

SPECIES ACCOUNTS

KEY CODES & DESCRIPTIONS

This chapter contains an overview of the distribution, life history, and management concerns for each of the Nevada WAP Species of Conservation Priority (SOCP). For the most part, the information provided here is Nevada-centric and does not consider life history needs or management concerns that are more germane to species' populations outside of our borders. In a few cases, no published literature specific to a species in Nevada could be found, and so information generated in adjacent states and populations was used, and in these cases the reader will see references to Oregon, California, Utah, and other states. But, wherever possible, an attempt was made to adapt findings from outside the state appropriately into a Nevada context.

All accounts are presented in alphabetical order by common name (within each taxonomic group); the common name and the scientific name are in bold type at the top of the first page of each account. Taxonomy follows Hershler (1998 and 1999) for mollusks, the American Fisheries Society (2004) for fishes, Frost (2010) for amphibians, Crother (2012) for reptiles, the AOU (1998) for birds, and Mantooth and Riddle (2005) for mammals.

Rationale for inclusion as a WAP SOCP is provided at the top of the species account, as well as a map illustrating the distribution of the species in the state (for birds, winter range is depicted in blue and breeding range in orange as seen in Figure 1). To create the distribution maps, NDOW downloaded species range data from the USGS GAP (<http://gapanalysis.usgs.gov/species/>). These ranges were based upon known species occurrences provided by NatureServe overlain with 12-digit hydrologic units (HUCs). Species range layers were then individually evaluated by the NDOW Wildlife Diversity Staff Specialist and other staff for accuracy using NDOW occurrence data and expert knowledge of the species presence on the landscape. Adjustments to the GAP species ranges were made by selecting individual HUCs to be either included or excluded based upon the expert review. For some species it was determined that HUCs were poorly suited to represent species true range. In these cases mountain ranges and basins were delineated to better represent the species ranges when applicable. Finally, for the species not mapped by the GAP, NDOW staff created species ranges using the GAP methodology described above.

Figure 28. Key for distribution of species ranges within species account maps.



The *Agency Status* section provides the species' status according to various federal and state agencies and non-governmental organizations and only lists the organization if the species had status within that

organization. A key to agency acronyms and the definitions of various statuses are provided at the end of this introductory material. The *Trend* section identifies the abundance of the species in the state and the trajectory of the population, if known. When available, bird population estimates are provided in the Trend section of the species account. The source and the confidence in the quality of the population estimate are provided in parentheses after the estimate (e.g., NDOW, moderate). These estimates (originally provided in the Nevada Comprehensive Bird Conservation Plan) were derived from a number of sources including expert opinion (expert), U.S. Fish and Wildlife Service (USFWS), Nevada Bird Count (NBC), Nevada Department of Wildlife (NDOW), Partners in Flight (PIF), and the Breeding Bird Survey (BBS). Confidence is provided as low, moderate, or high and was obtained from the Nevada Comprehensive Bird Conservation Plan (GBBO 2010) or based on NDOW data. The *Distribution* identifies the location of the species and focuses on its distribution within the state of Nevada. The *General Habitat and Life History* section provides general information about the species and its habitats and habits. Note that this section does not provide comprehensive information but rather attempts to report on information that is crucial to its conservation or provides the reader with context to the basic biological needs of the species. The *Conservation Challenges* section discusses the current threats and issues that affect the species and, in some cases, its associated habitat(s). The *Needs* section highlights the research, monitoring, and approach for conservation strategies and/or actions.

The information provided here was gathered from many different sources, including the Nevada Natural Heritage Program, NatureServe Explorer (2012), The Nevada Comprehensive Bird Conservation Plan (GBBO 2010), in addition to the references cited at the end of this section. Where citations were included in NatureServe's accounts they are also incorporated here and relevant reference material listed at the end of this appendix. Appropriate citations (separate from the preceding WAP chapters) are included for any additional reference materials that were consulted to compile this chapter.

Key to Agency Status Section

Nevada Natural Heritage Program (NV Natural Heritage) Conservation Status Ranks

The Nevada Natural Heritage Program (NNHP) ranks species based upon rarity and trend, using a number of different factors. NNHP is a member program of NatureServe, a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action. NatureServe represents an international network of heritage programs that operate in all 50 U.S. states, Canada, Latin America, and the Caribbean. The 81 member organizations of the NatureServe network collect and analyze data about the plants, animals, and ecological communities of the Western Hemisphere. NNHP maintains information on the precise locations and conditions of at-risk species and threatened ecosystems throughout the state, and compiles and disseminates that information to our conservation partners, state and federal agencies, and the public. Through regular data exchanges with member programs, NatureServe provides the same service on a regional and national level. NatureServe and all member heritage programs and conservation data centers use the same rigorous scientific methodology to ensure that data are accurate and of the highest quality possible.

