

## **Appendix 2: IDENTIFYING SPECIES OF CONSERVATION CONCERN IN THE SAGEBRUSH ECOSYSTEM**

Rich (1999) compiled an initial list of species potentially at risk of local or regional extirpation within the geographic boundaries of the sagebrush ecosystem, based on a variety of information sources. Key sources included species designated as having special status (e.g., sensitive species) by State Offices of the Bureau of Land Management and Regional Offices of the USDA Forest Service. Other sources for terrestrial vertebrates included Saab and Rich (1997), Neel (1999), Idaho Partners in Flight (2000), Wisdom et al. (2000), Altman and Holmes (2000), the Western Bat Working Group Regional Priority Matrix (Western Bat Working Group 1998), and GAP Analysis (e.g., Washington Department of Fish and Wildlife 1999). Information sources for plants included comprehensive assessments of sensitive plants (e.g., Croft et al. 1997). Aquatic species highly dependent on watersheds within sagebrush ecosystems also were included on the original list (Rich 1999).

We condensed this initial list for several reasons. First, we dropped fish species because we sought to establish a list of terrestrial species explicitly associated with sagebrush habitats. Second, some of the species inhabit areas within the sagebrush ecosystem, but are not explicitly associated with sagebrush habitats (e.g., wetland- and riparian-associated species imbedded in a larger matrix of sagebrush). And third, some species were not at risk within the boundaries of the sagebrush ecosystem (see sagebrush ecoregions, Fig. 1.1, Chapter 1), based on further examination of their status in relation to their geographic occurrence. Consequently, species remaining on our list, following the exclusion of fish, were screened based on 2 criteria: (1) degree of association with sagebrush habitats; and (2) degree of population risk for the species within the sagebrush ecosystem.

To apply the first of these 2 criteria, habitat associations were assigned to species from the NatureServe database when such information was available ([Table A2.1](#)). Otherwise, habitat associations were determined by consulting recent literature and status reports for individual species (e.g., CalFlora 2000). Based on these information sources, species not specifically associated with sagebrush habitats were dropped.

To apply the second of these 2 criteria, we used estimates of the degrees of extirpation risk at global, national, and state levels as described in the NatureServe Explorer database, referred to as conservation status ranks (i.e., G1/S1-critically imperiled, G2/S2-imperiled, G3/S3-vulnerable, G4/S4-apparently secure, and G5/S5-secure) ([Table A2.2](#)). The science staffs of NatureServe and its member programs used a rigorous method consistent across states to assign these ranks of extirpation risk (Master 1991, Stein 2002). Evaluation criteria considered by NatureServe in assigning a rank to each species included the following risk factors: number of populations; the area over which the species occurs; population trend (i.e., whether numbers are increasing, stable, or declining); and known threats to the species.

We considered a species to meet our second criteria if the species was ranked S4 or worse by NatureServe in any of the 11 western states that encompass the sagebrush ecosystem in the United States (i.e., Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico,

Oregon, Utah, Washington, and Wyoming). That is, species were retained if ranked S1, S2, S3, or S4 by NatureServe within any of these 11 western states where sagebrush occurs.

Application of the above criteria resulted in a reduction of species from 735 ([Table A2.3](#)) to 630 when combined with the decision to exclude fish. An additional 268 species were dropped because they either were not specifically associated with sagebrush habitats (98% of the 267) or not at risk within the range of sagebrush (2%), or in 1 case, because the subspecies was no longer recognized as a valid taxon ([Table A2.4](#)). The remaining 367 species are specifically associated with the sagebrush ecosystem and considered to be of conservation concern ([Tables A2.5, A2.6, A2.7](#)), which we define as species with rare or declining habitats or populations.

The majority of the 367 species of conservation concern are plants (68.2% of all species, [Table A2.5](#)). Although plants and invertebrates have the highest potential vulnerability based on the ranking process, we have the least knowledge about needs of these taxa (e.g., see Bonnet et al. [2002], and Clark and May [2002]).

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Table A2.1. Habitat associations assigned to species by NatureServe (2005), and subsequently used as part of our process of identifying species of conservation concern in the sagebrush ecosystem.

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Habitat	Code
Herbaceous vegetation	1
Shrubland	2
Sparse vegetation	3
Non-vascular plants	4
Forest	5
Woodland	6
Dwarf-shrub	7
Cave	8
Aquatic; wetlands	9

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Table A2.2. Degrees of extirpation risk assigned to species by NatureServe (2005), and subsequently used as part of our process of identifying species of conservation concern in the sagebrush ecosystem.

Global/State rank code	Rank	Definition
GX/SX	Presumed extinct	Believed to be extinct throughout its range. Not located despite intensive searches and virtually no likelihood that it will be rediscovered.
GH/SH	Possibly extinct	Known only from historical occurrences. Still some hope of rediscovery.
G1/S1	Critically imperiled	Critically imperiled because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. Typically 5 or fewer occurrences or very few remaining individuals (<1,000).
G2/S2	Imperiled	Imperiled globally because of extreme rarity or because of some factor(s) making it especially vulnerable to extinction. Typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000).
G3/S3	Vulnerable	Vulnerable either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction. Typically >80 occurrences or between 3,000 and 10,000 individuals.
G4/S4	Apparently secure	Uncommon but not rare, and usually widespread. Possibly cause for long-term concern. Typically more than 100 occurrences globally or more than 10,000 individuals.
G5/S5	Secure	Common, typically widespread and abundant.
G#G#/S#S#	Range rank	A numeric range rank (e.g., G2G3) is used to indicate uncertainty about the exact status of a taxon.
GU/SU	Unrankable	Currently unrankable due to lack of available information about status or trends.
GNR/SNR	Unranked	Global (or State) rank not yet assessed.
?	Inexact rank	Denotes inexact numeric rank.

Table A2.2. Degrees of extirpation risk assigned to species by NatureServe (2005), and subsequently used as part of our process of identifying species of conservation concern in the sagebrush ecosystem.

Global/State rank code	Rank	Definition
Q	Questionable taxonomy	Taxonomic status is questionable; numeric rank may change with taxonomy.
Z	Moving	Occurs in the area of interest, but as a diffuse, usually moving population; difficult or impossible to map static occurrences.
T	Infraspecific taxon (trinomial)	The status of infraspecific taxa (subspecies or varieties) is indicated by a "T-rank" following the species' global rank. Rules for assigning T ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1.
B	Breeding	The associated rank refers to breeding occurrences of mobile animals.
N	Non-breeding	The associated rank refers to non-breeding occurrences of mobile animals.

Table A2.3. Initial list of 735 species at risk within the geographic boundaries of the sagebrush ecosystem, before application of our screening criteria.

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Taxon	Number of species
Invertebrates	98
Fish	105
Amphibians	3
Reptiles	18
Birds	33
Mammals	48
Vascular plants	430
Total	735

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Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Taxonomic group Species	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Invertebrates			
Crescent Dune aegialian scarab	<i>Aegialia crescenta</i>	3	1
Hardy's aegialian scarab	<i>Aegialia hardyi</i>	3	1
Large aegialian scarab	<i>Aegialia magnifica</i>	3	1
Roadside skipper	<i>Amblyscirtes vialis</i>	1/6	1
Malheur isopod	<i>Amerigoniscus malheurensis</i>	8	1
California floater	<i>Anodonta californiensis</i>	9	1
Big Dune aphodius scarab	<i>Aphodius sp.</i>	3	1
Crescent Dune aphodius scarab	<i>Aphodius sp.</i>	3	1
Sand Mountain aphodius scarab	<i>Aphodius sp.</i>	3	1
Malheur pseudoscorpion	<i>Apochthonius malheuri</i>	8	1
Silver bordered bog fritillary	<i>Boloria selene atrocotalis</i>	1r <sup>c</sup>	1
Lake Tahoe benthic stonefly	<i>Capnia lacustra</i>	9	1
Carson Valley wood nymph	<i>Cercyonis pegala carsonensis</i>	1	1
White River wood nymph	<i>Cercyonis pegala ssp.</i>	9	1
Idaho dunes tiger beetle	<i>Cicindela arenicola</i>	3	1
Mission creek Oregonian	<i>Cryptomastix magnidentata</i>	5	1
Disc Oregonian (snail)	<i>Cryptomastix sp. Nov.</i>	1	1
Sand Mountain blue	<i>Euphilotes palliscens ssp.</i>	3	1
Mono checkerspot	<i>Euphydryas editha monoensis</i>	5/6	1
Eastern tailed blue	<i>Everes comyntas comyntas</i>	1/2	1
Shortface lanx	<i>Fisherola nuttalli</i>	9	1
Columbia pebblesnail	<i>Fluminicola columbiana</i>	9	1
Pahranagat pebblesnail	<i>Fluminicola merriami</i>	9	1
Malheur pebblesnail	<i>Fluminicola sp. Nov.</i>	9	1
Casebeer pebblesnail	<i>Fluminicola sp. Nov.</i>	9	1
Turban pebblesnail	<i>Fluminicola turbiniformis</i>	9	1
Ant spp.	<i>Formica micropthalma</i>	5	1
Blind cave leiodid beetle	<i>Glacivicola bathyscioides</i>	8	1
Great Basin ramshorn (snail)	<i>Helisoma newberryi newberryi</i>	9	1
Railroad Valley skipper	<i>Hesperia uncas ssp.</i>	9	1
Spring Mountains icarioides blue	<i>Icaricia icarioides</i>	1/5/6	1
Bulb juga (snail)	<i>Juga bulbosa</i>	9	1
Purple-lipped juga (snail)	<i>Juga hemphilli maupinensis</i>	9	1
A flatworm (planarian)	<i>Kenkia rhynchida</i>	8r	1
Banbury Springs limpet	<i>Lanx sp. 1</i>	9	1



Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Taxonomic group Species	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Nevada admiral	<i>Limenitis weidemeyerii nevadae</i>	5	1
Harney Hot Spring shore bug	<i>Micranthia fennica</i>	9	1
Rulien's miloderes weevil	<i>Miloderes sp.</i>	3	1
Unnamed ant	<i>Myrmecocystus arenarius</i>	3	1
Deschutes ochrotrichian micro caddisfly	<i>Ochrotrichia phenosa</i>	9	1
Malheur Cave springtail	<i>Oncopodura mala</i>	8	1
Aquatic moth	<i>Petrophila confusalis</i>	9	1
Snake river physa	<i>Physa natricina</i>	9	1
Hotspring physa (snail)	<i>Physella sp. Nov.</i>	9	1
Montane peaclam	<i>Pisidium ultramontanum</i>	9	1
Borax lake ramshorn (snail)	<i>Planorbella oregonensis</i>	9	1
Pristine springsnail	<i>Pristinicola hemphilli</i>	9	1
Giuliani's dune scarab	<i>Pseudocotalpa giulianii</i>	3	1
Bruneau Hot springsnail	<i>Pyrgulopsis bruneauensis</i>	9	1
Harney Lake springsnail	<i>Pyrgulopsis hendersoni</i>	9	1
Idaho springsnail	<i>Pyrgulopsis idahoensis</i>	9	1
Crooked Creek springsnail	<i>Pyrgulopsis intermedia</i>	9	1
Oasis Valley springsnail	<i>Pyrgulopsis micrococcus</i>	9	1
Owyhee Hot springsnail	<i>Pyrgulopsis sp. nov.</i>	9	1
XI springsnail	<i>Pyrgulopsis sp. nov.</i>	9	1
Lake Abert springsnail	<i>Pyrgulopsis sp. Nov.</i>	9	1
Malheur springsnail	<i>Pyrgulopsis sp. Nov.</i>	9	1
Formation springsnail	<i>Pyrgulopsis spp.</i>	9	1
Wongs springsnail	<i>Pyrgulopsis wongi</i>	9	1
Sylvan hairstreak	<i>Satyrium sylvinus sylvinus</i>	2	1
Crescent Dune serican scarab	<i>Serica sp.</i>	3	1
Sand Mountain serican scarab	<i>Serica sp.</i>	3	1
Carson valley silverspot	<i>Speyeria nokomis ssp</i>	1r	1
Unnamed ant	<i>Stenamma wheelerorum</i>	5	1
Devils Hole warm spring riffle beetle	<i>Stenelmis calida calida</i>	9	1
Moapa warm spring riffle beetle	<i>Stenelmis calida moapa</i>	9	1
Malheur cave amphipod	<i>Stygobromus hubbsi</i>	8/9	1
Bliss rapids snail	<i>Taylorconcha serpenticola</i>	9	1
Water mite	<i>Thermacarus nevadensis</i>	9	1

Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Species	Taxonomic group	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Grated tryonia		<i>Tryonia clathrata</i>	9	1
Desert valvata		<i>Valvata utahensis</i>	9	1
Amphibians				
Tiger salamander		<i>Ambystoma tigrinum</i>	allr	1
Northern leopard frog		<i>Rana pipiens</i>	1r	1
Reptiles				
Common kingsnake		<i>Lampropeltis getulus</i>		1
Common gartersnake		<i>Thamnophis sirtalis</i>		1
Birds				
Western sage-grouse		<i>Centrocercus urophasianus phaios</i>	2	3
Rufous hummingbird		<i>Selasphorus rufus</i>	5/6	1
Calliope hummingbird		<i>Stellula calliope</i>	5/6	1
Black-throated gray warbler		<i>Dendroica nigrescens</i>	2/5/6	1
Grasshopper sparrow		<i>Ammodramus savannarum</i>	1	1
Mammals				
Pygmy shrew		<i>Sorex hoyi</i>	1/5	1
Northern water shrew		<i>Sorex palustris</i>	r	1
Western red bat		<i>Lasiurus blossevillii</i>	5r/6r	1
Big brown bat		<i>Eptesicus fuscus</i>	5	1
Allen's big-eared bat		<i>Idionycteris phyllotis</i>	5	1
Little brown bat		<i>Myotis lucifugus</i>	6r	1
Long-legged bat		<i>Myotis volans</i>	5/6	1
Swift fox		<i>Vulpes velox</i>	1	1
California bighorn sheep		<i>Ovis canadensis californiana</i>		1
Least chipmunk		<i>Tamias minimus</i>	2/5/6	1
Plants				
Wallowa ricegrass		<i>Achnatherum wallowaensis</i>	1	1
Pink agoseris		<i>Agoseris lackschewitzii</i>	1r	1
Iodine bush		<i>Allenrolfea occidentalis</i>	3	1
Two-stemmed onion		<i>Allium bisceptrum</i>	9	1
Tall swamp onion		<i>Allium validum</i>	1/5	1

Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Species	Taxonomic group	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Malheur Valley fiddleneck		<i>Amsinckia carinata</i>	2	1
Rough angelica		<i>Angelica scabrida</i>	5/6	1
Meadow pussy-toes		<i>Antennaria corymbosa</i>	5	1
King snapdragon		<i>Antirrhinum kingii</i>	6	1
California bear poppy		<i>Arctomecon californica</i>	2	1
White bearpoppy		<i>Arctomecon merriamii</i>	2	1
Silverleaf milkvetch		<i>Astragalus argophyllus</i> var. <i>argophyllus</i>	1/3	1
King's rattleweed		<i>Astragalus calycosus</i>	6	1
Milkvetch		<i>Astragalus diaphanus diaphanus</i>	1	1
Mesic milkvetch		<i>Astragalus diversifolius</i>	1	1
Needle Mountains milkvetch		<i>Astragalus eurylobus</i>	1/2	1
Threecorner milkvetch		<i>Astragalus geyeri</i> var. <i>triquetrus</i>	3	1
Plains milkvetch		<i>Astragalus gilviflorus</i>	1	1
Dubois milkvetch		<i>Astragalus gilviflorus</i> var. <i>purpureous</i>	1/3	1
Hyattville milkvetch		<i>Astragalus jejunus</i> var. <i>articulatus</i>	3	1
Sodaville milkvetch		<i>Astragalus lentiginosus</i> var. <i>sesquimentralis</i>	9	1
Park milkvetch		<i>Astragalus leptaleus</i>	5	1
Least bladderly milkvetch		<i>Astragalus microcystis</i>	1	1
Half-ring pod milkvetch		<i>Astragalus mohavensis</i> var. <i>hemigyryus</i>	2/6	1
Mokiak milkvetch		<i>Astragalus mokiensis</i>	2	1
Naturita milkvetch		<i>Astragalus naturitensis</i>	6	1
Nelson milkvetch		<i>Astragalus nelsonianus</i>	1/3	1
Clokey eggvetch		<i>Astragalus oophorus</i> var. <i>clokeyanus</i>	6	1
Payson's milkvetch		<i>Astragalus paysonii</i>	1	1
Ash Meadows milkvetch		<i>Astragalus phoenix</i>	3	1
Precocious milkvetch		<i>Astragalus proimanthus</i>	1	1
Lamoille Canyon milkvetch		<i>Astragalus robbinsii</i> var. <i>occidentalis</i>	9	1
Tiehm milkvetch		<i>Astragalus tiehmii</i>	2	1
Tygh Valley milkvetch		<i>Astragalus tyghensis</i>	1	1
Texas bergia		<i>Bergia texana</i>	9	1
King's desertgrass		<i>Blepharidachne kingii</i>	6	1
Dainty moonwort		<i>Botrychium crenulatum</i>	1/9	1
Long-bearded sego lily		<i>Calochortus longebarbatus</i>	1	1

Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Species	Taxonomic group	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Green-band mariposa lily		<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	1	1
Broad-fruit mariposa lily		<i>Calochortus nitidus</i>	1	1
Alkali mariposa lily		<i>Calochortus striatus</i>	9	1
Cusick's camas		<i>Camassia cusickii</i>	9	1
Porcupine sedge		<i>Carex hystericina</i>	9	1
Inverted pale paintbrush		<i>Castilleja pallescens inverta</i>	1	1
Monte Neva paintbrush		<i>Castilleja salsuginosa</i>	9	1
Spring-loving centaury		<i>Centaureium namophilum</i>	9	1
Cusick's false yarrow		<i>Chaenactis cusickii</i>	1	1
Centennial rabbitbrush		<i>Chrysothamnus parryi montanus</i>	3	1
Bulb-bearing waterhemlock		<i>Cicuta bulbifera</i>	9	1
Cedar Rim thistle		<i>Cirsium aridum</i>	3	1
Rocky Mountain thistle		<i>Cirsium perplexans</i>	3	1
Many-stemmed Spider-flower		<i>Cleome multicaulis</i>	1	1
Flat-seeded cleomella		<i>Cleomella plocasperma</i>	2	1
Tecopa birdsbeak		<i>Cordylanthus tecopensis</i>	2/3/9	1
Idaho hawksbeard		<i>Crepis bakeri ssp. idahoensis</i>	1	1
Unusual catseye		<i>Cryptantha insolita</i>	2	1
Beaked cryptantha		<i>Cryptantha rostellata</i>	1/6	1
Owl Creek miner's candle		<i>Cryptantha subcapitata</i>	1/3	1
Goodrich biscuitroot		<i>Cymopterus goodrichii</i>	1/6	1
Blue Mountain prairieclover		<i>Dalea ornata</i>	6	1
Wenatchee larkspur		<i>Delphinium viridescens</i>	9	1
Wyoming tansymustard		<i>Descurainia torulosa</i>	3	1
Gold Butte moss		<i>Didymodon nevadensis</i>	3	1
Doublet		<i>Dimeresia howellii</i>	6	1
Bacigalupi's downingia		<i>Downingia bacigalupii</i>	9	1
Silver leaf sunray		<i>Enceliopsis argophylla</i>	3	1
Ash Meadows sunray		<i>Enceliopsis nudicaulis</i> var. <i>corrugata</i>	3	1
Swamp willow-weed		<i>Epilobium palustre</i>	9	1
Giant helleborine		<i>Epipactis gigantea</i>	9	1
Sheep fleabane		<i>Erigeron ovinus</i>	5/6	1
Sulphur Springs buckwheat		<i>Eriogonum argophyllum</i>	9	1
Pahrump Valley buckwheat		<i>Eriogonum bifurcatum</i>	3	1
Golden buckwheat		<i>Eriogonum chrysops</i>	3	1

Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Species	Taxonomic group	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Comb Wash buckwheat		<i>Eriogonum clavellatum</i>	2	1
Umtanum desert buckwheat		<i>Eriogonum codium</i>	2	1
Colorado wild buckwheat		<i>Eriogonum coloradense</i>	1/6	1
Desert buckwheat		<i>Eriogonum desertorum</i>	3	1
Ochre-flowered buckwheat		<i>Eriogonum ochrocephalum calcareum</i>	2	1
Tiehm buckwheat		<i>Eriogonum tiehmii</i>	2	1
Sticky buckwheat		<i>Eriogonum viscidulum</i>	2	1
Duchesne buckwheat		<i>Eriogonum X duchesnense</i>	2	2
Cushion cactus		<i>Escobaria vivipara</i>	2/6	1
Kingston bedstraw		<i>Galium hilendiae kingstonense</i>	6	1
Intermountain bedstraw		<i>Galium serpticum</i>	5	1
Colorado butterfly plant		<i>Gaura neomexicana coloradensis</i>	1/9	1
Smooth dwarf greaseweed		<i>Glossopetalon pungens</i> var. <i>glabra</i>	2/6	1
Bogg's Lake hedgehyssop		<i>Gratiola heterosepala</i>	9	1
Ash Meadows gumplant		<i>Grindelia fraxinoprattensis</i>	9	1
Howell's gumweed		<i>Grindelia howellii</i>	9	1
Sagebrush stickseed		<i>Hackelia diffusa</i> var. <i>arida</i>	5	2
Three forks stickseed		<i>Hackelia ophiobia</i>	3	1
Lone Mountain tonestus		<i>Haplopappus graniticus</i>	3	1
Palouse goldenweed		<i>Haplopappus liatrifolius</i>	1	1
Ward's goldenweed		<i>Haplopappus wardii</i>	3	1
Water howellia		<i>Howellia aquatilis</i>	9	1
Large Canadian St. John's-wort		<i>Hypericum majus</i>	9	1
Red Rock Canyon aster		<i>Ionactis caelestis</i>	5/6	1
Nuttall's guillwort		<i>Isoetes nuttallii</i>	9	1
Sierra Valley mousetail		<i>Ivesia aperta</i> var. <i>canina</i>	1/5	1
Rock purpusia		<i>Ivesia arizonica</i> var. <i>saxosa</i>	3	1
Jaeger ivesia		<i>Ivesia jaegeri</i>	5/6	1
Ash Meadows ivesia		<i>Ivesia kingii</i> var. <i>eremica</i>	9	1
Shelly's ivesia		<i>Ivesia rhypara shellyi</i>	3	1
Shockley's ivesia		<i>Ivesia shockleyi</i>	5/6	1
Waxflower		<i>Jamesia tetrapetala</i>	3	1
Great Basin langloisia		<i>Langloisia setosissima punctata</i>	2/6	1
Garnet bladderpod		<i>Lesquerella carinata</i> var. <i>languida</i>	1	1
Large-fruited bladderpod		<i>Lesquerella macrocarpa</i>	1	1
Payson's bladderpod		<i>Lesquerella paysonii</i>	1	1

Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Species	Taxonomic group	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Southern mudwort		<i>Limosella acaulis</i>	9	1
False pimpernel		<i>Lindernia dubia</i> var. <i>anagellidea</i>	9	1
Kalm's lobelia		<i>Lobelia kalmii</i>	9	1
Clark parsley		<i>Lomatium graveolens</i> var. <i>clarkii</i>	6	1
Salmon-flower desert parsley		<i>Lomatium salmoniflorum</i>	5	1
Marsh felwort		<i>Lomatogonium rotatum</i>	1/9	1
Holmgren lupine		<i>Lupinus holmgrenanus</i>	6	1
Rush-like skeletonweed		<i>Lygodesmia juncea</i>	1	1
Smooth malacothrix		<i>Malacothrix glabrata</i>	2/6	1
Ash Meadows blazingstar		<i>Mentzelia leucophylla</i>	9	1
Manystem blazingstar		<i>Mentzelia multicaulis</i> var. <i>librina</i>	2	1
Packard's mentzelia		<i>Mentzelia packardiae</i>	3	1
Macfarlane's four o'clock		<i>Mirabilis macfarlanei</i>	1	1
Amargosa niterwort		<i>Nitrophila mohavensis</i>	3	1
Desert evening-primrose		<i>Oenothera primiveris</i>	2/6	1
Oryctes		<i>Oryctes nevadensis</i>	3	1
Little ricegrass		<i>Oryzopsis exigua</i>	1/6	1
White locoweed		<i>Oxytropis deflexa</i> var. <i>sericea</i>	1/5	1
Absaroka beardtongue		<i>Penstemon absarokensis</i>	3	1
White-margined beardtongue		<i>Penstemon albomarginatus</i>	2/3	1
Nevada dune beardtongue		<i>Penstemon arenarius</i>	1/2	1
Yellow twotone beardtongue		<i>Penstemon bicolor</i> ssp. <i>bicolor</i>	3	1
Degener beardtongue		<i>Penstemon degeneri</i>	1/6	1
Hot-rock beardtongue		<i>Penstemon deustus</i> <i>variabilis</i>	1	1
Death Valley beardtongue		<i>Penstemon fruticiformis</i> <i>amargosae</i>	2	1
Spine-noded milkvetch		<i>Peteria thompsoniae</i>	2/3	1
Mackenzie's phacelia		<i>Phacelia lutea</i> <i>mackenzieorum</i>	3	1
Least phacelia		<i>Phacelia minutissima</i>	9	1
Nine Mile Canyon phacelia		<i>Phacelia novenmillensis</i>	5/6	1
Parish phacelia		<i>Phacelia parishii</i>	1r	1
Kelsey's phlox		<i>Phlox kelseyi</i>	1	1
Beaver Rim phlox		<i>Phlox pungens</i>	3	1
Dorn's twinpod		<i>Physaria dornii</i>	2	1
Mesamint		<i>Pogogyne floribunda</i>	9	1
Silvies Valley desert combleaf		<i>Polycytenium fremontii</i> <i>bisulcatum</i>		2
Narrowleaved cottonwood		<i>Populus angustifolia</i>	5r/9	1

Table A2.4. Non-fish species included in the initial list of Rich (1999), but subsequently dropped because they did not meet selection criteria.

Species	Taxonomic group	Scientific name	Habitat association <sup>a</sup>	Drop reason <sup>b</sup>
Soldier Meadow cinquefoil		<i>Potentilla basaltica</i>	1	1
Cottam cinquefoil		<i>Potentilla cottamii</i>	6	1
Ruby Mountain primrose		<i>Primula capillaris</i>	1	1
Sticky goldenweed		<i>Pyrrocoma lucida</i>	5	1
Persistent-sepal yellowcress		<i>Rorippa calycina</i>	1r	1
Bartonberry		<i>Rubus bartonianus</i>	2r	1
Hoary willow		<i>Salix candida</i>	9	1
Sierra sanicle		<i>Sanicula graveolens</i>	5	1
Schlesser pincushion		<i>Sclerocactus schlesseri</i>	2	1
Verrucose sea-purslane		<i>Sesuvium verrucosum</i>	3r	1
Shoshonea		<i>Shoshonea pulvinata</i>	3	1
Oregon checker-mallow		<i>Sidalcea oregana</i> var. <i>calva</i>	9	1
Spalding's silene		<i>Silene spaldingii</i>	1/6	1
Cinquefoil tansy		<i>Sphaeromeria potentilloides</i>	9	1
Laramie false sagebrush		<i>Sphaeromeria simplex</i>	1	1
Ute ladies'-tresses		<i>Spiranthes diluvialis</i>	1r	1
Tall dropseed		<i>Sporobolus asper</i>	1/2/6	1
Woodsage		<i>Teucrium canadense viscidum</i>	9	1
Rock Springs greenthread		<i>Thelesperma caespitosum</i>	1	1
Uinta greenthread		<i>Thelesperma pubescens</i>	3	1
Arrow-leaf thelypody		<i>Thelypodium eucosmum</i>	6	1
Howell's spectacular thelypody		<i>Thelypodium howellii spectabilis</i>	9	1
<i>Thelypodium paniculatum</i> <sup>d</sup>		<i>Thelypodium paniculatum</i>	1r	1
Wavy-leaf thelypody		<i>Thelypodium repandum</i>	2	1
Cedar Mtn. Easter daisy		<i>Townsendia microcephala</i>	3	1
Barneby's clover		<i>Trifolium barnebyi</i>	3	1
<i>Trifolium douglasii</i> <sup>d</sup>		<i>Trifolium douglasii</i>	1r	1
Leiberg's clover		<i>Trifolium leibergii</i>	3	1
<i>Trifolium thompsonii</i> <sup>d</sup>		<i>Trifolium thompsonii</i>	1	1
Rock violet		<i>Viola lithion</i>	5	1

<sup>a</sup> Habitat associations are: 1 - herbaceous vegetation; 2 - shrubland; 3 - sparse vegetation; 4 - non-vascular plants; 5 - forest; 6 - woodland; 7 - dwarf-shrub; 8 - cave; and 9 - aquatic/wetlands.

<sup>b</sup> 1 - species is not specifically associated with sagebrush habitats; 2 - species is not at risk within the range of sagebrush; 3 - no longer recognized as a valid subspecies.

<sup>c</sup> "r" was added for riparian habitat designations.

<sup>d</sup> NatureServe does not provide common names for this species.

Table A2.5. Taxon and associated number of species identified as being of conservation concern in the sagebrush ecosystem, resulting from application of our selection criteria.

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Taxonomic group	Number of species	Percentage
Invertebrates	27	7.3
Amphibians	1	0.3
Reptiles	17	4.6
Birds	30	8.2
Mammals	41	11.2
Vascular plants	251	68.4
Total	367	100.0

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Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Invertebrates			
Acastus checkerspot	<i>Chlosyne acastus</i>		2/5/6
Salmon oregonian	<i>Cryptomastix harfordiana</i>		1/2
Hells Canyon land snail	<i>Cryptomastix populi</i>	BLM	1/2
Spring Mountains dark blue	<i>Euphilotes ancilla purpura</i>	BLM	2
Baking Powder Flat blue	<i>Euphilotes bernardino minuta</i>		2
Mattoni's blue	<i>Euphilotes rita mattonii</i>		2
Spring Mountain comma skipper	<i>Hesperia comma mojavensis</i>	BLM, FS	2/5/6
MacNeill's saltbush sootywing	<i>Hesperopsis graciela</i>	BLM, FS	2
Nevada viceroy	<i>Limenitis archippus lahontani</i>		1/2/6
Deschutes sideband	<i>Monadenia fidelis ssp. 1</i>		1/2
<i>Monadenia fidelis minor</i> <sup>b</sup>	<i>Monadenia fidelis minor</i>	FS	1/2
Keeled mountainsnail	<i>Oreohelix carinifera</i>		2
<i>Oreohelix haydeni perplexa</i> <sup>b</sup>	<i>Oreohelix haydeni perplexa</i>		2
Costate mountainsnail	<i>Oreohelix idahoensis idahoensis</i>	BLM	2
Deep slide mountainsnail	<i>Oreohelix intersum</i>		1/2
Limestone Point mountainsnail	<i>Oreohelix sp. 18</i>		2
Hells Canyon mountainsnail	<i>Oreohelix sp. 29</i>		2
Skookumchuck mountainsnail	<i>Oreohelix sp. 30</i>		2
Berry's mountainsnail	<i>Oreohelix strigosa berryi</i>		2
<i>Oreohelix variabilis</i> <sup>b</sup>	<i>Oreohelix variabilis</i>		2
Lava rock mountainsnail	<i>Oreohelix waltoni</i>	BLM	2
Pahranagat naucorid bug	<i>Pelocoris shoshone shoshone</i>		
Steptoe Valley checkerspot	<i>Phyciodes pascoensis arenacolor</i>	BLM	
Bleached sandhill skipper	<i>Polites sabuleti sinemaculata</i>	BLM	2
Atlantis fritillary	<i>Speyeria atlantis elko</i>		2/6
Grey's fritillary	<i>Speyeria atlantis greyi</i>		
Northwest hesperian	<i>Vespericola columbianus</i>		2
Amphibians			
Great Basin spadefoot	<i>Spea intermontana</i>	BLM	2/5/6
Reptiles			
Great Basin collared lizard	<i>Crotaphytus bicinctores</i>	BLM	2
Long-nosed leopard lizard	<i>Gambelia wislizenii</i>	BLM	2

Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Texas horned lizard	<i>Phrynosoma cornutum</i>	BLM, FS	1/2
Pygmy horned lizard	<i>Phrynosoma douglasi</i>	FS	2/6
Desert horned lizard	<i>Phrynosoma platyrhinos</i>	BLM	2
Sagebrush lizard	<i>Sceloporus graciosus</i>	BLM	2/6
Desert spiny lizard	<i>Sceloporus magister</i>	BLM	2
Side-blotched lizard	<i>Uta stansburiana</i>		2
Nightsnake	<i>Hypsiglena torquata</i>	BLM	1/2/3/6
Milksnake <sup>c</sup>	<i>Lampropeltis triangulum</i>	BLM, FS	2/5/6
Utah milksnake	<i>Lampropeltis triangulum taylori</i>		1/2/3
Striped whipsnake	<i>Masticophis taeniatus</i>	BLM, FS	1/2/6
Great Basin gopher snake <sup>c</sup>	<i>Pituophis catenifer deserticola</i>		
Long-nosed snake	<i>Rhinocheilus lecontei</i>	BLM	1/2
Groundsnake	<i>Sonora semiannulata</i>	BLM	1/2/6
Midget faded rattlesnake	<i>Crotalus viridis concolor</i>	BLM	1/2
Massasauga	<i>Sistrurus catenatus</i>	BLM, FS	1/2
Birds			
Greater sage-grouse	<i>Centrocercus urophasianus</i>	BLM, FS, C	2
Gunnison sage-grouse	<i>Centrocercus minimus</i>	BLM, FS, C	2
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	BLM, FS	1/2
Scaled quail	<i>Callipepla squamata</i>		2
Ferruginous hawk	<i>Buteo regalis</i>	BLM, FS	1/2
Swainson's hawk	<i>Buteo swainsoni</i>	BLM, FS	1/2/5/6
Golden eagle	<i>Aquila chrysaetos</i>	BLM	1/6
Prairie falcon	<i>Falco mexicanus</i>	BLM	1/2
Sandhill crane <sup>c</sup>	<i>Grus canadensis</i>	FS	1/2
Mountain plover <sup>c</sup>	<i>Charadrius montanus</i>	BLM, FS	1/2
Long-billed curlew	<i>Numenius americanus</i>	BLM, FS	1/2
Short-eared owl	<i>Asio flammeus</i>	BLM, FS	1/2
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	BLM	1/2
Gray flycatcher	<i>Empidonax wrightii</i>	BLM, FS	2/6
Rock wren	<i>Salpinctes obsoletus</i>		1/2
Sage thrasher	<i>Oreoscoptes montanus</i>	BLM	2
Loggerhead shrike	<i>Lanius ludovicianus</i>	BLM, FS	2/6
MacGillivray's warbler	<i>Oporornis tolmiei</i>		2

Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Virginia's warbler	<i>Vermivora virginiae</i>		2/6
Grasshopper sparrow	<i>Ammodramus savannarum</i>	BLM, FS	1/2
Sage sparrow	<i>Amphispiza belli</i>	BLM, FS	2
Black-throated sparrow	<i>Amphispiza bilineata</i>	BLM	2/3
Lark bunting	<i>Calamospiza melanocorys</i>		2
Lark sparrow	<i>Chondestes grammacus</i>		1/2/6
Green-tailed towhee	<i>Pipilo chlorurus</i>	BLM, FS	2/6
Vesper sparrow	<i>Pooecetes gramineus</i>		1/2
Brewer's sparrow	<i>Spizella breweri</i>	BLM, FS	1/2
Clay-colored sparrow	<i>Spizella pallida</i>		1/2
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	BLM	1r/2r/6r
Western meadowlark	<i>Sturnella neglecta</i>	BLM	1/2/6
Mammals			
Merriam's shrew	<i>Sorex merriami</i>	BLM	1/2/6
Preble's shrew	<i>Sorex preblei</i>	BLM	1/2
California leaf-nosed bat	<i>Macrotus californicus</i>	BLM, FS	2
Pallid bat	<i>Antrozous pallidus</i>	BLM, FS	1/2/6
Spotted bat	<i>Euderma maculatum</i>	BLM, FS	2/6
Western small-footed myotis	<i>Myotis ciliolabrum</i>	BLM	1/2/6
Long-eared myotis	<i>Myotis evotis</i>	BLM, FS	2/5/6
Fringed myotis	<i>Myotis thysanodes</i>	BLM, FS	1/2/6
Cave myotis	<i>Myotis velifer</i>	BLM	1/2
Yuma myotis	<i>Myotis yumanensis</i>	BLM	1r/2r/5r/6r
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	BLM, FS	2/5/6
California mastiff bat	<i>Eumops perotis californicus</i>	BLM	2/6
Big free-tailed bat	<i>Nyctinomops macrotis</i>	BLM	2/5/6
Kit fox	<i>Vulpes macrotis</i>	BLM, FS	1/2
Black-footed ferret <sup>c</sup>	<i>Mustela nigripes</i>	E	1/2
Pronghorn	<i>Antilocapra americana</i>		1/2
White-tailed antelope squirrel	<i>Ammospermophilus leucurus</i>	BLM, FS	2
White-tailed prairie dog <sup>c</sup>	<i>Cynomys leucurus</i>	BLM, FS	1/2
Black-tailed prairie dog <sup>c</sup>	<i>Cynomys ludovicianus</i>	BLM, FS	1/2
Uinta ground squirrel	<i>Spermophilus armatus</i>		1/2
Southern Idaho ground squirrel	<i>Spermophilus brunneus endemicus</i>	BLM, FS, C	1/2

Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Wyoming ground squirrel <sup>c</sup>	<i>Spermophilus elegans nevadensis</i>	BLM	1/2
Townsend's ground squirrel <sup>c</sup>	<i>Spermophilus townsendii</i>	BLM	2
Rock squirrel	<i>Spermophilus variegatus</i>	BLM	2/6
Washington ground squirrel	<i>Spermophilus washingtoni</i>	BLM, C	1/2
Cliff chipmunk	<i>Tamias dorsalis</i>	BLM	2/6
Cebolleta pocket gopher	<i>Thomomys bottae paguatae</i>	BLM, FS	2/6
Wyoming pocket gopher	<i>Thomomys clusius</i>	BLM, FS	1/2
Idaho pocket gopher	<i>Thomomys idahoensis</i>	BLM	1/2
Merriam's kangaroo rat	<i>Dipodomys merriami</i>		1/2
Chisel-toothed kangaroo rat	<i>Dipodomys microps</i>		2
Ord's kangaroo rat	<i>Dipodomys ordii</i>	BLM	1/2
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	BLM	2
Little pocket mouse	<i>Perognathus longimembris</i>	BLM	2
Northern grasshopper mouse	<i>Onychomys leucogaster</i>	BLM	1/2
Canyon mouse	<i>Peromyscus crinitus</i>		1/2/3
Piñon mouse	<i>Peromyscus truei</i>		2/5/6
Sagebrush vole	<i>Lemmyscus curtatus</i>	BLM	2
Black-tailed jackrabbit	<i>Lepus californicus</i>	BLM	1/2
White-tailed jackrabbit	<i>Lepus townsendii</i>	BLM	1/2
Pygmy rabbit	<i>Brachylagus idahoensis</i>	BLM, FS, E	2
<b>Plants</b>			
Henderson's ricegrass	<i>Achnatherum hendersonii</i>	BLM	2
Desert needlegrass	<i>Achnatherum speciosum</i>	BLM	2/6
Cusick's giant-hyssop	<i>Agastache cusickii</i>	BLM, FS	2/6
Aase's onion	<i>Allium aaseae</i>	BLM	2
Kellogg's onion	<i>Allium anceps</i>	BLM	2
Constricted Douglas' onion	<i>Allium constrictum</i>	BLM	2
Tolmie's onion	<i>Allium tolmiei persimile</i>	BLM, FS	2
Meadow pussytoes	<i>Antennaria arcuata</i>	BLM, FS	1/2
Bodie Hills rockcress	<i>Arabis bodiensis</i>	BLM, FS	2/6
Grouse Creek rockcress	<i>Arabis falcatoria</i>	BLM, FS	2
Elko rockcress	<i>Arabis falcifruca</i>	BLM	2
Sapphire rockcress	<i>Arabis fecunda</i>	BLM, FS	2/6
Ophir rockcress	<i>Arabis ophira</i>	FS	2

Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Fremont County rockcress	<i>Arabis pusilla</i>	BLM	2
Prickly-poppy	<i>Argemone munita rotundata</i>	BLM	2/6
Mystery wormwood	<i>Artemisia biennis</i> var. <i>diffusa</i>	BLM	2
Estes' artemisia	<i>Artemisia ludoviciana estesii</i>	BLM, FS	2
Packard's artemisia	<i>Artemisia packardiae</i>	BLM	2
Owyhee sagebrush	<i>Artemisia papposa</i>	BLM	2
Porter's sagebrush	<i>Artemisia porteri</i>	BLM	2
Eastwood milkweed <sup>d</sup>	<i>Asclepias eastwoodiana</i>	BLM, FS	2/6
Vagrant aspicilia	<i>Aspicilia fruticulosa</i>		2
Clokey milkvetch	<i>Astragalus aequalis</i>	BLM, FS	2/6
Don Meadow milkvetch	<i>Astragalus agrestis</i>	BLM	2
Alvord milkvetch	<i>Astragalus alvordensis</i>	BLM	2
Challis milkvetch	<i>Astragalus amblytropis</i>	BLM	2
Sheep Mountain milkvetch	<i>Astragalus amphioxys</i> var. <i>musimonum</i>	BLM	2/6
<i>Astragalus anisus</i> <sup>b</sup>	<i>Astragalus anisus</i>	BLM	2
Goose Creek milkvetch	<i>Astragalus anserinus</i>	BLM, FS	2/6
<i>Astragalus anxius</i> <sup>b</sup>	<i>Astragalus anxius</i>	BLM, FS	2/6
Lemhi milkvetch	<i>Astragalus aquilonius</i>	BLM, FS	2
Palouse milkvetch	<i>Astragalus arrectus</i>	BLM, FS	1/2
Mourning milkvetch	<i>Astragalus atratus inseptus</i>	BLM	2
Owyhee milkvetch	<i>Astragalus atratus owyheensis</i>		2
Barr milkvetch	<i>Astragalus barrii</i>	FS	1/2/3
Beatley milkvetch	<i>Astragalus beatleyae</i>	BLM	2
Brandegee milkvetch <sup>e</sup>	<i>Astragalus brandegei</i>	BLM	2/6
Cronquist's milkvetch	<i>Astragalus cronquistii</i>	BLM	2
<i>Astragalus cusickii</i> var. <i>sterilis</i> <sup>b</sup>	<i>Astragalus cusickii</i> var. <i>sterilis</i>	BLM	2
Debeque milkvetch	<i>Astragalus debequaeus</i>		
Debris milkvetch	<i>Astragalus detritalis</i>		2/6
John Day milkvetch	<i>Astragalus diaphanus</i>	FS	2/6
Duchesne milkvetch	<i>Astragalus duchesnensis</i>		2/6
Horseshoe milkvetch	<i>Astragalus equisolensis</i>	BLM, C	2
Geyer's milkvetch	<i>Astragalus geyeri</i> var. <i>geyeri</i>	BLM	1/2
Gilman milkvetch	<i>Astragalus gilmanii</i>	BLM	2/6
Inyo milkvetch	<i>Astragalus inyoensis</i>		2/6
Starveling milkvetch	<i>Astragalus jejunos</i> var. <i>jejunos</i>	BLM, FS	2

Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Grand Junction milkvetch	<i>Astragalus linifolius</i>	BLM	2/6
Skiff milkvetch	<i>Astragalus microcymbus</i>	BLM	2/6
Pauper milkvetch	<i>Astragalus misellus</i> var. <i>pauper</i>	BLM	2
Mulford's milkvetch	<i>Astragalus mulfordiae</i>	BLM	2
Ferron milkvetch	<i>Astragalus musiniensis</i>		2/6
Newberry's milkvetch	<i>Astragalus newberryi</i>	BLM	2/6
Picabo milkvetch	<i>Astragalus oniciformis</i>	BLM	2
Spindle milkvetch	<i>Astragalus oophorus</i>	FS	2/6
Lavin's egg milkvetch	<i>Astragalus oophorus</i> var. <i>lavinii</i>	BLM, FS	2/6
Pink egg milkvetch	<i>Astragalus oophorus</i> var. <i>lonchocalyx</i>	BLM	2
Peck's milkvetch	<i>Astragalus peckii</i>	BLM, FS	1/2/3/5
Fisher milkvetch	<i>Astragalus piscator</i>	BLM	2
Ames milkvetch	<i>Astragalus pulsiferae</i> var. <i>suksdorfii</i>	BLM, FS	2
Snake River milkvetch	<i>Astragalus purshii</i> var. <i>ophiogenes</i>	BLM	2
San Rafael milkvetch	<i>Astragalus rafaensis</i>	BLM	2'5/6
Spring Mountain milkvetch	<i>Astragalus remotus</i>	BLM, FS	2
Ripley milkvetch	<i>Astragalus ripleyi</i>	BLM, FS	2/5/6
Trout Creek milkvetch	<i>Astragalus salmonis</i>		2
Bitterroot milkvetch	<i>Astragalus scaphoides</i>	BLM, FS	1/2
Sandstone milkvetch	<i>Astragalus sesquiflorus</i>	BLM	2/5/6
Whited's milkvetch	<i>Astragalus sinuatus</i>	BLM	2
Weak milkvetch	<i>Astragalus solitarius</i>	BLM	2
Blue Mountain milkvetch	<i>Astragalus tegetarioides</i>	BLM, FS	2/5/6
Four-wing milkvetch	<i>Astragalus tetrapterus</i>		2
Toquima milkvetch	<i>Astragalus toquimanus</i>	BLM, FS	2
Currant milkvetch	<i>Astragalus uncialis</i>	BLM, FS	2
Mud Flat milkvetch	<i>Astragalus yoder williamsii</i>	BLM, FS	2
Blue gramma	<i>Bouteloua gracilis</i>	BLM	1/2/6
Intermountain evening-primrose	<i>Camissonia megalantha</i>	BLM	2
Palmer's suncup	<i>Camissonia palmeri</i>	BLM	2
Pygmy suncup	<i>Camissonia pterosperma</i>	BLM	2/6
Green-tinged Indian paintbrush	<i>Castilleja chlorotica</i>	BLM, FS	2
Steens Mountain paintbrush	<i>Castilleja pilosa steenensis</i>	BLM	2
Western cabbage	<i>Caulanthus crassicaulis</i>	BLM	2/6
<i>Caulanthus major</i> var. <i>nevadensis</i> <sup>b</sup>	<i>Caulanthus major</i> var. <i>nevadensis</i>	BLM	2/6



Table A2.6. Final list of 367 species identified as being of conservation concern in the sagebrush ecosystem and their federal status and habitat associations (see [Table A2.1](#) for habitat association codes), based on application of our selection criteria.

Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Hairy wild cabbage	<i>Caulanthus pilosus</i>	BLM	2/6
Large-flowered chaenactis	<i>Chaenactis macrantha</i>	BLM	2/6
Broad-flowered pincushion	<i>Chaenactis stevioides</i>	BLM	2
Flesh-colored pincusion	<i>Chaenactis xantiana</i>	BLM	2/6
Pintwater rabbitbrush	<i>Chrysothamnus eremobius</i>	BLM	2/6
Dwarf gray rabbitbrush	<i>Chrysothamnus nauseosus nanus</i>		2
Ownbey's thistle	<i>Cirsium ownbeyi</i>	BLM	2/6
Bristle-flowered collomia	<i>Collomia macrocalyx</i>	BLM	2
Barren Valley collomia	<i>Collomia renacta</i>	BLM	2
<i>Crepis modocensis modocensis</i> <sup>b</sup>	<i>Crepis modocensis modocensis</i>		2/5/6
Tufted caespitose cat's-eye	<i>Cryptantha caespitosa</i>	BLM	2/6
Round-spike cat's-eye	<i>Cryptantha humilis</i>	BLM	
Gray cryptantha	<i>Cryptantha leucophaea</i>	BLM	2
Malheur cryptantha	<i>Cryptantha propria</i>		2
Schoolcraft catseye <sup>b</sup>	<i>Cryptantha schoolcraftii</i>	BLM	2
Snake River cat's-eye	<i>Cryptantha spiculifera</i>	BLM	2
White River cats-eye	<i>Cryptantha welshii</i>	BLM	2/6
Desert dodder	<i>Cuscuta denticulata</i>		2
Bodie Hills cusickiella	<i>Cusickiella quadricostata</i>	BLM, FS	2/6
Greeley's wavewing	<i>Cymopterus acaulis greeleyorum</i>	BLM	2/6
Ibapah spring-parsley	<i>Cymopterus ibapensis</i>		2
Ripley cymopterus	<i>Cymopterus ripleyi</i>	BLM	2/6
<i>Dermatocarpon lorenzianum</i> <sup>b</sup>	<i>Dermatocarpon lorenzianum</i>		
<i>Didymodon nevadensis</i> <sup>b</sup>	<i>Didymodon nevadensis</i>		
Yellowstone whitlow-grass	<i>Draba incerta</i>		2
White eatonella	<i>Eatonella nivea</i>	BLM	2/6
Nevada willowherb	<i>Epilobium nevadense</i>	BLM, FS	2/6
Bisti fleabane	<i>Erigeron bistiensis</i>		1/2
Broad fleabane	<i>Erigeron latus</i>	BLM	2
Piper's daisy	<i>Erigeron piperianus</i>	BLM	2
Wind-loving buckwheat	<i>Eriogonum anemophilum</i>	BLM	2
Brandegee wild buckwheat	<i>Eriogonum brandegeei</i>	BLM, FS	2/6
Welsh's buckwheat	<i>Eriogonum capistratum</i> var. <i>welshii</i>	BLM, FS	
Twisted wild-buckwheat	<i>Eriogonum contortum</i>	BLM	2
Crosby's buckwheat	<i>Eriogonum crosbyae</i>	BLM	2

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Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Cusick's eriogonum	<i>Eriogonum cusickii</i>	BLM	2/6
Ephedra wild buckwheat	<i>Eriogonum ephedroides</i>	BLM	2
<i>Eriogonum heermannii</i> var. <i>clokeyi</i> <sup>b</sup>	<i>Eriogonum heermannii</i> var. <i>clokeyi</i>	BLM, FS	2
Rabbit buckwheat	<i>Eriogonum lagopus</i>		2/6
Lewis' buckwheat	<i>Eriogonum lewisii</i>	BLM, FS	2/3
Steamboat buckwheat	<i>Eriogonum ovalifolium</i> var. <i>williamsiae</i>	BLM, E	2
Prostrate buckwheat	<i>Eriogonum prociduum</i>	BLM, FS	2/5/6
Altered andesite buckwheat	<i>Eriogonum robustum</i>	BLM	2/6
Playa buckwheat	<i>Eriogonum salicornioides</i>	BLM	2
Cowpie wild buckwheat	<i>Eriogonum shockleyi packardiae</i>	BLM	2
Shockley buckwheat	<i>Eriogonum shockleyi shockleyi</i>	BLM	2
Frisco buckwheat	<i>Eriogonum soledium</i>	BLM	2/6
Woodside buckwheat	<i>Eriogonum tumulosum</i>	BLM	2/6
<i>Frasera albicaulis</i> var. <i>modocensis</i> <sup>b</sup>	<i>Frasera albicaulis</i> var. <i>modocensis</i>		2/6
Sunnyside green gentian	<i>Frasera gypsicola</i>	BLM	2
<i>Galium glabrescens</i> <sup>b</sup>	<i>Galium glabrescens</i>		2
Aztec gilia	<i>Gilia formosa</i>		2
Pacific greasebush	<i>Glossopetalon pungens</i>	BLM	2/6
White-margined wax plant	<i>Glyptopleura marginata</i>	BLM	2/3
Cronquist's stickseed	<i>Hackelia cronquistii</i>	BLM	2
Camas goldenweed	<i>Haplopappus insecticurus</i>	BLM	2
Snake River goldenweed	<i>Haplopappus radiatus</i>	BLM	2
Western sweetvetch	<i>Hedysarum occidentale</i>		2/6
Seaside heliotrope	<i>Heliotropium curassavicum</i>	BLM	
<i>Hymenoxys acaulis</i> var. <i>nana</i> <sup>b</sup>	<i>Hymenoxys acaulis</i> var. <i>nana</i>	BLM	2/6
Cooper's goldflower	<i>Hymenoxys cooperi canescens</i>		2/6
Longsepal globemallow	<i>Iliamna longisepala</i>	BLM, FS	2
Lavender dwarf standing-cypress	<i>Ipomopsis polycladon</i>	BLM	2/6
Sierra Valley ivesia	<i>Ivesia aperta</i> var. <i>aperta</i>	BLM, FS	1/2/5/6
Ash Creek ivesia	<i>Ivesia paniculata</i>	FS	2/6
Grimy mousetail	<i>Ivesia rhypara</i>		2
Grimy ivesia	<i>Ivesia rhypara rhypara</i>	BLM	2
Plumas ivesia	<i>Ivesia sericoleuca</i>	BLM, FS	1/2/6
Webber ivesia	<i>Ivesia webberi</i>	BLM, FS	2/6
Grimes vetchling	<i>Lathyrus grimesii</i>	BLM, FS, C	2



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Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Davis' peppergrass	<i>Lepidium davisii</i>	BLM	2
Slick spot peppergrass	<i>Lepidium papilliferum</i>	BLM, FS	2
Owyhee prickly phlox	<i>Leptodactylon glabrum</i>	BLM	2
Secund bladderpod	<i>Lesquerella arenosa</i> var. <i>argillosa</i>	BLM	
Fremont bladderpod	<i>Lesquerella fremontii</i>	BLM, FS	2/6
Western bladderpod	<i>Lesquerella occidentalis</i>		2
Prostrate bladderpod	<i>Lesquerella prostrata</i>	BLM	1/2/6
Spreading loeflingia	<i>Loeflingia squarrosa</i> var. <i>squarrosa</i>		2
Colorado desert parsley	<i>Lomatium concinnum</i>	BLM	2
Canyonlands lomatium	<i>Lomatium latilobum</i>	BLM, FS	2/6
Ochoco lomatium <sup>f</sup>	<i>Lomatium ochocense</i>	BLM	2
Packard's desert-parsley	<i>Lomatium packardiae</i>	BLM	2
<i>Lomatium roseanum</i> <sup>b</sup>	<i>Lomatium roseanum</i>	BLM	2
Biddle's lupine	<i>Lupinus biddlei</i>	BLM	2/6
Cusick's lupine	<i>Lupinus cusickii</i>		
Inch-high lupine	<i>Lupinus uncialis</i>	BLM	2
Dolores River skeletonplant	<i>Lygodesmia doloresensis</i>	BLM	2/6
Fringed waterplantain	<i>Machaerocarpus californicus</i>	FS	1/2/6
Torrey's malacothrix	<i>Malacothrix torreyi</i>	BLM	2
Nodding melic	<i>Melica stricta</i>	BLM	2/5/6
Smooth stickleaf	<i>Mentzelia mollis</i>	BLM	2
Hill monkey flower	<i>Mimulus clivicola</i>	BLM, FS	2/5
Pygmy monkey flower	<i>Mimulus pygmaeus</i>		2/6
Suksdorf's monkey-flower	<i>Mimulus suksdorfii</i>	BLM, FS	2/6
<i>Mirabilis bigelovii</i> var. <i>retrorsa</i> <sup>b</sup>	<i>Mirabilis bigelovii</i> var. <i>retrorsa</i>	BLM	1/2
Least muhly	<i>Muhlenbergia minutissima</i>	BLM	2/5/6
Green needlegrass	<i>Nassella viridula</i>		1/2/5/6
Rigid threadplant	<i>Nemacladus rigidus</i>	BLM	2/6
Coyote tobacco	<i>Nicotiana attenuata</i>	BLM	1/2/5/6
Challis crazyweed	<i>Oxytropis besseyi salmonensis</i>	BLM, FS	2
Bristly combseed	<i>Pectocarya setosa</i>	BLM	1/2/6
Dwarf lousewort	<i>Pedicularis centranthera</i>		2
Simpson's hedgehog cactus	<i>Pediocactus simpsonii robustior</i>	BLM	2
Absaroka beardtongue	<i>Penstemon absarokensis</i>	BLM, FS	
Stemless beardtongue	<i>Penstemon acaulis</i>	FS	2/6

