

# Conservation Status Assessment

To assess the conservation status of species—specifically their extirpation risk in Idaho—we used standard methods developed by NatureServe. Both NatureServe and Natural Heritage program staff across North America collect and evaluate data for species and ecosystems of concern using these methods and tools to ensure that assigned status ranks are accurate, consistent, and based on current field and remote-sensing information.

Eight core factors are used to assess status: range extent, area of occupancy, population size, number of occurrences, number of occurrences or percent area with good viability/ecological integrity, overall threat impact, long-term trend, and short-term trend (see Master et al. 2012). In addition, 2 other factors, environmental specificity and intrinsic vulnerability, are used when information on the number of occurrences and area of occupancy are unknown or information on threats is unknown, respectively.

Factors are organized into 3 categories (rarity, threats, and trends). Conditional rules for use of factors are applied to ensure that adequate information is used for assessing status. Factors are scaled and weighted according to their impact on risk. Consistent factor scaling and weighting allows the use of points to effectively score the contribution of each factor to risk. Scores are weighted and combined by category resulting in an overall calculated rank, which is reviewed, and a final conservation status rank assigned (see Faber–Langendoen et al. 2012).

A rank calculator automates the process of assigning conservation status ranks (NatureServe 2012). In 2015, NatureServe released an updated version of the rank calculator (NatureServe 2015c), but we were already well underway with our status assessment and so used Version 3.1 from July 2012 (with default weighting). However, we plan to use the updated version for future status assessments.

In assigning the final rank, we also considered other relevant information. The result is a relative rank from 1 to 5 (most to least imperiled) that provides a relative status for the species in Idaho. We used this rank as 1 of several criteria to derive the revised Idaho species of greatest conservation need (SGCN) list.

The results of this assessment (and relevant factors) for each SGCN are presented in individual accounts in Appendix F. A guide to interpreting these assessments, as well as species checklists in Appendix A and Appendix C follows.

## Scientific and Common Names

Taxonomy for fishes follows the American Fisheries Society's (AFS) *Common and Scientific Names of Fishes from the United States, Canada, and Mexico* (Page et al. 2013). English common names for fish orders follow ITIS (ITIS 2015). Trout and salmon subspecies names follow *Trout and Salmon of North America* (Behnke and illustrated by JR Tomelleri 2002).

Taxonomy for birds follows the American Ornithologists' Union (AOU) Checklist and supplements (American Ornithologists' Union 1998; 2000; 2015; Banks et al. 2007; Banks et al. 2008; Banks et al. 2002; 2003; 2004; 2005; 2006; Chesser et al. 2009; 2010; 2011; 2012; 2013; Chesser et al. 2014). The

“AOU Checklist” is the official source on the taxonomy of birds found in North and Middle America, including adjacent islands. The checklist we used incorporates changes through the 55<sup>th</sup> supplement (American Ornithologists' Union 2015). Recent work from Benkman et al. (2009) indicates that the crossbill population in the South Hills and Albion Mountains of south-central Idaho warrants species status. However, because the AOU Checklist Committee does not yet recognize Benkman's proposed taxon South Hills Crossbill (*Loxia sinesciurus*) as a distinct species from Red Crossbill (*L. curvirostra*), we refer to this population as “Red Crossbill (*L. curvirostra*; South Hills population)” in the State Wildlife Action Plan.

Taxonomy of amphibians and reptiles follows the Society for the Study of Amphibians and Reptiles' (SSAR) *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding* (Crother 2012). With few exceptions, common names are adapted from Stebbins (2003) for amphibians and reptiles.

Taxonomy for mammals generally follows the *Revised Checklist of North American Mammals North of Mexico, 2014* (Bradley et al. 2014) with some exceptions. Departures from Bradley et al. (2014) include the Northern Idaho Ground Squirrel (*Urocitellus brunneus*) and Southern Idaho Ground Squirrel (*Urocitellus endemicus*), which we recognize as distinct species based on work by Hoisington-Lopez et al. (2012).

Because of the complexity of invertebrate taxonomy, we used multiple sources for both scientific and English common names, including peer-reviewed literature.

Standard English common names of animal species are capitalized following conventions adopted by the American Fisheries Society (Page et al. 2013), American Ornithologists' Union (American Ornithologists' Union 2015), and the Society for the Study of Amphibians and Reptiles (SSAR 2015). Exceptions to this include hybrids (e.g., splake) and common names for taxa above the species level (e.g., trout-perches, colubrids), which are not capitalized.