NatureServe and NNHP use a suite of factors to assess the extinction or extirpation risk of plants, animals, and ecosystems. Conservation status is assessed at multiple scales: globally (G-rank), nationally (N-rank; not reported in this appendix but available online at www.natureserve.org/explorer), and subnationally (S-rank; denotes state or province status). G-ranks are typically assigned by NatureServe. S-ranks by contrast, are assigned by individual state/provincial programs. Factors used in ranking a species include rarity, trend, and threats. Population size, number of occurrences, long- and short-term trend, threat impact, and the intrinsic

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vulnerability of a species are some of the factors used to assign a conservation rank. Additionally, subspecies or varieties can be ranked independently of their parent species. This rank is called an infraspecific taxon (trinomial) rank and is indicated by a T before the numerical rank.

At all scales, a rank from 1-5 is assigned to a taxon, with 1 indicating a taxon is critically imperiled and 5 indicating the taxon is widespread and common. The level of assignment is denoted by a G, S, or T before the number. For example, the California leaf-nosed bat (*Macrotus californicus*) has a G4S2 rank. This means that globally, California leaf-nosed bats are uncommon but not rare with some cause for long-term concern due to declines or other factors. However, in Nevada, as denoted by the S2 portion of the rank, California leaf-nosed bats are at high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

Qualifiers can be added to ranks to provide further information. For example, adding an N to a rank indicates the rank applies to a non-breeding population whereas a B denotes that the rank applies only to a breeding population. This methodology is generally applied to birds, which often have a winter (non-breeding) population and a breeding population that is distinctly separate. As an illustration, consider the Bald Eagle. Its current rank is G5S1B, S3N. This rank indicates that Bald Eagles are globally common and widespread (G5), critically imperiled in its breeding range in Nevada (S1B), and vulnerable in Nevada during the non-breeding season (S3N). Other qualifiers that can be added to a given rank denote taxonomic uncertainty (Q), rank uncertainty (?), conservation rank not yet assigned (NR), or conservation rank not applicable (NA; used to denote non-native taxa or in the case of birds, taxa that are accidental to the state).

Listed below are definitions for interpreting NatureServe and NNHP global (G-ranks), subnational (S-ranks; in this case for Nevada), and infraspecific (subspecies or variety; T-ranks) conservation status ranks.

Basic Rank	Definition
G, S, T X	Presumed Extinct —Not located despite intensive searches and virtually no likelihood of rediscovery.
G, S, T H	Possibly Extinct —Missing; known from only historical occurrences but still some hope of rediscovery.
G, S, T 1	Critically Imperiled —At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G, S, T 2	Imperiled —At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G, S, T	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.

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G, S, T 4	Apparently Secure —Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G, S, T 5	Secure —Common; widespread and abundant.

Variant Rank	Definition
G#G# S#S# T#T#	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).
G, S, T U	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.
G, S, T NR	Unranked —Rank not yet assessed.
G, S, T NA	Not Applicable —A conservation status rank is not applicable because the species is not a suitable target for conservation activities, for example, to denote an exotic species or because the species is accidental to the state.

Rank Qualifiers	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.

State Status Definitions—NNHP Climate Change Vulnerability Index (CCVI)

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Climate change vulnerability assessments were conducted by NNHP for the Nevada SOCP using the NatureServe Climate Change Vulnerability Index (CCVI). The methods used for the vulnerability analysis are described in *Approach & Methods* chapter of this document. The CCVI uses a scoring system that integrates a species' predicted exposure (direct and indirect) to climate change within the assessment area (in this case, the state of Nevada) and a series of factors, all supported by published studies, associated with a species' sensitivity to changes in climate. The tool also incorporates documented or modeled response to climate change, if available. The tool weighs each sensitivity score depending on the magnitude of projected climate change, incorporates any documented or modeled responses, and calculates a final vulnerability index score. The final vulnerability scores are listed in the Agency Status box of each species account under CCVI. The scores include the following:

CCVI Score	Definition
EV	Extremely Vulnerable -Abundance and/or range extent within geographical area assessed extremely likely to substantially decrease or disappear by 2050
HV	Highly Vulnerable - Abundance and/or range extent within geographical area assessed likely to decrease significantly by 2050
MV	Moderately Vulnerable -Abundance and/or range extent within geographical area assessed likely to decrease by 2050
PS	Not Vulnerable/Presumed Stable -Available evidence does not suggest that abundance and/or range extent within the geographical area assessed will change (increase/decrease) substantially by 2050. Actual range boundaries may change
IL	Not Vulnerable/Increase Likely -Available evidence suggests that abundance and/or range extent within geographical area assessed is likely to increase by 2050.

