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Species of Concern Report

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Introduction

This report covers species for which a determination has been made that plan components may be necessary to prevent listing under the Endangered Species Act (Forest Service Manual 1921.73b). These species are referred to as species of concern. Ecological conditions needed to support species diversity may or may not be completely provided by the plan components for ecosystem diversity (Forest Service Handbook 1909.12, 43.21).

Species of concern list

The Shoshone National Forest species of concern list consists of 62 plants, fish, and invertebrates that meet the criteria established in Forest Service Handbook 1909.12, 43 and for which the species or species habitat is known to exist on the Shoshone (Table 1). Now that bald eagles and the Yellowstone population of grizzly bears have been removed from the endangered species list, they are species of concern.¹ This list constitutes the official species of concern found on the Shoshone National Forest. The list will be divided into groups by habitat or threat for the development of further plan components.

Criteria for identifying species of concern (Forest Service Handbook 1909.12, 43.22b)² include

- Species identified as proposed and candidate species under the Endangered Species Act
- Species with ranks of G-1 through G-3 on the NatureServe ranking system³
- Intraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system
- Species that have been petitioned for federal listing and for which a positive finding has been made
- Species that have been recently delisted (including species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary)

¹ The delisting of the gray wolf was overturned by the courts in July 2008. It currently is not classified as a species of concern. It will become a species of concern if it is delisted.

² Macro-lichens were not included because they have not been surveyed for on the Shoshone National Forest.

³ NatureServe rankings are G (global—the overall status of a species or ecological community is regarded as its global status. This range-wide assessment of condition is referred to as its global conservation status rank.) and T (intraspecific taxon (trinomial)—the status of intraspecific taxa (subspecies or varieties) are indicated by a T rank following the species' global rank).

G/T-1 = critically imperiled (at very high risk of extinction due to extreme rarity (often five or fewer populations), very steep declines, or other factors).

G/T-2 = imperiled (at high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors).

G/T-3 = vulnerable (at moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors).

Table 1--Shoshone National Forest species of concern

Type	Common name	Scientific name	Rank ⁴
Mammal	Grizzly bear	<i>Ursus arctos</i>	Delisted April 2007
Bird	Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted June 2007
Fish	Yellowstone cutthroat trout	<i>Oncorhynchus clarki bouveri</i>	Candidate/T2
Invertebrate	Napaea fritillary	<i>Boloria alaskensis halli</i>	T2/T3
Invertebrate	Yellowstone checkerspot	<i>Euphydryas gillettii</i>	G2/G3
Invertebrate	Dingy arctic fritillary	<i>Boloria improba harryi</i>	T2
Invertebrate	Keeled mountain snail	<i>Oreohelix carinifera</i>	G1/N1 ⁵
Plant	Daggett rockcress	<i>Arabis pendulina var. russeola</i>	T3
Plant	Three-leaved milkvetch	<i>Astragalus gilviflorus var purpureus</i>	T2
Plant	Molybdenum milk-vetch	<i>Astragalus molybdenus</i>	G3
Plant	Upward-lobed moonwort	<i>Botrychium ascendens</i>	G2/G3
Plant	Seaside sedge	<i>Carex incurviformis var danaensis</i>	T3
Plant	Black and purple sedge	<i>Carex luzulina var atropurpurea</i>	T3
Plant	Nelson's sedge	<i>Carex nelsonii</i>	G3
Plant	Small-winged sedge/riverbank sedge	<i>Carex stenoptila</i>	G2
Plant	Snow Indian paintbrush	<i>Castilleja nivea</i>	G3
Plant	Williams conimitella	<i>Conimitella williamsii</i>	G3
Plant	Evert's waterparsnip	<i>Cymopterus evertii</i>	G2/G3
Plant	Wind River/Wyoming tansymustard	<i>Descurainia torulosa</i>	G1
Plant	Thickleaf whitlow-grass	<i>Draba crassa</i>	G3
Plant	Rockcress draba	<i>Draba globosa or Draba densifolia var. apiculata</i>	G3
Plant	Comb-hair whitlow-grass	<i>Draba oligosperma var pectinipila</i>	G1
Plant	Payson's draba	<i>Draba paysonii var. paysonii</i>	T3
Plant	Porsild's draba	<i>Draba porsildii var. porsildii</i>	G3/G4
Plant	Fanleaf fleabane	<i>Erigeron flabellifolius</i>	G3
Plant	Taproot fleabane	<i>Erigeron radicans</i>	G3
Plant	Singlestem buckwheat	<i>Eriogonum acaule</i>	G3

⁴ Information in this table was obtained from the NatureServe Web site on April 14, 2005.

