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## **APPENDIX Q**

### **RECOMMENDED CONSERVATION FOR FOCAL SPECIES**

# APPENDIX Q

## RECOMMENDED CONSERVATION FOR FOCAL SPECIES

Patricia N. Manley and Matthew D. Schlesinger

**Table Q-1**—Recommended conservation for focal species. Species are sorted by taxonomic group and are accompanied by the criteria for their identification as focal species.<sup>a</sup> Potential threats and conservation options are identified.

| Common Name             | Scientific Name                                    | Criteria <sup>a</sup> | Potential Threats or Impacts                           | Conservation Ideas                                                                  |
|-------------------------|----------------------------------------------------|-----------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Vascular Plants</b>  |                                                    |                       |                                                        |                                                                                     |
| White fir               | <i>Abies concolor</i>                              | HV                    | Genetic pollution from restocking; altered fire regime | Use seedlings grown from local seeds                                                |
| California red fir      | <i>Abies magnifica</i> var. <i>magnifica</i>       | HV                    | Genetic pollution from restocking                      | Use seedlings grown from local seeds                                                |
| Mountain bentgrass*     | <i>Agrostis humilis</i> *                          | RA                    | Uncertain                                              | Map and protect all discovered occurrences                                          |
| Galena Creek rockcress* | <i>Arabis rigidissima</i> var. <i>demota</i>       | SC,RA,EN, AE          | Uncertain                                              | Map and protect known and newly discovered occurrences; Truckee River basin endemic |
| Twin arnica             | <i>Arnica soroia</i>                               | RA                    | Uncertain                                              | Map and protect all discovered occurrences                                          |
| Green spleenwort        | <i>Asplenium trichomanes-ramosum</i>               | RA                    | Uncertain                                              | Map and protect known and newly discovered occurrences                              |
| Anderson's aster        | <i>Aster alpinus</i> var. <i>andersonii</i>        | AE                    | Uncertain                                              | Map and protect known and newly discovered occurrences                              |
| Austin's milkvetch*     | <i>Astragalus austini</i>                          | EN                    | Uncertain                                              | Map and protect known and newly discovered occurrences                              |
| Balloon pod milkvetch   | <i>Astragalus whitneyi</i> var. <i>lenophyllus</i> | EN                    | Uncertain                                              | Map and protect known and newly discovered occurrences                              |
| Trianglelobe moonwort   | <i>Botrychium ascendens</i>                        | RA,AE                 | Uncertain                                              | Map and protect all discovered occurrences                                          |

| Common Name         | Scientific Name                                    | Criteria <sup>a</sup> | Potential Threats or Impacts                    | Conservation Ideas                                                                                  |
|---------------------|----------------------------------------------------|-----------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Cheatgrass          | <i>Bromus tectorum</i>                             | EX                    | Impacts: competes with native grasses and forbs | Avoid burning in shrubby areas in areas with < 20 cm of precipitation per year                      |
| Incense cedar       | <i>Calocedrus decurrens</i>                        | HV                    | Genetic pollution from restocking               | Use seedlings grown from local seeds                                                                |
| Plumeless thistle   | <i>Carduus acanthoides</i>                         | EX                    | Uncertain                                       | Eradicate when encountered                                                                          |
| Musk thistle        | <i>Carduus nutans</i>                              | EX                    | Competes with native forbs                      | Awareness and education                                                                             |
| Davy's sedge        | <i>Carex davyi</i>                                 | EN                    | Uncertain                                       | Map and protect all discovered occurrences                                                          |
| Mud sedge           | <i>Carex limosa</i>                                | RA                    | Bog disturbance                                 | Map and protect all discovered occurrences; protection of sphagnum bogs should protect this species |
| Mariposa sedge*     | <i>Carex mariposana</i>                            | AE                    | Uncertain                                       | Map and protect known and newly discovered occurrences                                              |
| Diffuse knapweed    | <i>Centaurea diffusa</i>                           | EX                    | Impacts: competes with native grasses and forbs | Eradicate immediately when encountered                                                              |
| Spotted knapweed    | <i>Centaurea maculosa</i>                          | EX                    | Impacts: competes with native grasses and forbs | Eradicate immediately when encountered; poisonous                                                   |
| Bullthistle*        | <i>Cirsium vulgare</i>                             | EX                    | Impacts: competes with native forbs             | Eradicate when encountered                                                                          |
| Sierra clarkia      | <i>Clarkia virgata</i>                             | EN                    | Uncertain                                       | Map and protect all discovered occurrences                                                          |
| Scotch broom        | <i>Cytisus scoparius</i>                           | EX                    | Impacts: competes with native plants            | Eradicate when encountered                                                                          |
| Lake Tahoe draba*   | <i>Draba asterophora</i> var. <i>asterophora</i>   | RA,EN,AE              | Recreation                                      | Map and protect known and newly discovered occurrences                                              |
| Cup Lake draba*     | <i>Draba asterophora</i> var. <i>macrocarpa</i>    | SC,RA,EN,AE           | Uncertain                                       | Map and protect known and newly discovered occurrences                                              |
| Subalpine fireweed* | <i>Epilobium howellii</i>                          | RA,EN,AE              | Uncertain                                       | Map and protect all discovered occurrences                                                          |
| Oregon fireweed     | <i>Epilobium oreganum</i>                          | SC,AE                 | Uncertain                                       | Map and protect all discovered occurrences                                                          |
| Marsh horsetail     | <i>Equisetum palustre</i>                          | RA                    | Uncertain                                       | Map and protect known and newly discovered occurrences                                              |
| Starved fleabane    | <i>Erigeron miser</i>                              | RA,EN,AE              | Rock climbers                                   | Map and protect all discovered occurrences; increase awareness with rock climbers                   |
| Sierra fleabane     | <i>Erigeron petrophilus</i> var. <i>sierrensis</i> | EN                    | Uncertain                                       | Map and protect all discovered occurrences                                                          |