U.S. Fish & Wildlife Service (USFWS) Categories for Listing under the Endangered Species Act (ESA)

Code	Status
LE	Listed Endangered -in danger of extinction in all or a significant portion of its range
LT	Listed Threatened -likely to be classified as endangered in the foreseeable future if present trends continue
PE	Proposed Endangered
PT	Proposed Threatened
(PS)	Partial Status - a subspecies or a portion of a taxon's range has listed or candidate status, but not in Nevada
C	Candidate for listing as threatened or endangered; sufficient data on vulnerability or threats on file, but listing precluded by other higher priority species.
XE	Essential experimental population
XN	Nonessential experimental population

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No Status	Not Listed (no status) in a portion of the species' range
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Bureau of Land Management (BLM) Species Classification

Code	Status
Sensitive	Nevada Special Status Species-ESA listed, proposed or candidate for listing, or protected by Nevada State Law
California Sensitive	BLM California Sensitive Species

United States Forest Service (USFS) Species Classification

The USFS status includes Region 4 (Intermountain), Region 5 (California), and the Lake Tahoe Basin Management Unit (LTBMU). The appropriate region is indicated in the Agency Status box as USFS-R4, USFS-R5, or USFS-Lake Tahoe Basin Management Unit, respectively.

State Protection Status as defined in Nevada Revised Statute (NRS) 501 and listed in the Nevada Administrative Code (NAC) chapter 503

Species provided protection under NRS 501 and listed in NAC 503 are protected under state law and are managed by the Nevada Department of Wildlife (NDOW). In some cases, species may not be harmed or subject to any "take;" in other cases, "take" is allowed but only with a license or permit. Under the statute, species may be classified as fur-bearing, game, upland game, migratory game, or protected (e.g., Protected Reptile NAC 503.080.1 or Game Mammal NAC 503.020). Protected species can also be further classified as sensitive, threatened, or endangered. If a species has statutory status, it is denoted as State Prot in the Agency Status box of the species account.

IUCN Red List Categories and Their Definitions (IUCN 2011).

The IUCN - The World Conservation Union, through its Species Survival Commission (SSC), has for four decades been assessing the conservation status of species, subspecies, varieties, and selected subpopulations on a global scale in order to highlight taxa threatened with extinction. The IUCN Red List of Threatened Species provides taxonomic, conservation status, and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction. IUCN Red List assessments are often carried out in conjunction with NatureServe in North America.

Code	Status
EX	A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), and throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

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EW	A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity, or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), and throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon’s life cycle and life form.
CR	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the IUCN criteria for Critically Endangered (see the IUCN Red List Categories and Criteria: Version 3.1, 2001), and it is therefore considered to be facing an extremely high risk of extinction in the wild.
EN	A taxon is Endangered when the best available evidence indicates that it meets any of the IUCN criteria for Endangered (see the IUCN Red List Categories and Criteria: Version 3.1, 2001), and it is therefore considered to be facing a very high risk of extinction in the wild.
VU	A taxon is Vulnerable when the best available evidence indicates that it meets any of the IUCN criteria for Vulnerable.
NT	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered, or Vulnerable now, but is close to qualifying for, or is likely to qualify for, a threatened category in the near future.
LC	A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable, or Near Threatened. Widespread and abundant taxa are included in this category.
DD	A taxon is Data Deficient when there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.
NE	A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

* Note: IUCN status not provided for species that are ranked LC, DD, or NE.

National Audubon Society (NAS) WatchList

Determining the placement of a bird on the NAS WatchList is based on the assessment of four factors: population size, range size, threats, and population trend (Panjabi et al. 2005). Each of these factors is scored on a scale of one to five, where one means low vulnerability to extinction due to that factor and five means high vulnerability. For range size and threats, separate scores are calculated for breeding and non-breeding seasons; to create a combined national score, only the highest of the respective breeding and non-breeding scores is used. Thus, the combined score is a sum of four scores and ranges from four to 20.

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Code	Definition
Red WatchList	Highest National Concern —a combined score of 16, plus a score of eight or more for threats plus trend, and a score of eight or more for range size plus population size
Yellow WatchList (rare list)	Rare List -a species needs a combined score of 14, a score of eight or more for range size plus population size, and a score of seven or less for threats plus trend.
Yellow WatchList (declining list)	Declining List -a species needs a combined score of 14, a score of seven or more for threats plus trend, and a score of seven or less for range size plus population size.

Other statuses indicated in the species accounts include Partners in Flight (PIF) Priority Bird Species and American Fisheries Society (AFS) designations. In these cases, the statuses are self explanatory within the Agency Status box of the species account.