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Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Narrow-leaf beardtongue	<i>Penstemon angustifolius</i>		1/2/6
Bicolored beardtongue	<i>Penstemon bicolor</i> ssp. <i>bicolor</i>	BLM, FS	
Cary beardtongue	<i>Penstemon caryi</i>	FS	2/6
Tunnel Springs beardtongue	<i>Penstemon concinnus</i>	BLM, FS	2/6
Cordelia's beardtongue	<i>Penstemon floribundus</i>	BLM	2/6
Gibben's beardtongue	<i>Penstemon gibbensii</i>	BLM	1/2/6
Blue-leaved beardtongue	<i>Penstemon glaucinus</i>	BLM, FS	
Harrington beardtongue	<i>Penstemon harringtonii</i>	BLM, FS	2/6
Idaho penstemon	<i>Penstemon idahoensis</i>	BLM, FS	2/6
Antelope Valley beardtongue	<i>Penstemon janishiae</i>	BLM	2/6
King's beardtongue	<i>Penstemon kingii</i>	BLM	
Lemhi beardtongue	<i>Penstemon lemhiensis</i>	BLM, FS	2/3
Pahute Mesa beardtongue	<i>Penstemon pahutensis</i>	BLM	
Aquarius beardtongue	<i>Penstemon parvus</i>	BLM, FS	1/2
Minidoka beardtongue	<i>Penstemon perpulcher</i>	BLM	2
Kawich Range beardtongue	<i>Penstemon pudicus</i>	BLM	2/6
Short-lobe beardtongue	<i>Penstemon seorsus</i>	BLM	2
Ward beardtongue	<i>Penstemon wardii</i>	BLM, FS	2/6
Squaw-apple	<i>Peraphyllum ramosissimum</i>	BLM	2/5/6
Beatley phacelia	<i>Phacelia beatleyae</i>	BLM	2
Naked-stemmed phacelia	<i>Phacelia gymnoclada</i>	BLM	2
Inconspicuous scorpion-weed	<i>Phacelia inconspicua</i>	BLM, FS	2
Playa phacelia	<i>Phacelia inundata</i>	BLM, FS	2/6
Mono County phacelia	<i>Phacelia monoensis</i>	BLM, FS	2/6
Chambers' twinpod	<i>Physaria chambersii</i>	BLM	2
Little mountain ricegrass	<i>Piptatherum micranthum</i>	BLM	1/2/5/6
Hairy-foot plantain	<i>Plantago eriopoda</i>	BLM	1/2
Washington polemonium	<i>Polemonium pectinatum</i>	BLM	2
<i>Polycytenium fremontii</i> var. <i>confertum</i> <sup>b</sup>	<i>Polycytenium fremontii</i> var. <i>confertum</i>		2
Williams combleaf	<i>Polycytenium williamsiae</i>	BLM, FS	2
Austin's knotweed	<i>Polygonum austiniae</i>		2
Modoc County knotweed	<i>Polygonum polygaloides esotericum</i>	FS	2/6
Pygmy poreleaf	<i>Porophyllum pygmaeum</i>	BLM	2/6
Alkali primrose	<i>Primula alcalina</i>	BLM, FS	9
Slender wooly-heads	<i>Psilocarphus tenellus</i>		

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Taxonomic group Species	Scientific name	Federal status <sup>a</sup>	Habitat associations
Snake River goldenweed	<i>Pyrocoma radiata</i>	BLM, FS	2
California chicory	<i>Rafinesquia californica</i>	BLM	2/6
Columbian yellowcress	<i>Rorippa columbiae</i>	BLM, FS	1/2
Clokey's mountain sage	<i>Salvia dorrii</i> var. <i>clokeyi</i>	BLM, FS	2
Blaine's pincushion	<i>Sclerocactus blainei</i>	BLM	1/2
Mesa Verde cactus	<i>Sclerocactus mesae-verdae</i>	T	2
<i>Sclerocactus nyensis</i> <sup>b</sup>	<i>Sclerocactus nyensis</i>	BLM	2
Dwarf skullcap	<i>Scutellaria nana</i>		2/5/6
Ertter's ragwort	<i>Senecio ertterae</i>	BLM	2
Jan's catchfly	<i>Silene nachlingerae</i>	BLM, FS	2/6
Jones globemallow	<i>Sphaeralcea caespitosa</i>	FS	2
Biennial prince-plume	<i>Stanleya confertiflora</i>	BLM	2
Wooly goldenweed	<i>Stenotus lanuginosus</i>		2/6
Malheur wire-lettuce	<i>Stephanomeria malheurensis</i>	E	2
Tiehm's stroganowia	<i>Stroganowia tiehmii</i>		2
Thread-like cotton-weed	<i>Stylocline filaginea</i>		2
Malheur stylocline	<i>Stylocline psilocarphoides</i>		2
Long-flowered snowberry	<i>Symphoricarpos longiflorus</i>		2/6
Wovenspore lichen	<i>Texosporium sancti-jacobi</i>	BLM	2
Howell's thelypody	<i>Thelypodium howellii howellii</i>	BLM, FS	2
Purple thick-leaved thelypody <sup>g</sup>	<i>Thelypodium laciniatum</i>		
	<i>streptanthoides</i>		2
<i>Tortula bartramii</i> <sup>b</sup>	<i>Tortula bartramii</i>		2
Gypsum Townsend's aster	<i>Townsendia gypsophila</i>	BLM	2
Charleston grounddaisy	<i>Townsendia jonesii</i> var. <i>tumulosa</i>	BLM, FS	2
Tufted townsendia	<i>Townsendia scapigera</i>		2/5/6
Currant Summit clover	<i>Trifolium andinum</i> var. <i>podocephalum</i>	BLM, FS	2/6
Owyhee clover	<i>Trifolium owyheense</i>	BLM	2
Desert yellowhead	<i>Yermo xanthocephalus</i>	T	2

<sup>a</sup> Federal status is as follows: BLM - designated as sensitive by the USDI Bureau of Land Management; FS - designated as sensitive by the USDA Forest Service; E - listed as endangered by the U.S. Fish and Wildlife Service; T - listed as threatened by the U.S. Fish and Wildlife Service; and C – listed as candidate species by the U.S. Fish and Wildlife Service.

<sup>b</sup> NatureServe does not provide common names for this species.

<sup>c</sup> Species not found on original list of Rich (1999) but brought forward during the species selection process for the Wyoming Basins Ecoregional Assessment (Rowland et al. 2005).

<sup>d</sup> Common name provided by Nevada State Heritage Rare Plant Atlas [<http://heritage.nv.gov/atlas/atlasndx.htm>].

<sup>e</sup> Common name provided by Colorado Rare Plant Field Guide

[<http://www.cnhp.colostate.edu/rareplants/masterlist.html>].

<sup>f</sup> Common name provided by Oregon Natural Heritage website for rare vascular plants

[<http://oregonstate.edu/ornhic/data/vascular.html>].

<sup>g</sup> Common name provided by Idaho Conservation Data Center, Idaho Department of Fish and Wildlife, Vascular and Nonvascular Plants Tracked by the IDCDC, 1/13/2005

[[http://fishandgame.idaho.gov/cms/tech/CDC/cdc\\_pdf/bluebook\\_plants.pdf](http://fishandgame.idaho.gov/cms/tech/CDC/cdc_pdf/bluebook_plants.pdf)].

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Invertebrates												
Acastus checkerspot	G4G5	SNR	S2S3	S4S5	SNR	S4	S1	SNR	SNR	SNR	SNR	SNR
Salmon Oregonian	G3G4				SNR				SNR			SNR
Hells Canyon land snail	G2				SNR				S1			S1S2
Baking Powder Flat blue	G3G4T1						S1					
Spring Mountains dark blue	G5T2						S1S2					
Mattoni's blue	G3G4T1						S1					
Spring Mountain comma skipper	G5T3						S3					
MacNeill's saltbush sootywing	G2G3	SNR	SNR				S1			SH		
Nevada viceroys	G5T1T2						S1S2					
Deschutes sideband	G4G5T1								S1			
<i>Monadenia fidelis minor</i> <sup>a</sup>	G4G5T2		SNR						S1		S1	
Keeled mountainsnail	G1					S1						SNR
<i>Oreohelix haydeni perplexa</i> <sup>a</sup>	G2G3T1T3				SNR							
Costate mountainsnail	G1G2T1T2				SU							
Deep slide mountainsnail	G1				SNR							
Limestone Point mountainsnail	G1				SNR						SH	
Hells Canyon mountainsnail	G2				SNR				S1?		S1S2	
Skookumchuck mountainsnail	G2				SNR							
Berry's mountainsnail	G5T2					S1S2						SNR
<i>Oreohelix variabilis</i> <sup>a</sup>	G2Q								S1			
Lava rock mountainsnail	G1G3				SU							
Pahrnagat naucorid bug	G1G3T1						S1					
Steptoe Valley checkerspot	G5T1						S1					
Bleached sandhill skipper	G5T1						S1					
Atlantis fritillary	G5T2						S2					

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Species	Taxonomic group	Global rank	State Natural Heritage Program rank and occurrence											
			AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY	
Grey's fritillary		G5T1T2							S1S2					
Northwest hesperian		G5								SNR		S4		
	Amphibians													
Great Basin spadefoot		G5	S2	S5	S3	S4		S4		S5	S5	S3		
	Reptiles													
Great Basin collared lizard		G5	S3?	S5		S2		S4		S3	S4			
Long-nosed leopard lizard		G5	S5	S5	S1	S5		S4	S5	S4	S4			
Texas horned lizard		G4G5	S3S4		S3				S5					
Pygmy horned lizard		G5		S4		S5		SNR		S4		S3		
Desert horned lizard		G5	S5	S5		S4		S4		S3	S4			
Sagebrush lizard		G5	S3S4	S5	S5	S5	S3	S4	S4	S5	S5	S2	S5	
Desert spiny lizard		G5	S5	S5	S2			S5	S5		S3S4			
Side-blotched lizard		G5	S5	S5	S4	S5		S5	S5	S5	S5	S2S3		
Nightsnake		G5	S5	S5	S3	S3		S5	S5	S3	S4	S4		
Milksnake		G5	S2		S5		S2		S4		S2S3		S3	
Utah milksnake		G5T4Q	S2		S2?									
Striped whipsnake		G5	S4	S4	S4	S4		S5	S5	S4	S5	S1		
Great Basin gopher snake		G5T5	S4		S4			S5					S3	
Long-nosed snake		G5	S5	S5	S1?	S3		S5	S5		S4S5			
Groundsnake		G5	S5	S4	S3	S3		S5	S5	S3	S2			
Midget faded rattlesnake		G5T4	S1		S3?								S1	
Massasauga		G3G4	S2		S2				S3S4					

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Birds												
Greater sage-grouse	G4		S3	S4	S4	S3	S3S4B	SX	S3	S2?	S1	S4
Gunnison sage-grouse	G1			S1						S1		
Sharp-tailed grouse	G4		SX	S2	S3	S4	S1?	SHB,SHN	SX	S1S2	S2	S4
Scaled quail	G5	S5		S4			SNA	S3B,S4N		SNA		
Ferruginous hawk	G4	S2B,S4N	S3S4	S3B,S4N	S3B	S2B	S3	S2B,S4N	S3B	S2S3B,S2N	S2B	S4B,S5N
Swainson's hawk	G5	S3	S2	S5B	S4B	S3B	S2B	S4B,S4N	S3B	S3B	S3S4B	S4B
Golden eagle	G5	S4	S3	S3S4B, S4N	S4B, S4N	S4	S4	S3B, S4N	S4	S4	S3	S3B
Prairie falcon	G5	S4	S3	S4B,S4N	S5B,S3N	S4	S4	S4B,S4N	S4	S4	S3B,S3N	S4B,S4N
Sandhill crane	G5	S3N	SNRB, SNRN	S3B, S4N	S5B	S5B, S2N	S3B	S4N	S3B	S3?B	S1B, S3N	S3B, 35N
Mountain plover	G2	S1B, S2N	S2?	S2B		S2B	SNA	S2B, S4N		S1B		S2
Long-billed curlew	G5	S1B, S3S4N	S2	S2B	S3B	S4B	S3?B	S3B,S4N	S3B	S2S3B	S2S3B,S2N	S3B
Short-eared owl	G5	SNRN	S3	S2B	S5	S3S4	S4	S2N	S4?	S2	S3B,S4N	S2
Western burrowing owl	G4T4	S3	S2		S3S4		S3B	S3B,S3N	S3?B			SNR
Gray flycatcher	G5	S5	S5	S5B	S2B,S2N		S4B	S3B,S5N	S4	S4S5B	S2S3B	S4B,S4N
Rock wren	G5	S5	S5	S4	S5B	S5B	S5	S5B,S5N	S5	S4S5B,S3N	S4S5B	S5B,S5N
Sage thrasher	G5	S5	S5	S5	S5B	S3B	S5B	S3B,S4N	S4	S4S5B	S3B	S5
Loggerhead shrike	G4	S4	S4	S3S4B	S3	S3B	S3	S4B,S4N	S3B,S2N	S4B,S3S4N	S3B	S3
MacGillivray's warbler	G5	S4	SNR	S4B	S5B	S5B	S4B	S5B,S5N	S4	S4S5B	S4S5B	S5B,S5N
Virginia's warbler	G5	S5	S2S3	S5	S2B		S4?B	S3B,S4N		S4S5B		S1
Grasshopper sparrow	G5	S3	S2	S3S4B	S3B	S2B	S3B	S3B,S3N	S2B	S1B	S3B	S4
Sage sparrow	G5	S4	SNRB, SNRN	S3B	S4B	S1S3B	S4B,S4N	S3B,S4N	S4B	S3S4	S3B	S5