⁵ N = national ranking.

Type	Common name	Scientific name	Rank ⁴
Plant	Cushion buckwheat	<i>Eriogonum ovalifolium</i> var. <i>ochroleucum</i>	T2
Plant	Hairy false goldenaster	<i>Heterotheca villosa</i> var. <i>depressa</i>	T3
Plant	Compact gilia	<i>Ipomopsis congesta</i> ssp. <i>Crebrifolia</i>	T3
Plant	Kirkpatrick ipomopsis	<i>Ipomopsis spicata</i> var. <i>robruthiorum</i>	T2
Plant	Spiked orchid ipomopsis	<i>Ipomopsis spicata</i> var. <i>orchidacea</i>	T2
Plant	Fremont's bladderpod	<i>Lesquerella fremontii</i>	G2
Plant	Payson's bladderpod	<i>Lesquerella paysonii</i>	G3
Plant	Tapertip desertparsley	<i>Lomatium attenuatum</i>	G3
Plant	Bessey's locoweed	<i>Oxytropis besseyi</i> var. <i>fallax</i>	T3
Plant	Bessey's locoweed	<i>Oxytropis besseyi</i> var. <i>ventosa</i>	T3
Plant	Parry's lousewort	<i>Pedicularis parryi</i> ssp. <i>purpurea</i>	T2/T4
Plant	Mountain lousewort	<i>Pedicularis pulchella</i>	G3
Plant	Absaroka beardtongue	<i>Penstemon absarokensis</i>	G2
Plant	Sulphur beardtongue	<i>Penstemon attenuatus</i> var. <i>pseudoprocerus</i>	T3
Plant	Cleburn's beardtongue	<i>Penstemon eriantherus</i> var. <i>cleburnei</i>	T2/T3
Plant	Fremont County twinpod	<i>Physaria saximontana</i> var. <i>saximontana</i>	G3 T2
Plant	Hairy tranquil goldenweed	<i>Pyrrcoma clementis</i> var. <i>villosa</i>	G3/G4 T1
Plant	Absaroka goldenweed	<i>Pyrrcoma carthamoides</i> var. <i>subsquarrosus</i>	T2/T3
Plant	Entire-leaf goldenweed	<i>Pyrrcoma integrifolia</i>	G3
Plant	Threesection buttercup	<i>Ranunculus eschscholtzii</i> var. <i>trisectus</i>	T3
Plant	Persistent sepal yellowcress	<i>Rorippa calycina</i>	G3
Plant	Weber's saw-wort	<i>Saussurea weberi</i>	G2/G3
Plant	Tall ragwort	<i>Senecio serra</i> var. <i>admirabilis</i>	T2
Plant	Shoshonea	<i>Shoshonea pulvinata</i>	G2/G3
Plant	New King's campion	<i>Silene kingii</i> var. <i>novum</i>	G2
Plant	King's campion	<i>Silene kingii</i>	G2
Plant	Northwestern thelypody	<i>Thelypodium paniculatum</i>	G2
Plant	Small-flowered pennycress	<i>Thlaspi parviflorum</i>	G3

Type	Common name	Scientific name	Rank ⁴
Plant	Cushion townsend-daisy	<i>Townsendia condensata</i> var. <i>anomala</i>	T2
Plant	Nuttall's Townsend daisy	<i>Townsendia nuttallii</i>	G3
Plant	Sword Townsend	<i>Townsendia spathulata</i>	G3
Plant	Rolland's bulrush	<i>Trichophorum pumulum</i>	G3
Plant	White arctic whitlow-grass	<i>Draba fladnizensis</i> var. <i>pattersonii</i>	T2/T3
Plant	Western St. Johnswort	<i>Hypericum formosum</i> var. <i>scouleri</i>	T3

Species of concern that do not require additional plan components

Not all species of concern require plan components (desired conditions, objectives or guidelines) (Forest Service Handbook 1909.12, 43.22c). Forest Service Handbook direction identifies criteria used in making this determination. The following criteria are used in assessing whether a species requires plan components.

- There is insufficient knowledge about the species to develop meaningful plan components.
- They are secure within the plan area.
- They are not affected by management or potential plan components.
- Plan components for ecosystem diversity provide sufficient direction for the species.

Species of concern for which knowledge is limited

The species shown in Table 2 are species for which the responsible official has determined that little information exists as to their distribution or habitat needs. Due to the limited knowledge of these species, species specific plan components cannot be developed. These species remain on the species of concern list.