| Common Name                | Scientific Name                                    | Criteria <sup>a</sup> | Potential Threats or Impacts                                         | Conservation Ideas                                                             |
|----------------------------|----------------------------------------------------|-----------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Brown-margined buckwheat   | <i>Eriogonum ovalifolium</i> var. <i>eximium</i>   | HV                    | Uncertain                                                            | Map and protect known and newly discovered occurrences                         |
| Buckwheat                  | <i>Eriogonum ovalifolium</i> var. <i>vineum</i>    | RA                    | Uncertain                                                            | Map and protect known and newly discovered occurrences                         |
| Torrey buckwheat*          | <i>Eriogonum umbellatum</i> var. <i>torreyanum</i> | SC,RA,EN, HV,AE       | Uncertain                                                            | Map and protect known and newly discovered occurrences                         |
| Klamathweed                | <i>Hypericum perforatum</i>                        | EX                    | Impacts: competes with native plants                                 | Eradicate when encountered, avoid use of commercial gravel                     |
| Plumas mousetail           | <i>Ivesia sericoleuca</i>                          | SC,EN,AE              | Grazing                                                              | Map and protect all discovered occurrences                                     |
| Webber's ivesia            | <i>Ivesia webberi</i>                              | SC,RA,AE              | Uncertain                                                            | Map and protect known and newly discovered occurrences                         |
| Tall whitetop*             | <i>Lepidium latifolium</i>                         | EX                    | Impacts: competes with native plants                                 | Eradicate immediately when encountered                                         |
| Long-petaled lewisia*      | <i>Lewisia longipetala</i>                         | SC,RA,EN, HV,AE       | Uncertain                                                            | Map and protect known and newly discovered occurrences                         |
| Dalmation toadflax         | <i>Linaria genistifolia</i> ssp. <i>dalmatica</i>  | EX                    | Impacts: competes with native plants                                 | Eradicate when encountered                                                     |
| Eurasian watermilfoil*     | <i>Myriophyllum spicatum</i>                       | EX,HC                 | Impacts: chokes out native aquatic vegetation, snags boat propellers | Follow conservation strategies being developed for the control of this species |
| Scotch thistle             | <i>Onopordum acanthium</i> ssp. <i>acanthium</i>   | EX                    | Impacts: competes with native plants                                 | Eradicate when encountered                                                     |
| Close-throated beardtongue | <i>Penstemon personatus</i>                        | RA,EN,AE              | Uncertain                                                            | Map and protect all discovered occurrences                                     |
| Bacigalupi's perideridia   | <i>Perideridia bacigalupii</i>                     | EN                    | Uncertain                                                            | Awareness and education                                                        |
| Whitebark pine             | <i>Pinus albicaulis</i>                            | PO                    | Disease; climate change                                              | Awareness and education                                                        |
| Lodgepole pine             | <i>Pinus contorta</i> ssp. <i>murrayana</i>        | HV                    | Genetic pollution from restocking; altered fire regime               | Use seedlings grown from local seeds                                           |
| Jeffrey pine               | <i>Pinus jeffreyi</i>                              | HV                    | Genetic pollution from restocking; altered fire regime               | Use seedlings grown from local seeds                                           |
| Sugar pine                 | <i>Pinus lambertiana</i>                           | HV                    | Genetic pollution from restocking; altered fire regime; blister rust | Use seedlings grown from local seeds                                           |
| Western white pine         | <i>Pinus monticola</i>                             | HV                    | Genetic pollution from restocking; altered fire regime; blister rust | Use seedlings grown from local seeds                                           |

| Common Name               | Scientific Name                         | Criteria <sup>a</sup> | Potential Threats or Impacts                    | Conservation Ideas                                                                                               |
|---------------------------|-----------------------------------------|-----------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Ponderosa pine            | <i>Pinus ponderosa</i>                  | HV                    | Genetic pollution from restocking               | Use seedlings grown from local seeds                                                                             |
| Ribbonleaf pondweed       | <i>Potamogeton epihydrus nuttallii</i>  | RA                    | Uncertain                                       | Awareness and education                                                                                          |
| Tahoe yellow cress*       | <i>Rorippa subumbellata</i>             | SE,SC,RA, EN,AE       | Human use and development along the south shore | California State Lands Commission may have a conservation strategy for this species; Truckee River basin endemic |
| American scheuchzeria     | <i>Scheuchzeria palustris americana</i> | RA,AE                 | Uncertain                                       | Map and protect all discovered occurrences                                                                       |
| Water bulrush*            | <i>Scirpus subterminalis</i>            | RA                    | Uncertain                                       | Map and protect known and newly discovered occurrences                                                           |
| Marsh skullcap            | <i>Scutellaria galericulata</i>         | RA,HV                 | Uncertain                                       | Map and protect known and newly discovered occurrences                                                           |
| Smooth goldenrod          | <i>Solidago gigantea</i>                | RA,HV                 | Uncertain                                       | Map and protect all discovered occurrences                                                                       |
| Lake Tahoe serpentweed    | <i>Tonestus eximius</i>                 | EN                    | Uncertain                                       | Map and protect known and newly discovered occurrences                                                           |
| Grey-leaved violet        | <i>Viola pinetorum grisea</i>           | RA,AE                 | Uncertain                                       | Map and protect known and newly discovered occurrences                                                           |
| Wooly violet              | <i>Viola tomentosa</i>                  | RA,EN                 | Uncertain                                       | Map and protect all discovered occurrences                                                                       |
| <b>Nonvascular Plants</b> |                                         |                       |                                                 |                                                                                                                  |
| Moss                      | <i>Andreaea nivalis</i>                 | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Bruchia bolanderi</i>                | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Campylium stellatum</i>              | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Distichium inclinatum</i>            | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Grimmia mixleyi</i>                  | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Grimmia hamulosa</i>                 | RA,EN                 | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Hydrogrimmia mollis</i>              | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Lescurea pallida</i>                 | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Mnium arizonicum</i>                 | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Myurella julacea</i>                 | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Orthotrichum euryphyllum</i>         | RA                    | Unknown                                         | Awareness and education                                                                                          |
| Moss                      | <i>Orthotrichum spjutii</i>             | RA,EN                 | Unknown                                         | Awareness and education                                                                                          |