## Conservation Status and Classification

This section of the assessment reports the status of the species under the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; ESA); US Forest Service (FS) Northern Region (R1) and Intermountain Region (R4) Sensitive Species status; Bureau of Land Management (US) (BLM) Idaho Special Status Species designation; classification and protection of wildlife under Idaho Administrative Code (IDAPA); NatureServe global conservation status rank (G-rank); subnational (i.e., Idaho) conservation status rank (S-rank); SGCN tier; and a brief description of the rationale for why the species was selected as a SGCN. Species that have no official designation under any of these categories are denoted by “No status.”

## Endangered Species Act (ESA) Status Definitions

In the field labeled “ESA,” we report the status of a species under the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; ESA). Designations in this checklist reflect the 2015 October 1 edition of 50 CFR § 17.11 (Endangered . . . Endangered and threatened wildlife 2015), the 2014 April 14 edition of 50 CFR Parts 223 and 224 (species under the jurisdiction of the

National Marine Fisheries Service that are currently listed as threatened or endangered) (NOAA 2014), and the 2015 December 24 Candidate Notice of Review (CNOR) (FWS 2015).

In the "ESA" field the following symbols are used:

E—Endangered: an endangered species is any species that is in danger of extinction throughout all or a significant portion of its range

T—Threatened: a threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range

## US Forest Service (FS) Northern Region (R1) Sensitive Species

In the field labeled "FS Region 1," we report the status of species based on the most current (February 2011) version of the FS Northern Region's (R1) Sensitive Species List ([FS] US Forest Service 2011). The FS Northern Region (R1) manages ESA-listed species separately than "Sensitive Species" and therefore does not include these species on its Sensitive Species list. Accordingly, a "No status" under FS R1 for federally listed species simply reflects this management distinction.

In the "FS Region 1" field the following symbol is used:

S—Sensitive

## US Forest Service (FS) Intermountain Region (R4) Sensitive Species

In the field labeled "USFS Region 4," we report the status of species based on the most current (February 2013) version of the FS Intermountain Region's (R4) Threatened, Endangered, Proposed, and Sensitive Species list ([FS] US Forest Service 2013). FS R4 does include ESA-listed species on its Sensitive Species list.

In the "FS Region 4" field the following symbols are used:

E—Endangered

T—Threatened

P—Proposed

S—Sensitive

# Bureau of Land Management (US) (BLM) Idaho Special Status Species List

In accordance with national policy (BLM Manual 6840), BLM Idaho updated its Special Status Species List 2015 January 13 to address conservation management needs and to establish priorities (BLM 2015). In this list, BLM consolidated and simplified its former categories into 2 types.

In the "BLM" column the following symbols are used:

Type 1—Species with one of the following status designations under ESA: endangered, threatened, essential experimental population, or critical habitat

Type 2—BLM Idaho Sensitive Species, including US Fish and Wildlife Service proposed and candidate species, ESA-listed species delisted during the past 5 y, and ESA nonessential experimental population; also includes species designated by BLM Idaho State Director

## IDAPA Classification and Protection of Wildlife

The Idaho Fish and Game Commission is authorized under Sections 36-104(b) and 36-201, Idaho Code, to adopt rules concerning the taking of wildlife species and the classification of all wildlife in the state of Idaho (IDAPA 13.01.06.000 2015).

In the "IDAPA" field the following symbols are used:

BG—Big Game Animals

UGA—Upland Game Animals

UGB—Upland Game Birds

MGB—Migratory Game Birds

GF—Game Fish

F—Furbearing Animals

E—Endangered Species: any native species in danger of extinction throughout all or a significant portion of its Idaho range.

T—Threatened Species: any native species likely to be classified as Endangered within the foreseeable future throughout all or a significant portion of its Idaho range.

PNS—Protected Nongame Species

PW—Predatory Wildlife

UW—Unprotected Wildlife

## Global Conservation Status Definitions (G-rank)

Listed below are definitions for interpreting NatureServe global conservation status ranks (G-ranks) (NatureServe 2015a). These ranks reflect an assessment of the condition of the species or ecological community across its entire range and are assigned by NatureServe. Where indicated, definitions differ for species and ecological communities.

In the "G-rank" column, the following symbols are used:

# NatureServe Global Conservation Status Ranks

## Basic Ranks

Rank	Definition
GX	<p>Presumed Extinct (species)—Not located despite intensive searches and virtually no likelihood of rediscovery.</p> <p>Eliminated (ecological communities)—Eliminated throughout its range, with no restoration potential due to extinction of dominant or characteristic species.</p>
GH	<p>Possibly Extinct (species)—Missing; known from only historical occurrences but still some hope of rediscovery.</p> <p>Presumed Eliminated (Historic, ecological communities)—Presumed eliminated throughout its range, with no or virtually no likelihood that it will be rediscovered, but with the potential for restoration, for example, American chestnut (forest).</p>
G1	Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2	Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3	Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G4	Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5	Secure—Common; widespread and abundant.