Table 2--Species of concern with uncertain distribution and abundance, and for which there is little knowledge of the species or habitat

Common name	Scientific name	Threats/disturbance/abundance
Daggett rockcress	<i>Arabis pendulina</i> var. <i>russeola</i>	Unknown
Molybdenum milkvetch	<i>Astragalus molybdenus/shultziorum</i>	Unknown
Seaside sedge	<i>Carex incurviformis</i> var. <i>danaensis</i>	Unknown
Small-winged wedge/riverbank sedge	<i>Carex stenoptila</i>	Unknown
Williams conimitella	<i>Conimitella williamsii</i>	Unknown
Comb-hair whitlow-grass	<i>Draba oligosperma</i> var. <i>pectinipila</i>	Unknown
Singlestem buckwheat	<i>Eriogonum acaule</i>	Unknown
Cushion buckwheat	<i>Eriogonum ovalifolium</i> var. <i>ochroleucum</i>	Unknown
Western St. Johnswort	<i>Hypericum formosum</i> var. <i>scouleri</i>	Unknown
Compact gilia	<i>Ipomopsis congesta</i> ssp. <i>crebrifolia</i>	Unknown
Spiked standing-cypress	<i>Ipomopsis spicata</i> var. <i>orchidacea</i>	Unknown
Payson's bladderpod	<i>Lesquerella paysonii</i>	Unknown
Keeled mountain snail	<i>Oreohelix carinifera</i>	Unknown
Bessey's locoweed	<i>Oxytropis besseyi</i> var. <i>fallax</i>	Unknown
Bessey's locoweed	<i>Oxytropis besseyi</i> var. <i>ventosa</i>	Unknown
Parry's lousewort	<i>Pedicularis parryi</i> ssp. <i>purpurea</i>	Unknown
Mountain lousewort	<i>Pedicularis pulchella</i>	Unknown
Sulphur beardtongue	<i>Penstemon attenuatus</i> var. <i>pseudoprocerus</i>	Unknown
Cleburn's beardtongue	<i>Penstemon eriantherus</i> var. <i>cleburnei</i>	Unknown
Hairy tranquil goldenweed	<i>Pyrocoma clementis</i> var. <i>villosa</i>	Unknown
Threesection buttercup	<i>Ranunculus eschscholtzii</i> var. <i>trisectus</i>	Unknown
Persistent sepal yellowcress	<i>Rorippa calycina</i>	Unknown

Common name	Scientific name	Threats/disturbance/abundance
Tall ragwort	<i>Senecio serra var. admirabilis</i>	Unknown
King's campion	<i>Silene kingii</i>	Unknown
New King's campion	<i>Silene kingii var novum</i>	Unknown
Northwestern thelypody	<i>Thelypodium paniculatum</i>	Unknown
Small-flowered pennycress	<i>Thlapsi parviflorum</i>	Unknown
Nuttall's Townsend daisy	<i>Townsendia nuttallii</i>	Unknown
Sword Townsend	<i>Townsendia spathulata</i>	Unknown
Rolland's bulrush	<i>Trichophorum pumulum</i>	Unknown

Species of concern with low risk from management activities

The species of concern in Table 3 are species for which management activities now and in the future do not pose a threat to species sustainability. These species remain on the species of concern list.

Table 3--Species of concern covered by vegetation plan components or with a low risk from management activities

Common name	Scientific name	Threats
Napaea fritillary	<i>Boloria alaskensis halli</i>	The only known occurrence of napaea fritillary is in the Wind River Range in Wyoming. This species' habitat is arctic/alpine moist tundra. Host plants are the herb polygonaceae: <i>Polygonum viviparum</i> and probably <i>P. bistortoides</i> in Wyoming (Wind River Mountains), possibly <i>Viola sp.</i> and <i>Vaccinium sp.</i> (Scott 2001). Potential threats include grazing and road building. Given the remote location of species occurrence and habitat type, there is little risk of these activities occurring.
Dingy arctic fritillary	<i>Boloria improba harryi</i>	The dingy arctic fritillary is mostly an arctic species found in northern Canada and Alaska. The subspecies harryi is found only in the Wind River Range in Wyoming and the San Juan Mountains of Colorado. Habitat for this species is arctic/alpine tundra, in moist places with a carpet of dwarf willow. The host plant used in Wyoming appears to be the tiny prostrate salicaceae, <i>Salix arctica</i> (Scott 2001). The biggest potential threat is from livestock grazing affecting the host plants. Given the remote location of species occurrence and habitat type, there is little risk of these activities occurring.
Three-leaved milk-vetch	<i>Astragalus gilviflorus var purpureus</i>	The only known occurrence of three-leaved milkvetch on the Shoshone National Forest occurs in the Fitzpatrick Wilderness near Trail Lake Trailhead. Urbanization and activities associated with resource extraction are not a threat, given the location of species habitat within the Fitzpatrick Wilderness.
Nelson's sedge	<i>Carex nelsonii</i>	Nelson's sedge has three known occurrences on the Shoshone: adjacent to the Line Creek Plateau Research Natural Area and the Fitzpatrick and Popo Agie Wilderness areas. Potential threats to this species include sheep grazing or impacts from recreational activities. Given the remote location of the species and the lack of sheep grazing in those areas, there is little risk of any threats occurring.