| Common Name          | Scientific Name                | Criteria <sup>a</sup> | Potential Threats or Impacts                                      | Conservation Ideas                                                |
|----------------------|--------------------------------|-----------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
| Moss                 | <i>Polytrichum sexangulare</i> | RA                    | Unknown                                                           | Awareness and education                                           |
| Moss                 | <i>Racomitrium hispanicum</i>  | RA                    | Unknown                                                           | Awareness and education                                           |
| Moss                 | <i>Tayloria serrata</i>        | RA                    | Unknown                                                           | Awareness and education                                           |
| Moss                 | <i>Tortula californica</i>     | RA                    | Unknown                                                           | Awareness and education                                           |
| <b>Birds</b>         |                                |                       |                                                                   |                                                                   |
| Cooper's Hawk        | <i>Accipiter cooperii</i>      | SC                    | Uncertain                                                         | Protect discovered nest sites from management disturbance         |
| Northern Goshawk*    | <i>Accipiter gentilis</i>      | SC,LH,AE              | Forest management practices                                       | Protect nest sites and foraging areas                             |
| Sharp-shinned Hawk   | <i>Accipiter striatus</i>      | SC                    | Uncertain                                                         | Protect discovered nest sites from management disturbance         |
| Red-winged Blackbird | <i>Agelaius phoeniceus</i>     | LH                    | Grazing                                                           | Manage riparian habitats to support dependent species             |
| Wood Duck            | <i>Aix sponsa</i>              | PO,LH                 | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| Northern Pintail     | <i>Anas acuta</i>              | LH                    | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| Northern Shoveler    | <i>Anas clypeata</i>           | PO                    | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| Mallard              | <i>Anas platyrhynchos</i>      | LH,WA                 | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| American Pipit       | <i>Anthus rubescens</i>        | LH                    | Unknown                                                           | Awareness and education                                           |
| Western Scrub Jay    | <i>Apelocoma coerulescens</i>  | PO                    | Uncertain                                                         | Awareness and education                                           |
| Golden Eagle         | <i>Aquila chrysaetos</i>       | SC,AE                 | Behavioral modification from human presence                       | Protect all discovered nest sites                                 |
| Great Blue Heron     | <i>Ardea herodias</i>          | LH                    | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| Greater Scaup        | <i>Aythya marila</i>           | PO                    | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| Canvasback           | <i>Aythya valisineria</i>      | LH                    | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |
| Canada Goose         | <i>Branta canadensis</i>       | LH,WA, HC             | Behavioral modification from human presence, Impacts: lawn damage | Protect sensitive foraging and potential breeding sites (marshes) |
| Common Goldeneye     | <i>Bucephala clangula</i>      | LH                    | Behavioral modification from human presence                       | Protect sensitive foraging and potential breeding sites (marshes) |

| Common Name            | Scientific Name                   | Criteria <sup>a</sup> | Potential Threats or Impacts                | Conservation Ideas                                                                           |
|------------------------|-----------------------------------|-----------------------|---------------------------------------------|----------------------------------------------------------------------------------------------|
| Barrow's Goldeneye     | <i>Bucephala islandica</i>        | SC,PO                 | Behavioral modification from human presence | Protect sensitive foraging and potential breeding sites (marshes)                            |
| California Quail       | <i>Callipepla californica</i>     | EX                    | Unknown                                     | Awareness and education                                                                      |
| Lesser Goldfinch       | <i>Carduelis psaltria</i>         | PO                    | Uncertain                                   | Awareness and education                                                                      |
| Cassin's Finch         | <i>Carpodacus cassinii</i>        | LH                    | Forest management practices                 | Manage old forests to support dependent species                                              |
| House Finch            | <i>Carpodacus mexicanus</i>       | PO                    | Uncertain                                   | Awareness and education                                                                      |
| Purple Finch           | <i>Carpodacus purpureus</i>       | LH                    | Forest management practices                 | Manage old forests to support dependent species                                              |
| Swainson's Thrush      | <i>Catharus ustulatus</i>         | PO                    | Uncertain                                   | Develop conservation measures                                                                |
| Canyon Wren            | <i>Catherpes mexicanus</i>        | ET,LH                 | Uncertain                                   | Define habitat requirements and evaluate enhancement opportunities                           |
| Brown Creeper          | <i>Certhia americana</i>          | LH                    | Forest management practices                 | Manage old forests to support dependent species                                              |
| Belted Kingfisher      | <i>Ceryle alcyon</i>              | PO,LH                 | Behavioral modification from human presence | Protect sensitive foraging and potential breeding sites (marshes)                            |
| Northern Harrier       | <i>Circus cyaneus</i>             | SC                    | Uncertain                                   | Protect discovered nest sites from management disturbance                                    |
| Marsh Wren             | <i>Cistothorus palustris</i>      | LH                    | Unknown                                     | Develop conservation and restoration strategies for marshes and associated riparian habitats |
| Evening Grosbeak       | <i>Coccothraustes vespertinus</i> | LH                    | Forest management practices                 | Manage old forests to support dependent species                                              |
| Band-tailed Pigeon     | <i>Columba fasciata</i>           | PO                    | Uncertain                                   | Awareness and education                                                                      |
| Rock Dove              | <i>Columba livia</i>              | LH,EX,HC              | Impacts: fecal deposition                   | Awareness and education                                                                      |
| Olive-sided Flycatcher | <i>Contopus cooperi</i>           | PO                    | Uncertain                                   | Awareness and education                                                                      |
| Western Wood-pewee     | <i>Contopus sordidulus</i>        | PO                    | Uncertain                                   | Awareness and education                                                                      |
| American Crow          | <i>Corvus brachyrhynchos</i>      | LH                    | Uncertain                                   | Awareness and education                                                                      |
| Steller's Jay          | <i>Cyanocitta stelleri</i>        | PO                    | Uncertain                                   | Awareness and education                                                                      |
| Tundra Swan            | <i>Cygnus columbianus</i>         | LH                    | Behavioral modification                     | Protect sensitive foraging and potential breeding sites (marshes)                            |
| Blue Grouse            | <i>Dendragapus obscurus</i>       | HV                    | Overharvest                                 | Awareness and education                                                                      |
| Hermit Warbler         | <i>Dendroica occidentalis</i>     | LH                    | Forest management practices                 | Manage old forests to support dependent species                                              |