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Species	Taxonomic group	Global rank	State Natural Heritage Program rank and occurrence										
			AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Black-throated sparrow		G5	S5	SNRB, SNRN	S3B	S2B		S5B	S5B,S5N	S3B	S4B,S2N	S1B	SNR
Lark bunting		G5	S1B,S5N	SNR	S4	S1?B	S3B		S3B,S5N		S2S3B	SNR	S4B
Lark sparrow		G5	S5	SNR	S4	S5B	S5B	S4B	S4B,S4N	S4?	S5B,S2N	S3B	S5B,S5N
Green-tailed towhee		G5	S3B,S4N	SNR	S5	S5B	S4B	S5B	S3B,S4N	S4	S4B	S2B	S5B,S5N
Vesper sparrow		G5	S5	SNR	S5	S4B	S5B	S4B	S5B,S4N	S4B	S5B,S2N	S4B	S5B,S5N
Brewer's sparrow		G5	S5	S3	S4B	S4B	S4B	S4?B	S3B,S4N	S4	S4S5B	S3B	S5
Clay-colored sparrow		G5	S1N		SNA		S4B		S4N	SNA		SNA	S3B
Brewer's blackbird		G5	S5	SNR	S5B,S4N	S5B,S5N	S5B	S5	S4B,S5N	S5	S4S5	S5	S5B,S5N
Western meadowlark		G5	S5	SNR	S5	S5B,S3N	S5B	S5	S5B,S5N	S4	S5	S4S5B,S4N	S5B,S5N
Mammals													
Merriam's shrew		G5	S3	S3	S3	S2?	S3	S3	S2	S3	SH	S3S4	S3S4
Preble's shrew		G4		S?	S1		S3	S2	S1	S3	S1	SR	
California leaf-nosed bat		G4	S3S4	S2S3				S2					
Pallid bat		G5	S4S5	S3	S4	S1?	S2	S3B	S5	S2	S4	S3	S1
Spotted bat		G4	S1S2	S2S3	S2	S2	S2	S1S2	S3	S2	S2S2	S3S4	S3
Western small-footed myotis		G5	S3	SNR	S4	S4?	S4	S3B	S5	S3S4	S3S4	S4	S3B
Long-eared myotis		G5	S3S4	S4?	S4	S3?	S4	S4B	S4	S4	S4?B	S3	S4
Fringed myotis		G4G5	S3S4	S4	S3	S2	S3	S2B	S5	S2	S3B?	S3	S2
Cave myotis		G5	S4	S1				S1	S4				
Yuma myotis		G5	S3S4	S4?	S3	S3?	S3S4	S4B	S5	S3	S3	S5	S1
Townsend's big-eared bat		G4	S3S4	S3S4	S2	S2	S2	S3B	S3	S2	S3?	S3	S2
California mastiff bat		G5T4	S1S2	S3?				S1					
Big free-tailed bat		G5	S2S3	S2	S1			S1N	S2		S2B		
Kit fox		G4	S4	S3S4	S1	S1		S3	S4	S1	S3?		



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Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Black-footed ferret	G1	S1		S1		S1		SH		S1		S1
Pronghorn	G5	S5	S4	S4	S5	S5	S5	S5	S4	S4	SX	S5
White-tailed antelope squirrel	G5	S5	S5	S4	S4		S5	S4	S4?	S5		
White-tailed prairie dog	G4			S4		S1				S2?		S3
Black-tailed prairie dog	G3G4	SX		S3		S3		S2?				S2
Uinta ground squirrel	G5				S4?	S3S4				S5		S3S4
Southern Idaho ground squirrel	G2T2				S2							
Wyoming ground squirrel	G5T4				S2?		S4		SH			
Townsend's ground squirrel	G4										S3	
Rock squirrel	G5	S5	S2	S5	S1		S5	S5		S5		
Washington ground squirrel	G2								S2		S2	
Cliff chipmunk	G5	S5		S2	S1?		S5	S4		S4		S1
Cebolleta pocket gopher	G5T2							S2				
Wyoming pocket gopher	G2											S2
Idaho pocket gopher	G4				S4?	S2S4				SH		S2
Merriam's kangaroo rat	G5	S5	S5				S5	S5		S2?		
Chisel-toothed kangaroo rat	G5	S3	S4		S3?		S5		S4?	S3		
Ord's kangaroo rat	G5	S5	S3S4	S5	S5	S4	S5	S5	S4	S5	S4	S5
Dark kangaroo mouse	G4		S3S4		S1		S2		S4?	S2?		
Little pocket mouse	G5	S5	S5		S1?		S5		S4?	S3		
Northern grasshopper mouse	G5	S5	S3S4	S5	S4	S4	S5	S5	S4?	S4S5	S4S5	S5
Canyon mouse	G5	S4	S5	S4	S3S4		S5	S3	S4	S5		S1
Piñon mouse	G5	S5	S5	S4	S2		S5	S5	S4?	S4S5		S1
Sagebrush vole	G5		S4	S1	S4	S4	S3		S4	S3S4	S3	S5
Black-tailed jackrabbit	G5	S5	S5	S5	S5	S2	S5	S4	S4	S5	S2S3	S5
White-tailed jackrabbit	G5		S3?	S4	S5	S4	S5	S2	S4?	S3S4	S2S3	S4

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Pygmy rabbit	G4		S3		S3	S3	S3		S2?	S2	S1	S1
Plants												
Henderson's ricegrass	G3								S2		S2	
Desert needlegrass	G5	SNR	SNR	SNR			S4		S2	SNR		
Cusick's giant-hyssop	G3G4				SNR	S1	S2		S2			
Aase's onion	G3				S3							
Kellogg's onion	G4		SNR		S2		SNR		SNR			
Constricted Douglas' onion	G2G3										S2S3	
Tolmie's onion	G4T3				S3							
Meadow pussytoes	G2				S1		S1					S2
Bodie Hills rockcress	G2		S1.2				S2					
Grouse Creek rockcress	G1Q						S1			S1		
Elko rockcress	G1G2						S1S2					
Sapphire rockcress	G2					S2						
Ophir rockcress	G1						S1S2					
Fremont County rockcress	G1											S1
Prickly-poppy	G4T4	SNR	SNR				S4		S2	SNR		
Mystery wormwood	G5T1Q									S1?		S1
Estes' artemisia	G5T2								S2			
Packard's artemisia	G3				S3		S2		S3			
Owyhee sagebrush	G4				S4		S2		S2			
Porter's sagebrush	G2											S2
Eastwood milkweed <sup>b</sup>	G2Q						S2					
Vagrant aspicilia	G3			SNR	S3	SNR	S1		SNR			
Clokey milkvetch	G2						S2					



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Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Skiff milkvetch	G1			S1								
Pauper milkvetch	G4T3								SNR		S3	
Mulford's milkvetch	G2				S2				S1			
Ferron milkvetch	G2			S1						S2		
Newberry's milkvetch	G5	S1	SNR	S1	S1		SNR	S5	SNR	SNR		
Picabo milkvetch	G3				S3							
Spindle milkvetch	G4	SNR	SNR	SNR			S4	SNR	SU	S3		
Lavin's egg milkvetch	G4T2		S1				S2					
Pink egg milkvetch	G4T2						S2			S1S2		
Peck's milkvetch	G3								S3			
Fisher milkvetch	G2G3			S1						S2		
Ames milkvetch	G4T3?		S2.2								S1	
Snake River milkvetch	G5T3				S3				S3			
San Rafael milkvetch	G2G3			S1						S2S3		
Spring Mountain milkvetch	G2						S2					
Ripley milkvetch	G3			S2				S3?				
Trout Creek milkvetch	G3G4				S3		SNR		SNR			
Bitterroot milkvetch	G3				S3	S2						
Sandstone milkvetch	G3G4	SNR		S1						S3		
Whited's milkvetch	G1										S1	
Weak milkvetch	G3						S1		S3			
Blue Mountain milkvetch	G3								S3			
Four-wing milkvetch	G4G5	SNR			S1		SNR		S3	S3		
Toquima milkvetch	G2						S2					
Currant milkvetch	G2						S1			S2		
Mud Flat milkvetch	G3				S3		S1		SNR			

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Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Blue gramma	G5	SNR	SNR	SNR	S2	S5	SNR	SNR		SNR		S5
Intermountain evening-primrose	G3Q						S3					
Palmer's suncup	G3G4	SU	SNR				SNR					
Pygmy suncup	G4	SNR	SNR		S2		SNR		SNR	S1		
Green-tinged Indian paintbrush	G3								S3			
Steens Mountain Paintbrush	G4G5T3								S3			
Western cabbage	G4G5		SNR	SNR	SNR		SNR		S4	SNR		S2
<i>Caulanthus major</i> var. <i>nevadensis</i> <sup>a</sup>	G4T3?		S3.3				SNR		S1			
Hairy wild cabbage	G4		SNR		SNR		SNR		S4	S2?		
Large-flowered chaenactis	G4	SNR	SNR		SNR		S4		S2	SNR		
Broad-flowered pincushion	G4	SNR	SNR	SNR	S2		S5	SNR	S2	S3		S2
Flesh-colored pincusion	G4G5	SNR	SNR				SNR		S1?			
Pintwater rabbitbrush	G1						S1					
Dwarf gray rabbitbrush	G5T4				S3				S4		SNR	
Ownbey's thistle	G3			S2						S1		S2
Bristle-flowered collomia	G3G4				SNR				S3S4		S1	
Barren Valley collomia	G1Q						S1		S1			
<i>Crepis modocensis modocensis</i> <sup>a</sup>	G4G5T4		SNR	SNR	SNR	SNR	SNR		SU	SNR	SNR	SNR
Round-spike cat's-eye	G4?	SNR	SNR	SNR	SNR	SH	SNR			SNR		
Tufted caespitose cat's-eye	G4			S2	S1					S1?		S3
Gray cryptantha	G2G3								SH		S2S3	
Malheur cryptantha	G4				S2				S4			
Schoolcraft catseye <sup>b</sup>	G3Q						S3					
Snake River cat's-eye	G4?		SNR		SNR	S3	SNR		SU	S1	S2?	S2
White River cat's-eye	G3						S3					

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Species	Taxonomic group	Global rank	State Natural Heritage Program rank and occurrence									
			AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA
Desert dodder		G4	SNR	SNR	SNR	S1		SNR		SNR	S1	
Bodie Hills cusickiella		G2		S2.2				S2				
Greeley's wavewing		G5T2			S2				S1			
Ibapah spring-parsley		G4			S2		SNR		S2?	SNR		
Ripley cymopterus		G3		SNR				S2				
<i>Dermatocarpon lorenzianum</i> <sup>a</sup>		G2		SNR		S1			SNR			
<i>Didymodon nevadensis</i> <sup>a</sup>		G2G3			S1S3			S1				
Yellowstone whitlow-grass		G5			S1	S2	SNR			S1	SNR	S3
White eatonella		G4G5		SNR		S3		SNR		SNR	S1	
Nevada willowherb		G2						S2		S1		
Bisti fleabane		G1							S1			
Broad fleabane		G2G3				S3		S1		S1?		
Piper's daisy		G3									S3	
Wind-loving buckwheat		G2G3						S2S3				
Brandegee wild buckwheat		G1G2			S1S2							
Welsh's buckwheat		G4T2				S2						
Twisted wild-buckwheat		G3			S2					S2		
Crosby's buckwheat		G3						S3		S2		
Cusick's eriogonum		G2								S2		
Ephedra wild buckwheat		G3			S1						S3	
<i>Eriogonum heermannii</i> var. <i>clokeyi</i> <sup>a</sup>		G5T2						S2				
Rabbit buckwheat		G3					S3					S2
Lewis' buckwheat		G2G3Q						S2S3				
Steamboat buckwheat		G5T1						S1				
Prostrate buckwheat		G3		S2.2				S1		S2		