## Variant Ranks

Rank	Definition
G#G#	Range Rank—A numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty in the status of a species or community. Ranges cannot skip more than one rank (e.g., GU should be used rather than G1G4).

GU	Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. Whenever possible, the most likely rank is assigned and the question mark qualifier is added (e.g., G2?) to express uncertainty, or a range rank (e.g., G2G3) is used to delineate the limits (range) of uncertainty.
GNR	Unranked—Global rank not yet assessed.
GNA	Not Applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

## Rank Qualifiers

Rank	Definition
?	Inexact Numeric Rank—Denotes inexact numeric rank (e.g., G2?)
Q	Questionable taxonomy—Taxonomic distinctiveness of this entity at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or the inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority conservation priority.
C	Captive or Cultivated Only—At present extant only in captivity or cultivation, or as a reintroduced population not yet established.

## Intraspecific Taxon Conservation Status Ranks

Intraspecific taxa refer to subspecies, varieties, and other designations below the level of the species. Intraspecific taxon status ranks (T-ranks) apply to plants and animal species only; these T-ranks do not apply to ecological communities.

Rank	Definition
T#	Intraspecific Taxon (trinomial)—The status of intraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the species’ global rank. Rules for assigning T-ranks follow the same principles outlined above for global conservation status ranks. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T-rank cannot imply the subspecies or variety is more abundant than the species as a whole—for

example, a G1T2 cannot occur. A vertebrate animal population, such as those listed as distinct population segments under the US Endangered Species Act, may be considered an infraspecific taxon and assigned a T-rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

## Subnational Conservation Status Definitions (S-rank)

Listed below are definitions for interpreting conservation status ranks at the subnational (S-rank) level (NatureServe 2015b). The term “subnational” refers to state or province-level jurisdictions (e.g., Idaho, British Columbia). Assigning subnational conservation status ranks for species and ecological communities follows the same general principles used in assigning global status ranks. A subnational rank, however, cannot imply that the species or community is more secure at the state/province level than it is nationally or globally (i.e., a rank of G1S3 cannot occur). Similarly, a national rank cannot exceed the global rank. Subnational ranks are assigned and maintained by state or provincial natural heritage programs and conservation data centers. In Idaho, subnational ranks are assessed and assigned by the Idaho Department of Fish and Game.

In the “S-rank” field, the following symbols are used:

### Subnational (S) Conservation Status Ranks

Status	Definition
SX	Presumed Extirpated—Species or community is believed to be extirpated from the state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH	Possibly Extirpated (Historical)—Species or community occurred historically in the state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 y. A species or community could become SH without such a 20–40 y delay if the only known occurrences in a state/province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1	Critically Imperiled—Critically imperiled in the state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2	Imperiled—Imperiled in the state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or



	other factors making it very vulnerable to extirpation from the state/province.
S3	Vulnerable—Vulnerable in the state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4	Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5	Secure—Common, widespread, and abundant in the state/province.
SNR	Unranked—State/province conservation status not yet assessed.
SU	Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA	Not Applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S#	Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

## Breeding Status Qualifiers

Qualifier	Definition
B	Breeding—Conservation status refers to the breeding population of the species in the state/province.
N	Nonbreeding—Conservation status refers to the nonbreeding population of the species in the state/province.
M	Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the state/province.

Note: A breeding status is only used for species that have distinct breeding and/or nonbreeding populations in the state/province. A breeding-status S-rank can be coupled with its complementary nonbreeding-status S-rank if the species also winters in the state/province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The 2 (or rarely, 3) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

## Other Qualifiers

Rank	Definition
?	Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

## Idaho Species of Greatest Conservation Need (SGCN)

The "SGCN TIER" field gives the species of greatest conservation need (SGCN) tier (see "Approach and Criteria for Selecting Idaho Species of Greatest Conservation Need" for additional descriptions of the 3 tiers) using the following symbols:

1—Tier 1 SGCN are our highest priority for the State Wildlife Action Plan and represent species with the most critical conservation needs, i.e., an early-warning list of taxa that may be heading toward the need for ESA listing.

2—Tier 2 SGCN are secondary in priority and represent species with high conservation needs—that is, species with longer-term vulnerabilities or patterns suggesting management intervention is needed but not necessarily facing imminent extinction or having the highest management profile.

3—Tier 3 SGCN include a suite of species that do not meet the above tier criteria, yet still have conservation needs. In general, these species are relatively more common, but commonness is not the sole criterion and often these species have either declining trends rangewide or are lacking in information.