| Common Name               | Scientific Name                 | Criteria <sup>a</sup> | Potential Threats or Impacts                             | Conservation Ideas                                                                    |
|---------------------------|---------------------------------|-----------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------|
| Yellow Warbler            | <i>Dendroica petechia</i>       | SC                    | Brown-headed Cowbird nest parasitism and cow disturbance | Reduce or eliminate grazing pressure around yellow warbler nests and habitat          |
| Pileated Woodpecker*      | <i>Dryocopus pileatus</i>       | LH                    | Forest management practices                              | Manage old forests to support dependent species, including many large trees and snags |
| Hammond's Flycatcher      | <i>Empidonax hammondi</i>       | LH                    | Uncertain                                                | Awareness and education                                                               |
| Willow Flycatcher*        | <i>Empidonax traillii</i>       | SE,PO,LH,AE           | Brown-headed Cowbird nest parasitism and cow disturbance | Elimination of grazing from some low-elevation meadows, possible cowbird trapping     |
| Horned Lark               | <i>Eremophila alpestris</i>     | LH                    | Unknown                                                  | Manage sagebrush to support dependent species                                         |
| Peregrine Falcon          | <i>Falco peregrinus</i>         | ET,SE,PO,WA,AE        | Behavioral modification from human presence              | Reintroduction                                                                        |
| Common Snipe              | <i>Gallinago gallinago</i>      | PO                    | Grazing                                                  | Protect sensitive foraging and potential breeding sites (marshes, wet meadows)        |
| Common Loon               | <i>Gavia immer</i>              | SC                    | Behavioral modification from human presence              | Protect sensitive foraging and potential breeding sites (marshes)                     |
| Bald Eagle*               | <i>Haliaeetus leucocephalus</i> | FT,SE,WA,AE           | Behavioral modification from human presence              | Protection of all nest sites and wintering habitat                                    |
| California Gull           | <i>Larus californicus</i>       | SC,LH,HC              | Uncertain                                                | Awareness and education                                                               |
| Ring-billed Gull          | <i>Larus delawarensis</i>       | LH,HC                 | Impacts: fecal deposition                                | Awareness and education                                                               |
| Gray-crowned Rosy Finch   | <i>Leucosticte arctoa</i>       | LH                    | Uncertain                                                | Awareness and education                                                               |
| Hooded Merganser          | <i>Lophodytes cucullatus</i>    | LH                    | Behavioral modification                                  | Protect sensitive foraging and potential breeding sites (marshes)                     |
| Red Crossbill             | <i>Loxia curvirostra</i>        | LH                    | Forest management practices                              | Manage old forests to support dependent species                                       |
| Lewis's Woodpecker        | <i>Melanerpes lewis</i>         | ET,PO                 | Forest management practices                              | If detected, develop and implement habitat management direction                       |
| Wild Turkey               | <i>Meleagris gallopavo</i>      | EX                    | Unknown                                                  | Awareness and education                                                               |
| Lincoln's Sparrow         | <i>Melospiza lincolnii</i>      | LH                    | Grazing                                                  | Manage riparian habitats to support dependent species                                 |
| Common Merganser          | <i>Mergus merganser</i>         | LH                    | Behavioral modification                                  | Protect sensitive foraging and potential breeding sites (marshes)                     |
| Brown-headed Cowbird      | <i>Molothrus ater</i>           | PO,EX                 | Impacts: parasitism of songbirds                         | Trapping and removal of individuals if population continues to grow                   |
| Black-crowned Night-heron | <i>Nycticorax nycticorax</i>    | LH                    | Behavioral modification                                  | Protect sensitive foraging and potential breeding sites (marshes)                     |