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Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Altered andesite buckwheat	G2						S2S3					
Playa buckwheat	G3G4				S3		SNR		S2			
Cowpie wild buckwheat	G5T2				S2							
Shockley buckwheat	G5T4?	SNR	S3.3	SNR	S2		S4	SNR		SNR		
Frisco buckwheat	G1									S1		
Woodside buckwheat	G3Q			S2						S2		
Sunnyside green gentian	G1						S1			S1		
<i>Frasera albicaulis</i> var. <i>modocensis</i> <sup>a</sup>	G5T3T4		SNR				SNR		SNR			
<i>Galium glabrescens</i> <sup>a</sup>	G4		SNR						SNR			
Aztec gilia	G2							S2				
Pacific greasebush	G2G3		S1.3				S2S3					
White-margined wax plant	G4G5	SU	SNR		S3		SNR		SNR	SNR		
Cronquist's stickseed	G2				S1				S3			
Camas goldenweed	G3				S3							
Snake River goldenweed	G3				S3				S3			
Western sweetvetch	G5			SNR	SNR	SNR			SNR	S2?	S1	S4
Seaside heliotrope	G5	SNR	SNR	SNR	SNR	SNR	SNR	SNR	S2	SNR	SNR	SNR
Cooper's goldflower	G4G5T4	SNR	SNR		SNR		SNR		SNR			
<i>Hymenoxys acaulis</i> var. <i>nana</i> <sup>a</sup>	G5T1T2									S1S2		
Longsepal globemallow	G3								SNR		S3	
Lavender dwarf standing-cypress	G4	SNR	SNR	SNR	S2		SNR	SNR	SNR	SNR		S1
Sierra Valley ivesia	G2T2		S2.2				S1					
Ash Creek ivesia	G2		S2.2									
Grimy mousetail	G2						S1		S1			
Grimy ivesia	G2T1						S1		S1			

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Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Plumas ivesia	G2		S2.2									
Webber ivesia	G2		S2.1					S1				
Grimes vetchling	G2							S2				
Davis' peppergrass	G3				S3			S1		S1		
Slick spot peppergrass	G2				S2							
Owyhee prickly phlox	G2				S2			S1				
Secund bladderpod	G5T3			S1								S1
Fremont bladderpod	G2											S2
Western bladderpod	G4		SNR		S3		SNR		SNR	SNR	SNR	
Prostrate bladderpod	G3				SNR					S1		S1
Spreading loeflingia	G5T4?	SNR	SNR		SH					SNR	S1	S1
Colorado desert parsley	G2			S2								
Canyonlands lomatium	G1			S1						S1		
Ochoco lomatium <sup>d</sup>	G1								S1			
Packard's desert-parsley	G2				S2		S1?		SNR			
<i>Lomatium roseanum</i> <sup>a</sup>	G2G3						S2S3		SH			
Biddle's lupine	G5T3								S3			
Cusick's lupine	G1				SNR				SNR			
Inch-high lupine	G4		S2.2		S2		S4		SNR			
Dolores River skeletonplant	G1Q			S1						S1		
Fringed waterplantain	G4		SNR		S2		SNR		SU		S1	
Torrey's malacothrix	G4	SNR	SU	SNR	S2	S1	SNR		S4	SNR		S2
Nodding melic	G4		SNR				SNR		S3	SNR		
Smooth stickleaf	G2				S2		S1		S2			
Hill monkey flower	G4				S3				S3		SNR	
Pygmy monkey flower	G4		S3.2						S4			



Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Suksdorf's monkey-flower	G4	SNR	SNR		SNR	S3	S4	SNR	SNR	SNR	S2	S3
<i>Mirabilis bigelovii</i> var. <i>retrorsa</i> <sup>a</sup>	G4G5T4	SNR	SNR				SNR		S3	S3		
Least muhly	G5	SNR	SNR	S3?	SNR	S3	SNR	SNR	S2	S2	SNR	S2
Green needlegrass	G5	SNR	SNR	SNR	S2	SNR		SNR		SNR		S4
Rigid threadplant	G4		SNR		S2		SNR		S4			
Coyote tobacco	G4	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	SNR	S2	S2
Challis crazyweed	G5T3				S3							
Bristly combseed	G5	SNR	SNR		S3		S5		SNR	S2?	S2	
Dwarf lousewort	G4	SNR	S1.2	SNR			SNR	SNR	SU	SNR		
Simpson's hedgehog cactus	G4T4				S3		S2		S4		SNR	
Absaroka Beardtongue	G2											S2
Stemless beardtongue	G2									S1		S1
Narrow-leaf beardtongue	G5	SNR		SNR		S2		SNR		SNR		SNR
Bicolored beardtongue	G3T2Q						S2					
Cary beardtongue	G3					S3						S3
Tunnel Springs beardtongue	G3						S2			S3		
Cordelia's beardtongue	G1						S1					
Gibben's beardtongue	G1			S1						S1		S1
Blue-leaved beardtongue	G3								S3			
Harrington beardtongue	G3			S3								
Idaho penstemon	G1G2				S2					S1		
Antelope valley beardtongue	G4		S1.2		S2		SNR					
King's beardtongue	G4						S4					
Lemhi beardtongue	G2G3				S3	S2						
Pahute Mesa beardtongue	G3		SNR				S3					
Aquarius beardtongue	G2									S2		

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Taxonomic group Species	Global rank	State Natural Heritage Program rank and occurrence										
		AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Minidoka beardtongue	G2G3				SNR							
Kawich Range beardtongue	G1						S1					
Short-lobe beardtongue	G4?				S2				S3			
Ward beardtongue	G2G3									S2S3		
Squaw-apple	G4		SNR	SNR	S2		SNR	SNR	SNR	SNR		
Beatley phacelia	G3						S3					
Naked-stemmed phacelia	G4		S2.3				SNR		S2			
Inconspicuous scorpion-weed	G2				S1		S1					
Playa phacelia	G2		S2.3				S2?		S1			
Mono County phacelia	G3		S2.1				S3					
Chambers' twinpod	G4	SNR	S2.3				SNR			S4		
Little mountain ricegrass	G5	SNR	S2S3	SNR	S1	SNR	SNR	SNR		SNR		S3
Hairy-foot plantain	G5	SNR	SNR	SNR	SNR	S5	SNR	SNR	SNR	SNR	SNR	S3
Washington polemonium	G2										S2	
<i>Polyctenium fremontii</i> var. <i>confertum</i> <sup>a</sup>	G4T1T3Q		SNR				S1S2		SNR			
Williams combleaf	G2Q						SNR					
Austin's knotweed	G5T4		SNR		SNR	S2	SNR		SNR		S1	S2
Modoc County knotweed	G4G5T2		S2.1						SNR			
Pygmy poreleaf	G2						S2					
Alkali primrose	G1G2				S2	S1						
Slender wooly-heads	G4		SNR		S2				SNR		SNR	
Snake River goldenweed	G3				S3				S3			
California chicory	G5	SNR	SNR				SNR		S1?	S1		
Columbian yellowcress	G3		S1.1						S3		S1S2	
Clokey's mountain sage	G5T3						S3					

Table A2.7. Status and occurrence by state of the 367 species identified as being of conservation concern in association with the sagebrush ecosystem.

Species	Taxonomic group	Global rank	State Natural Heritage Program rank and occurrence										
			AZ	CA	CO	ID	MT	NV	NM	OR	UT	WA	WY
Blaine's pincushion		G1G2Q							S1			S1	
Mesa Verde cactus		G2			S2					S2			
<i>Sclerocactus nyensis</i> <sup>a</sup>		G1Q							S1				
Dwarf skullcap		G4		SNR		S3			SNR		SNR		
Ertter's ragwort		G1G2								S2			
Jan's catchfly		G2							S2				
Jones globemallow		G2							S2			S2	
Biennial prince-plume		G2				S1				S1			
Wooly goldenweed		G5		S1.2		SNR	SNR	SNR		SNR		SNR	
Malheur wire-lettuce		G1								S1			
Tiehm's stroganowia		G2							S2				
Thread-like cotton-weed		G5		SNR		S2			S1		SNR		
Malheur stylocline		G4		SNR		SNR			S4		SH	S1	
Long-flowered snowberry		G5	SNR	SNR	SNR	SNR		SNR	SNR	S2		SNR	
Wovenspore lichen		G2		S1.1		S2				S1			S1?
Howell's thelypody		G2T2		S2.2						SH			SNR
Purple thick-leaved thelypody <sup>c</sup>		G5T4Q				S2							
<i>Tortula bartramii</i> <sup>a</sup>		G2G4					S1						
Gypsum Townsend's aster		G2								S2			
Charleston grounddaisy		G4T3							S3				
Tufted townsendia		G4G5		SNR		S1			SNR		S4	S1	
Currant Summit clover		G3T1							S1				
Owyhee clover		G2				S1				S2			
Desert yellowhead		G1											S1

<sup>a</sup> NatureServe does not provide a common name for this species

<sup>b</sup> Common name and rankings provided by Nevada State Heritage Rare Plant Atlas [<http://heritage.nv.gov/atlas/atlasndx.htm>].

<sup>c</sup> Common name and rankings provided by Colorado Rare Plant Field Guide [<http://www.cnhp.colostate.edu/rareplants/masterlist.html>].

<sup>d</sup> Common name and rankings provided by Oregon Natural Heritage website for rare vascular plants [<http://oregonstate.edu/ornhic/data/vascular.html>].

<sup>d</sup> Common name and rankings provided by Idaho Conservation Data Center, Idaho Department of Fish and Wildlife, Vascular and Nonvascular Plants Tracked by the IDCDC, 1/13/2005 [[http://fishandgame.idaho.gov/cms/tech/CDC/cdc\\_pdf/bluebook\\_plants.pdf](http://fishandgame.idaho.gov/cms/tech/CDC/cdc_pdf/bluebook_plants.pdf)].

Key to rank designations:

G = Global rank indicator, based on worldwide distribution at the species level

T = Global trinomial rank indicator, based on worldwide distribution at the infraspecific level

S = State/province rank indicator, based on distribution within the state/province at the lowest taxonomic level

1 = Critically imperiled, at very high risk of extinction or extirpation due to extreme rarity, very steep declines, or other factors

2 = Imperiled due to rarity from very restricted range, very few populations, steep declines, or other factors

3 = Vulnerable due to restricted range, relatively few populations, recent and widespread declines, or other factors

4 = Apparently secure, uncommon but not rare, some cause for long-term concern due to declines or other factors

5 = Secure, common, widespread, and abundant

\_#\_# = Range of uncertainty in a numeric rank (for example, G2G4 or S1S2)

SH = Possibly extirpated

SNR = Conservation status not assessed at the state/province level

SNA = Conservation status not applicable due to direct or indirect human intervention on the species' presence within the state

SU = Unrankable; present and possibly in peril, but not enough data yet to estimate rank

SX = Presumed extirpated

? = Inexact or uncertain numeric rank

B = Applies to breeding populations in the state/province

N = Applies to non-breeding populations in the state/province

Q = Questionable taxonomy