Common name	Scientific name	Threats
Wind River/Wyoming tansymustard	<i>Descurainia torulosa</i>	Anthropogenic threats are minimal due to the species' rugged habitat, although some sites could potentially be impacted by competition from exotic plants. Wyoming tansymustard occurs in the North Absaroka and Washakie Wilderness areas, as well as lands managed for multiple use by Bridger-Teton and Shoshone National Forests and the Bureau of Land Management Rock Springs Field Office.
Rockcress draba	<i>Draba globosa</i> or <i>Draba densifolia</i> var. <i>apiculata</i>	Its remote, inaccessible habitat has few threats. Past impacts from sheep grazing at high elevations are poorly known. At least 13 occurrences are found in designated wilderness (Bridger, North Absaroka, Gros Ventre, and Popo Agie), Grand Teton National Park, and the Osborn Mountain Research Natural Area (Bridger-Teton National Forest). An additional population is in the potential Beartooth Butte research natural area (Shoshone National Forest). All other populations are on public lands managed for multiple use including the Bridger-Teton, Medicine Bow, Shoshone, and Targhee National Forests.
Absaroka beardtongue	<i>Penstemon absarokensis</i>	Most populations are unthreatened due to the ruggedness of their habitat. Populations near trails may be impacted by recreational activities and competition from weeds. It remains to be determined whether this species can persist in such sites or is actually able to colonize disturbed areas. Absaroka beardtongue occurs in the Washakie and North Absaroka Wilderness areas and on lands managed for multiple use by the Shoshone National Forest, Bureau of Land Management Cody Field Office, and the Wind River Indian Reservation.
Black and purple sedge	<i>Carex luzulina</i> var <i>atropurpurea</i>	Potential threats include grazing (most likely by sheep) and habitat disturbance. All known occurrences are in wilderness areas on the Bridger-Teton and Shoshone National Forests.

Common name	Scientific name	Threats
Shoshonea	<i>Shoshone pulvinata</i>	The habitat of Shoshonea is relatively inaccessible and not directly threatened. The species occurs in the Bald Ridge potential research natural area in habitats that were and were not burned by a recent fire. The direct effects of fire to individual plants are not known, but the species persists among burned trees, on unburned outcrop habitat, and is present in the fireline (Heidel personal observation).
Payson's draba	<i>Draba paysonii</i> var. <i>paysonii</i>	The vulnerability of this species to habitat alteration is not known but assumed minor due to the species' rugged and poorly accessible habitat. All or parts of four populations occur within wilderness areas (Absaroka-Beartooth, Bridger, and Fitzpatrick) or the Osborn Mountain Research Natural Area. An additional population is within the potential Beartooth Butte research natural area. The others occur on lands managed for multiple use by the Bridger-Teton and Shoshone National Forests.
Kirkpatrick ipomopsis	<i>Ipomopsis spicata</i> var. <i>robruthii</i>	Threats appear to be minimal due to the rugged habitat. Some populations could be impacted by sheep grazing or trampling. All known occurrences are on the Shoshone National Forest. Most known populations are on lands managed as wilderness, although a few are on lands managed for multiple use.
Tapertip desertparsley	<i>Lomatium attenuatum</i>	Threats are lacking or minimal due to the rugged nature of this species' habitat. Grazing is probably not a threat due to the lack of forage at most sites occupied by this species. Some low elevation sites may be impacted by road and trail development. Tapertip desertparsley occurs in the North Absaroka Wilderness and on lands managed for multiple use by the Shoshone National Forest and the Bureau of Land Management Cody Field Office.