| Common Name             | Scientific Name                  | Criteria <sup>a</sup> | Potential Threats or Impacts                                       | Conservation Ideas                                                                              |
|-------------------------|----------------------------------|-----------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| MacGillivray's Warbler  | <i>Oporornis tolmiei</i>         | LH                    | Grazing                                                            | Manage riparian habitats to support dependent species                                           |
| Mountain Quail          | <i>Oreortyx pictus</i>           | HV                    | Overharvest                                                        | Awareness and education                                                                         |
| Osprey*                 | <i>Pandion haliaetus</i>         | SC,LH,WA,AE           | Behavioral modification from human presence, shoreline development | Protect sensitive foraging and potential breeding sites (marshes)                               |
| House Sparrow           | <i>Passer domesticus</i>         | LH,EX                 | Impacts: competes with native cavity-nesters                       | Awareness and education                                                                         |
| Savannah Sparrow        | <i>Passerculus sandwichensis</i> | ET,LH                 | Unknown                                                            | Manage sagebrush and juniper to support dependent species                                       |
| American White Pelican  | <i>Pelecanus erythrorhynchos</i> | SC,PO,LH              | Behavioral modification from human presence                        | Protect sensitive foraging and potential breeding sites (marshes)                               |
| Black-billed Magpie     | <i>Pica pica</i>                 | LH                    | Grazing                                                            | Awareness and education                                                                         |
| White-headed Woodpecker | <i>Picoides albolarvatus</i>     | LH                    | Forest management practices                                        | Manage old forests to sustain dependent species                                                 |
| Black-backed Woodpecker | <i>Picoides arcticus</i>         | LH                    | Forest management practices                                        | Awareness and education                                                                         |
| Pine Grosbeak           | <i>Pinicola enucleator</i>       | LH                    | Grazing                                                            | Manage riparian habitats to support dependent species                                           |
| Green-tailed Towhee     | <i>Pipilo chlorurus</i>          | LH                    | Uncertain                                                          | Awareness and education                                                                         |
| Pied-billed Grebe       | <i>Podilymbus podiceps</i>       | PO                    | Behavioral modification from human presence                        | Protect sensitive foraging and potential breeding sites (marshes)                               |
| Bank Swallow            | <i>Riparia riparia</i>           | ST,LH                 | Stream bank erosionUncertain                                       | Protect nest sites where discovered, and manage riparian habitats to support associated species |
| Red-breasted Nuthatch   | <i>Sitta canadensis</i>          | LH                    | Forest management practices                                        | Manage old forests to support dependent species                                                 |
| Pygmy Nuthatch          | <i>Sitta pygmaea</i>             | LH                    | Forest management practices                                        | Manage old forests to support dependent species                                                 |
| Red-breasted Sapsucker  | <i>Sphyrapicus ruber</i>         | PO                    | Forest management practices                                        | Awareness and education                                                                         |
| Williamson's Sapsucker  | <i>Sphyrapicus thyroideus</i>    | LH                    | Forest management practices                                        | Awareness and education                                                                         |
| Chipping Sparrow        | <i>Spizella passerina</i>        | PO                    | Uncertain                                                          | Awareness and education                                                                         |
| Forster's Tern          | <i>Sterna forsteri</i>           | PO                    | Unknown                                                            | Protect nesting areas from grazing and human disturbance                                        |
| Spotted Owl*            | <i>Strix occidentalis</i>        | SC,LH,AE              | Forest management practices                                        | Protect nest sites and foraging areas                                                           |
| European Starling       | <i>Sturnus vulgaris</i>          | EX                    | Impacts: competes with native cavity-nesters                       | Awareness and education                                                                         |

| Common Name               | Scientific Name                      | Criteria <sup>a</sup> | Potential Threats or Impacts                                                                          | Conservation Ideas                                                     |
|---------------------------|--------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Winter Wren               | <i>Troglodytes troglodytes</i>       | LH                    | Forest management practices, Grazing                                                                  | Manage old-forests to sustain dependent species                        |
| American Robin            | <i>Turdus migratorius</i>            | PO                    | Cowbird nest parasitism                                                                               | Awareness and education                                                |
| Yellow-headed Blackbird   | <i>Xanthocephalus xanthocephalus</i> | LH                    | Behavioral modification from human presence                                                           | Awareness and education                                                |
| White-crowned Sparrow     | <i>Zonotrichia leucophrys</i>        | PO                    | Grazing                                                                                               | Awareness and education                                                |
| <b>Mammals</b>            |                                      |                       |                                                                                                       |                                                                        |
| Pallid bat                | <i>Antrozous pallidus</i>            | SC                    | Uncertain                                                                                             | Protect nests and roosts when discovered                               |
| Mountain beaver           | <i>Aplodontia rufa</i>               | SC                    | Grazing                                                                                               | Reduce grazing in riparian areas known to be occupied                  |
| Cow                       | <i>Bos</i> sp.                       | EXD                   | Impacts: riparian and meadow vegetation, soil compaction                                              | Awareness and education                                                |
| Domestic dog              | <i>Canis familiaris</i>              | EXD                   | Impacts: predatory on small birds and mammals                                                         | Awareness and education                                                |
| Coyote                    | <i>Canis latrans</i>                 | HC,WA                 | Impacts: predatory on small pets                                                                      | Educate people to reduce conflicts                                     |
| Beaver                    | <i>Castor canadensis</i>             | PO,EX,HC              | Impacts: channel alteration, disruption of natural hydrologic regime                                  | Trapping and removal of individuals from the most sensitive watersheds |
| Horse                     | <i>Equus</i> sp.                     | EXD                   | Impacts: riparian and meadow vegetation, soil compaction; spread non-native grass seeds through feces | Awareness and education                                                |
| Mule                      | <i>Equus</i> sp.                     | EXD                   | Impacts: riparian and meadow vegetation, soil compaction; spread non-native grass seeds through feces | Awareness and education                                                |
| Domestic cat              | <i>Felis domesticus</i>              | EXD                   | Impacts: predatory on small birds and mammals                                                         | Awareness and education                                                |
| Northern flying squirrel* | <i>Glaucomys sabrinus</i>            | LH                    | Forest management practices                                                                           | Forest management that results in many large conifers and snags        |
| Wolverine                 | <i>Gulo gulo</i>                     | ET,ST,SC, PO,LH,AE    | Uncertain                                                                                             | If detected, develop and implement measures to reduce disturbance      |
| Llama                     | <i>Lama glama</i>                    | EXD                   | Impacts: riparian and meadow vegetation, soil compaction; spread non-native grass seeds through feces | Awareness and education                                                |