## Distribution and Abundance

This section reports the range extent, key ecological sections for the species, population size, and a brief description of the species. Range extent is generally defined as the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a taxon or ecosystem, excluding cases of vagrancy (IUCN 2001). The range extent criterion measures the spatial spread of areas currently occupied by a species or ecosystem and is not intended to be an estimate of the amount of occupied or potential habitat (IUCN 2001; Master et al. 2012). Range extent for most

species was calculated using ArcGIS. Population size is the estimated current total population of the species within Idaho, based on naturally occurring and wild individuals of reproductive age or stage (at an appropriate time of the year), including mature but currently nonreproducing individuals (Master et al. 2012). Population size is not applicable for invertebrates.

## Habitat and Ecology

This section gives both the environmental specificity (the degree to which a species or ecosystem depends on a relatively scarce set of habitats, substrates, food types, or other abiotic and/or biotic factors within the overall range) of a species as well as a general description of the species' habitat and overall ecology.

## Population Trend

This section includes both short-term and long-term trend for species as well as an overall description of what we know about the species' trend. Trend describes the observed, estimated, inferred, or suspected degree of change in population size, range extent, area of occupancy, number of occurrences, and/or number of occurrences or percent area with good viability or ecological integrity over the long term (ca. 200 years) or short term (10 years or 3 generations [for long-lived taxa], whichever is longer [up to a maximum of 100 years]), whichever most significantly affects the conservation status assessment in Idaho (see Master et al. 2012).

## Threats

This section reports the overall threat impact from the assessment, as well as intrinsic vulnerability. The overall threat impact incorporates the scope (extent of species range) and severity (the level of damage to the species than can reasonably be expected with continuation of circumstances and trends within a 10 y/3 generation timeframe) of several threats. Intrinsic vulnerability is defined as the observed, inferred, or suspected degree to which characteristics of the species or ecosystem (such as life history or behavior characteristics of species, or likelihood of regeneration or recolonization for ecosystems) make it vulnerable or resilient to natural or anthropogenic stresses or catastrophes (Master et al. 2012). The section also provides a brief narrative description of primary threats to the species in Idaho.

## Conservation Actions

Although not part of the status assessment, we report a statewide overview of key conservation actions and/or strategies for species. More detailed objectives, strategies, and actions can be found in each of the 14 section plans.

## Additional Comments

This includes additional information that doesn't fit within existing formal categories. Typically, this includes details on the current ESA listing status for the species and/or any taxonomic uncertainties.

# Information Sources

This is a compilation of key sources we used for the assessments.

## Map Sources

This provides the sources of spatial data used in generating the map.

## How to Read the Map

### Observations

For vertebrates, the map displays point locations for the species (observations) in 2 time intervals: observations reported since 2005 October 1 and observations reported prior to 2005 October 1. We chose to separate these to better depict the species' current distribution and to reflect data acquired since we completed the 2005 State Wildlife Action Plan. The point data represent observations housed in the Idaho Department of Fish and Game, Idaho Fish and Wildlife Information System, Species Diversity Database. These data include observations from professionals and in some cases the public. In both cases the points are filtered to display only observations where the observer is confident that he/she identified the species correctly. The data include a mix of observations from targeted survey efforts as well as incidental observations. Each point displays locational precision to 10,000 m (i.e., the observation is mapped within 0 to 10,000 m from its actual location). In some cases, the point observations can appear clustered; this is typically the result of targeted surveys within a localized area. Conversely, the lack of observational data does not provide evidence of absence but simply reflects a lack of survey effort or detection. Finally, the point locations do not reflect abundance. For example, multiple observers could report the same observation or the same individual of the species could have been seen on multiple occasions.

### Species Distribution Model or Range Map

In addition to observations, the vertebrate maps also depict the species' predicted distribution. Whereas a range map represents the geographic region where the species may occur, a species distribution model represents potential habitat within that range based on a variety of factors (e.g., vegetation type, elevation, slope, etc.). Although both range maps and distribution models reflect the most current information biologists have on a species, including known locations and habitat requirements, they both estimate potential occurrence, not actual. For most terrestrial vertebrates, we used the Northwest ReGAP Species Distribution Model (Beauvais et al. 2013). For some species, however, other data sets were more appropriate. In such cases, alternative sources for species are identified in the Map Source section.

Instead of distribution models, the maps for fish and invertebrates display species ranges. For fish, the maps display IDFG-derived predicted fish ranges developed from the IDFG Fish Distribution Database. The invertebrate range maps were developed by IDFG using available occurrence data and hydrologic boundaries (HUC5) following the Northwest ReGAP species range methodology as well as expert review.

# Bailey's Ecological Section

The map also depicts the boundaries of the 14 ecological sections in Idaho.