS

Recent studies indicate that the Snake River Pilose Crayfish and Pilose Crayfish (*P. gambelii*) might be the same species. Additional genetic research is needed to determine the taxonomic uniqueness of this species.

ADDITIONAL COMMENTS

None.

Information Sources: Larson ER, Olden JD. 2011. The state of crayfish in the Pacific Northwest. Fisheries 36:60–73.

Map Sources: Idaho Department of Environmental Quality. BUGS database. [Accessed February 13, 2015].; Larson ER, Olden JD. 2011. The state of crayfish in the Pacific Northwest. Fisheries 36:60–73.

Giant Palouse Earthworm

Driloleirus americanus

Class: Oligochaeta

Order: Haplotaxida

Family: Megascolecidae

CONSERVATION STATUS & CLASSIFICATION

ESA: No status

USFS:

Region 1: No status

Region 4: No status

BLM: No status

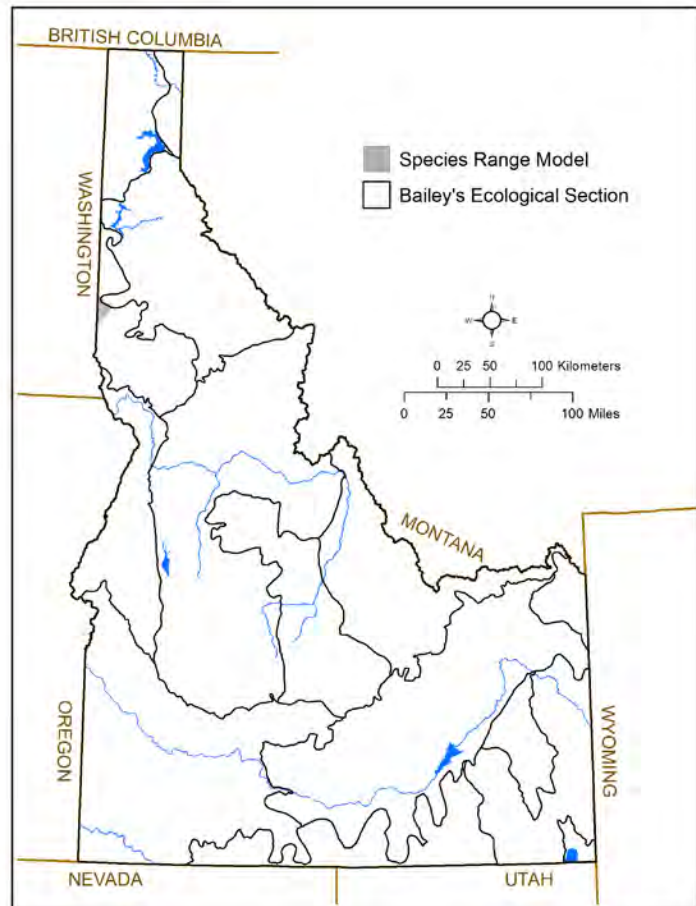
IDAPA: Unprotected Wildlife

G-rank: G1

S-rank: S2

SGCN TIER: 2

Rationale: Regional endemic, data deficient, IUCN Vulnerable



DISTRIBUTION & ABUNDANCE

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

Key Ecological Sections: Palouse Prairie

Population Size in Idaho: Not applicable for invertebrates.

Description: The Giant Palouse Earthworm, once thought to be endemic to the Palouse grasslands in Washington and northern Idaho, has recently been documented to occur across a broader area of Washington (Whitman, Kittitas, and Chelan counties), but in Idaho, is still only known from Latah County. Although reported as "very abundant" in 1897, few records of the species existed until the last 10 years. Recent Idaho records include specimens from Moscow Mountain (1988), Paradise Ridge (2008, 2010, 2012), and East of Moscow (2010).

HABITAT & ECOLOGY

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

Description: Habitat requirements for this species are not well understood. Generally it is associated with Palouse Prairie vegetation, but it has also been found in relatively open canopy forested systems. It is thought to be capable of burrowing up to 15 ft deep, making it difficult to detect in surveys.

POPULATION TREND

Short-term Trend: Unknown

Long-term Trend: Unknown

Description: Population trends have not been documented.

Appendix F. Species Conservation Status Assessments

THREATS

Overall Threat Impact: Unknown

Intrinsic Vulnerability: Highly vulnerable

Description: Direct threats to this species are unknown, but are thought to include land-use change, habitat fragmentation, and competition with nonnative earthworms.

CONSERVATION ACTIONS

Conservation issues and management actions are described in the Palouse Prairie Section plan. In short, recommended strategies for the Giant Palouse Earthworm include preservation of native grassland remnants, minimizing conversion of grazing pastures to crop fields, early detection and response to invasive plants, using integrated pest management strategies, and minimizing impacts of rural development.

ADDITIONAL COMMENTS

The species was proposed for listing under the ESA in 2006 and 2009, but deemed not warranted by FWS in 2011 due to recent collections over a broader geographical and ecological range and the lack of data about known direct threats.

Information Sources: Xu S, Johnson–Maynard JL, Prather TS. 2013. Earthworm density and biomass in relation to plant diversity and soil properties in a Palouse Prairie remnant. *Applied Soil Ecology* 72:119–127.; Johnson–Maynard J. 2012. Giant Palouse Earthworm Survey Protocol Final Performance Report; Sanchez–de Leon Y, Johnson–Maynard J. 2009. Dominance of an invasive earthworm in native and non–native grassland ecosystems. *Biological Invasions* 11:1393–1401.; FWS. 2011. 12-month finding on a petition to List the giant Palouse earthworm (*Driloleterius americanus*) as threatened or endangered. *Federal Register* 76:44547–44564.

Map Sources: Xu S, Johnson–Maynard JL, Prather TS. 2013. Earthworm density and biomass in relation to plant diversity and soil properties in a Palouse Prairie remnant. *Applied Soil Ecology* 72:119–127.; Johnson–Maynard J. 2012. Giant Palouse Earthworm Survey Protocol Final Performance Report; Sanchez–de Leon Y, Johnson–Maynard J. 2009. Dominance of an invasive earthworm in native and non–native grassland ecosystems. *Biological Invasions* 11:1393–1401.