| Common Name                 | Scientific Name                     | Criteria <sup>a</sup>  | Potential Threats or Impacts                          | Conservation Ideas                                                        |
|-----------------------------|-------------------------------------|------------------------|-------------------------------------------------------|---------------------------------------------------------------------------|
| Sierra Nevada snowshoe hare | <i>Lepus americanus taboensis</i>   | SC,LH                  | Uncertain                                             | Protect foraging areas where discovered                                   |
| White-tailed hare           | <i>Lepus townsendii</i>             | ET,SC,PO, LH           | Uncertain                                             | Develop management considerations if occurrence is documented             |
| River otter                 | <i>Lutra canadensis</i>             | PO,LH                  | Grazing                                               | Protect denning sites where discovered                                    |
| Yellow-bellied marmot       | <i>Marmota flaviventris</i>         | LH                     | Grazing                                               | Protect denning sites where discovered                                    |
| Marten*                     | <i>Martes americana</i>             | LH,AE                  | Forest management practices                           | Develop management considerations for locations where species is detected |
| Fisher                      | <i>Martes pennanti</i>              | SC,PO,LH, AE           | Human population density, forest management practices | Maintain movement corridors throughout basin                              |
| Long-tailed vole            | <i>Microtus longicaudus</i>         | LH                     | Uncertain                                             | Manage riparian habitat and meadows to support associated species         |
| Mink                        | <i>Mustela vison</i>                | PO,LH                  | Grazing                                               | Protect denning sites when discovered                                     |
| Long-eared myotis           | <i>Myotis evotis</i>                | SC                     | Uncertain                                             | Protect nests and roosts when discovered                                  |
| Fringed myotis              | <i>Myotis thysanodes</i>            | SC,PO                  | Uncertain                                             | Protect nests and roosts when discovered                                  |
| Yuma myotis                 | <i>Myotis yumanensis</i>            | SC                     | Uncertain                                             | Protect nests and roosts when discovered                                  |
| Desert woodrat              | <i>Neotoma lepida</i>               | LH                     | Uncertain                                             | Protect middens currently in use                                          |
| Pika                        | <i>Ochotona princeps</i>            | LH                     | Uncertain                                             | Awareness and education                                                   |
| Mule deer                   | <i>Odocoileus hemionus</i>          | WA,HV, AE              | Human presence                                        | Awareness and education                                                   |
| Muskrat                     | <i>Ondatra zibethicus</i>           | PO,LH                  | Unknown                                               | Protect denning and feeding areas from disturbance where discovered       |
| Mountain sheep              | <i>Ovis canadensis californiana</i> | ET,FE,ST, PO,LH, WA,AE | Disease, predation                                    | Reintroduction                                                            |
| Brush mouse                 | <i>Peromyscus boylii</i>            | LH                     | Uncertain                                             | Awareness and education                                                   |
| Canyon mouse                | <i>Peromyscus crinitus</i>          | ET,LH                  | Uncertain                                             | Define habitat requirements and evaluate enhancement opportunities        |
| Pinyon mouse                | <i>Peromyscus truei</i>             | LH                     | Uncertain                                             | Awareness and education                                                   |
| Heather vole                | <i>Phenacomys intermedius</i>       | ET,LH                  | Fire suppression                                      | Protect areas where species is detected                                   |
| Raccoon                     | <i>Procyon lotor</i>                | HC                     | Impacts: garbage redistribution                       | Educate people to reduce conflicts                                        |
| Broad-footed mole           | <i>Scapanus latimanus</i>           | LH                     | Uncertain                                             | Awareness and education                                                   |
| Western gray squirrel       | <i>Sciurus griseus</i>              | LH,HC                  | Impacts: property damage                              | Educate people to reduce conflicts                                        |
| Dusky shrew                 | <i>Sorex monticolus</i>             | LH                     | Uncertain                                             | Manage old forests to sustain dependent species                           |

| Common Name                | Scientific Name                | Criteria <sup>a</sup> | Potential Threats or Impacts                                 | Conservation Ideas                                                                                                   |
|----------------------------|--------------------------------|-----------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Water shrew                | <i>Sorex palustris</i>         | LH                    | Grazing                                                      | Manage aquatic ecosystems to support associated species                                                              |
| Trowbridge's shrew         | <i>Sorex trowbridgii</i>       | LH                    | Uncertain                                                    | Awareness and education                                                                                              |
| Vagrant shrew              | <i>Sorex vagrans</i>           | LH                    | Uncertain                                                    | Awareness and education                                                                                              |
| California ground squirrel | <i>Spermophilus beecheyi</i>   | HC                    | Impacts: property damage                                     | Educate people to reduce conflicts                                                                                   |
| Belding's ground squirrel  | <i>Spermophilus beldingi</i>   | LH                    | Uncertain                                                    | Awareness and education                                                                                              |
| Nuttall's cottontail       | <i>Sylvilagus nuttallii</i>    | PO,LH                 | Uncertain                                                    | Protect foraging areas when discovered                                                                               |
| Yellow-pine chipmunk       | <i>Tamias flaviventris</i>     | LH                    | Uncertain                                                    | Awareness and education                                                                                              |
| Least chipmunk             | <i>Tamias minimus</i>          | LH                    | Uncertain                                                    | Awareness and education                                                                                              |
| Long-eared chipmunk        | <i>Tamias quadrimaculatus</i>  | LH,EN                 | Uncertain                                                    | Awareness and education                                                                                              |
| Lodgepole chipmunk         | <i>Tamias speciosus</i>        | SC,LH                 | Uncertain                                                    | Awareness and education                                                                                              |
| Douglas squirrel           | <i>Tamiasciurus douglasii</i>  | LH,HC                 | Forest management practices, Impacts: property damage        | Forest management that results in many large conifers                                                                |
| Badger                     | <i>Taxidea taxus</i>           | PO,LH                 | Grazing                                                      | Protect denning and feeding areas from disturbance where discovered                                                  |
| Mountain pocket gopher     | <i>Thomomys monticola</i>      | LH                    | Uncertain                                                    | Awareness and education                                                                                              |
| Black bear                 | <i>Ursus americanus</i>        | PO,WA, HV,HC          | Interactions with humans                                     | Educate people to reduce conflicts                                                                                   |
| Grizzly bear               | <i>Ursus arctos</i>            | ET,FT,PO              | Uncertain                                                    | Awareness and education regarding past occupancy                                                                     |
| Sierra Nevada red fox      | <i>Vulpes vulpes necator</i>   | ET,ST,SC, PO,LH,AE    | Uncertain                                                    | Maintain movement corridors throughout basin; if detected, develop and implement habitat management direction        |
| Western jumping mouse      | <i>Zapus princeps</i>          | LH                    | Riparian disturbance                                         | Awareness and education                                                                                              |
| <b>Amphibians</b>          |                                |                       |                                                              |                                                                                                                      |
| Long-toed salamander       | <i>Ambystoma macrodactylum</i> | LH                    | Grazing, siphoning, water pollution                          | Restrict siphoning and water pollution and possibly eradicate trout, esp. in breeding season                         |
| Western toad               | <i>Bufo boreas</i>             | PO,LH                 | Grazing, water pollution                                     | Protect some meadow breeding areas from grazing, recreation                                                          |
| Pacific treefrog           | <i>Hyla regilla</i>            | PO,LH                 | Grazing, Chemical poisons                                    | Awareness and education                                                                                              |
| Bullfrog                   | <i>Rana catesbeiana</i>        | LH,EX                 | Impacts: predatory on native amphibians, fish, invertebrates | Eradicate populations from all possible locations, prioritizing those areas where they can spread to other locations |

| Common Name                  | Scientific Name                       | Criteria <sup>a</sup> | Potential Threats or Impacts                                                                  | Conservation Ideas                                                   |
|------------------------------|---------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Mountain yellow-legged frog* | <i>Rana muscosa</i>                   | SC,PO,LH,AE           | Trout, chemical poisons, grazing                                                              | Eradication of trout from some high-elevation lakes; reintroduction  |
| Northern leopard frog        | <i>Rana pipiens</i>                   | ET,SC,PO,LH,EX,AE     | Trout, chemical poisons, grazing                                                              | Eradication of trout from some high-elevation lakes; reintroduction  |
| <b>Reptiles</b>              |                                       |                       |                                                                                               |                                                                      |
| Sagebrush lizard             | <i>Sceloporus graciosus</i>           | LH                    | Uncertain                                                                                     | Awareness and education                                              |
| W. aquatic garter snake      | <i>Thamnophis couchii</i>             | LH                    | Grazing                                                                                       | Manage aquatic ecosystems to support associated species              |
| W. terrestrial garter snake  | <i>Thamnophis elegans</i>             | PO                    | Amphibian decline, habitat loss, behavioral modifications from human presence                 | Develop management considerations for locations where species occurs |
| <b>Fish</b>                  |                                       |                       |                                                                                               |                                                                      |
| Goldfish                     | <i>Carassius auratus</i>              | EX                    | Unknown                                                                                       | Awareness and education                                              |
| Carp                         | <i>Cyprinus carpio</i>                | EX                    | Unknown                                                                                       | Awareness and education                                              |
| Mosquito fish                | <i>Gambusia affinis</i>               | EX                    | Impacts: predatory on native amphibians, fish, invertebrates                                  | Awareness and education                                              |
| Lahontan Lake tui chub       | <i>Gila bicolor pectinifer</i>        | SC,AE                 | Predation from introduced fish                                                                | Eradication of trout from some areas                                 |
| Brown bullhead               | <i>Ictalurus nebulosis</i>            | EX                    | Unknown                                                                                       | Awareness and education                                              |
| Bluegill                     | <i>Lepomis macrochirus</i>            | EX                    | Unknown                                                                                       | Awareness and education                                              |
| Smallmouth bass              | <i>Micropterus dolomieu</i>           | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates                                  | Awareness and education                                              |
| Largemouth bass              | <i>Micropterus salmoides</i>          | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates                                  | Awareness and education                                              |
| Golden shiner                | <i>Notemigonus crysoleucas</i>        | EX                    | Unknown                                                                                       | Awareness and education                                              |
| Golden trout                 | <i>Oncorhynchus aquabonita</i>        | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates                                  | Awareness and education                                              |
| Lahontan cutthroat trout*    | <i>Oncorhynchus clarkii bensehani</i> | ET,FE,PO              | Grazing, introduced fish predation                                                            | Protection, reintroduction, and habitat restoration                  |
| Rainbow trout                | <i>Oncorhynchus mykiss</i>            | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates                                  | Awareness and education                                              |
| Kokanee salmon               | <i>Oncorhynchus nerka kennerlyi</i>   | EX,WA, HV             | Beaver activity in Taylor Creek, Impacts: predatory on native amphibians, fish, invertebrates | Awareness and education                                              |
| White crappie                | <i>Pomoxis annularis</i>              | EX                    | Unknown                                                                                       | Awareness and education                                              |

| Common Name                        | Scientific Name                    | Criteria <sup>a</sup> | Potential Threats or Impacts                                     | Conservation Ideas                                            |
|------------------------------------|------------------------------------|-----------------------|------------------------------------------------------------------|---------------------------------------------------------------|
| Black crappie                      | <i>Pomoxis nigromaculatus</i>      | EX                    | Unknown                                                          | Awareness and education                                       |
| Mountain whitefish                 | <i>Prosopium williamsoni</i>       | PO                    | Unknown                                                          | Develop conservation measures                                 |
| German brown trout                 | <i>Salmo trutta</i>                | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates     | Awareness and education                                       |
| Brook trout                        | <i>Salvelinus fontinalis</i>       | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates     | Awareness and education                                       |
| Mackinaw (lake) trout              | <i>Salvelinus namaycush</i>        | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates     | Awareness and education                                       |
| <b>Invertebrates</b>               |                                    |                       |                                                                  |                                                               |
| Aquatic macroinvertebrate          | <i>Candona taboensis</i>           | EN                    | Uncertain                                                        | Awareness and education                                       |
| Lake Tahoe benthic stonefly        | <i>Capnia lacustra</i>             | SC,PO,EN              | Loss of deep-water plant beds (decreasing lake clarity, jigging) | Develop a conservation strategy for deep-water plant beds     |
| Aquatic macroinvertebrate          | <i>Dendrocoelopsis hymanae</i>     | EN                    | Uncertain                                                        | Awareness and education                                       |
| Mono checkerspot                   | <i>Euphadryas deitha monoensis</i> | SC                    | Fire suppression, insecticides, grazing                          | Develop management considerations if occurrence is documented |
| Lepidoptera                        | Moths and butterflies              | WA                    | Fire suppression, insecticides, grazing                          | Awareness and education                                       |
| Opossum shrimp                     | <i>Mysis relicta</i>               | EX                    | Impacts: predatory on native invertebrates                       | Awareness and education                                       |
| Crayfish                           | <i>Pacifastacus leniusculus</i>    | EX,HV                 | Impacts: predatory on native amphibians, fish, invertebrates     | Awareness and education                                       |
| Aquatic macroinvertebrate          | <i>Phagocata taboena</i>           | EN                    | Uncertain                                                        | Awareness and education                                       |
| Aquatic macroinvertebrate          | <i>Rhyacodrilus brevidentus</i>    | EN                    | Uncertain                                                        | Awareness and education                                       |
| Carson Valley silverspot butterfly | <i>Speyeria nokomis</i>            | SC                    | Fire suppression, insecticides, grazing                          | Develop management considerations if occurrence is documented |
| Aquatic macroinvertebrate          | <i>Spirosperma beetoni</i>         | EN                    | Uncertain                                                        | Awareness and education                                       |
| Aquatic macroinvertebrate          | <i>Stygobromus lacicolus</i>       | EN                    | Uncertain                                                        | Awareness and education                                       |
| Aquatic macroinvertebrate          | <i>Stygobromus taboensis</i>       | EN                    | Uncertain                                                        | Awareness and education                                       |
| Aquatic macroinvertebrate          | <i>Utacapia taboensis</i>          | EN                    | Uncertain                                                        | Awareness and education                                       |
| Aquatic macroinvertebrate          | <i>Varichaetadrilus minutus</i>    | EN                    | Uncertain                                                        | Awareness and education                                       |
| <b>Fungi and Lichens</b>           |                                    |                       |                                                                  |                                                               |
| Coccora                            | <i>Amanita calyptata</i>           | HV                    | Uncertain                                                        | Awareness and education                                       |
| Honey mushroom                     | <i>Armillariella mellea</i>        | HV                    | Uncertain                                                        | Awareness and education                                       |

| Common Name           | Scientific Name                | Criteria <sup>a</sup> | Potential Threats or Impacts | Conservation Ideas      |
|-----------------------|--------------------------------|-----------------------|------------------------------|-------------------------|
| King bolete           | <i>Boletus edulis</i>          | HV                    | Uncertain                    | Awareness and education |
| Bryoria               | <i>Bryoria</i> spp.            | PO                    | Air pollution                | Awareness and education |
| Giant puffball        | <i>Calvatia gigantea</i>       | HV                    | Uncertain                    | Awareness and education |
| Sierra puffball       | <i>Calvatia sculpta</i>        | HV                    | Uncertain                    | Awareness and education |
| Chantrelle            | <i>Cantharellus cibarius</i>   | HV                    | Uncertain                    | Awareness and education |
| Shaggy mane           | <i>Coprinus comatus</i>        | HV                    | Uncertain                    | Awareness and education |
| Lichen                | <i>Dermatocarpon moulinsii</i> | RA                    | Air pollution                | Awareness and education |
| Lichen                | <i>Dimelaena oreina</i>        | RA                    | Air pollution                | Awareness and education |
| Lichen                | <i>Hypogymnia metaphysodes</i> | RA                    | Air pollution                | Awareness and education |
| Delicious milk cap    | <i>Lactarius deliciosus</i>    | HV                    | Uncertain                    | Awareness and education |
| Morels                | <i>Morchella</i> spp.          | HV                    | Uncertain                    | Awareness and education |
| Oyster mushroom       | <i>Pleurotus ostreatus</i>     | HV                    | Uncertain                    | Awareness and education |
| Chicken of the woods  | <i>Polyporus sulphureus</i>    | HV                    | Uncertain                    | Awareness and education |
| Yellow coral mushroom | <i>Ramaria rasilispora</i>     | HV                    | Uncertain                    | Awareness and education |
| Lichen                | <i>Rhizoplaca glaucophana</i>  | RA                    | Air pollution                | Awareness and education |
| Shrimp russula        | <i>Russula xerampelina</i>     | HV                    | Uncertain                    | Awareness and education |
| Cauliflower mushroom  | <i>Sparassis crispa</i>        | HV                    | Uncertain                    | Awareness and education |
| Lichen                | <i>Thisoplaca marginalis</i>   | RA                    | Air pollution                | Awareness and education |
| Lichen                | <i>Umblicaria torrefacta</i>   | RA                    | Air pollution                | Awareness and education |
| Lichen                | <i>Waynea stoechadiana</i>     | RA                    | Air pollution                | Awareness and education |

Notes:

<sup>a</sup> In general, criteria were ranked as follows, from greatest concern level to most modest concern level: Federally endangered (FE), Federally threatened (FT), State endangered (SE), State threatened (ST), Federal or State species of special concern (SC), population decline (PO), rarity (RA), Truckee River basin endemic (EN), exotic (EX), vulnerable due to life-history characteristics (LH), Sierra Nevada endemic (EN), agency emphasis (AE), human conflict (HC), Watchable (WA), domestic exotics (EXD), and harvest (HV).