Common name	Scientific name	Threats
White arctic whitlow-grass	<i>Draba fladnizensis</i> var. <i>pattersonii</i>	Threats are low due to inaccessible habitat. White arctic whitlow-grass occurs on lands managed as wilderness and a potential research natural area by the Shoshone and Bighorn National Forests. It is also reported for Grand Teton National Park.
Porsild's draba	<i>Draba porsildii</i> var. <i>porsildii</i>	Threats are low due to limited accessibility of most sites. Five sites may be protected. One occurrence is protected in the Absaroka/Beartooth Wilderness and the Beartooth Butte potential research natural area. Two more occurrences may be protected on the Shoshone National Forest, one in the Pat O'Hara potential research natural area possibly extending into the North Absaroka Wilderness. Another is found in or near the Washakie Wilderness. Outside the Forest Service Rocky Mountain Region, two populations are protected within the Bridger-Teton National Forest in the Osborn Mountain Research Natural Area and the Gros Ventre Wilderness.
Thickleaf whitlow-grass	<i>Draba crassa</i>	Threats are low due to this species' rugged habitat. It is found on lands managed by the Bridger-Teton and Shoshone National Forests, both in wilderness areas and on lands managed for multiple use. Thickleaf whitlow-grass also occurs in Grand Teton National Park.
Snow Indian paintbrush	<i>Castilleja nivea</i>	Threats are low. At least eight populations occur in designated wilderness areas (Washakie and North Absaroka). Three additional populations are found in the Bald Ridge and Sheep Mesa potential research natural areas.

Common name	Scientific name	Threats
Hairy false goldenaster	<i>Heterotheca villosa</i> var. <i>depressa</i>	Some occurrences may be threatened by quarrying of river gravel deposits. Knapweed is invading in its riparian habitat, but has not become a major competitor on sparsely-vegetated gravel bars. Hairy false goldenaster occurs on lands managed as wilderness and for multiple use by the Bridger-Teton National Forest. It occurs on lands managed for multiple use by the Shoshone National Forest and the Bureau of Land Management Pinedale Field Office. It is also found in Yellowstone and Grand Teton National Parks and the National Elk Refuge.
Cushion Townsend daisy	<i>Townsendia condensata</i> var. <i>anomala</i>	Threats are mostly low due to the ruggedness of most of its habitat and the early phenology of the species. It is impacted by competition from exotics, trampling, or other human-induced activities. The species is probably not grazed due to its low stature. It occurs on lands managed as wilderness and for multiple use by the Shoshone National Forest and on state lands.
Fanleaf fleabane	<i>Erigeron flabellifolius</i>	Threats are not known, but are probably low. At least nine populations occur within the North Absaroka and Washakie Wilderness areas, and one is within the Line Creek Plateau Research Natural Area. Fanleaf fleabane is also found on lands managed for multiple use by the Shoshone National Forest and the Bureau of Land Management Cody Field Office.
Entire-leaf goldenweed	<i>Pyrrocoma integrifolia</i>	Threats are not known. Entire-leaf goldenweed occurs on lands managed for multiple use by the Shoshone National Forest and the Bureau of Land Management Worland Field Office. It also occurs in Yellowstone National Park.
Taproot fleabane	<i>Erigeron radicans</i>	Threats are presumed to be low due to the species' rugged alpine habitat. Taproot fleabane occurs in areas managed as wilderness and as multiple use on both the Bridger-Teton and Shoshone National Forests.

Common name	Scientific name	Threats
Evert's waterparsnip	<i>Cymopterus evertii</i>	Threats to Evert's waterparsnip appear low due to the remote/unstable slopes often inhabited by this species. It is found on lands managed for multiple use by the Shoshone National Forest and the Bureau of Land Management Cody and Worland Field Offices.
Upward-lobed moonwort	<i>Botrychium ascendens</i>	Under current management, threats to this species are fairly low in Wyoming. The plant's habitat may be vulnerable to changes in the hydrology of its streamside habitat that could occur from logging upstream, high intensity grazing, or mining. <i>Botrychium ascendens</i> is listed as sensitive by the Forest Service in Regions 2 and 4 and was formerly a Category 2 candidate for listing under the Endangered Species Act. No populations are currently known from lands that are permanently protected or managed with an emphasis on biodiversity conservation.
Weber's saw-wort	<i>Saussurea weberi</i>	Weber's saw-wort is found in relatively inaccessible alpine areas with no obvious disturbances, aside from hikers. It occurs in areas managed as wilderness by the Bridger-Teton and Shoshone National Forests.

Species of concern that are provided for by ecosystem diversity plan components

For the bald eagle, plan components developed for ecosystem diversity will adequately address the needs of this species. The Shoshone has very little habitat for bald eagles, and the plan components for riparian areas will ensure quality habitat in those areas.

Species of concern that require additional plan components

The plan components developed for these species provide a mechanism for the land management agency to maintain or improve species distribution in order to conserve the species, which will prevent listing under the Endangered Species Act. Some information on life histories and habitats for these species is available; these species have a limited distribution and are potentially impacted by management activities. Some species are presented as a group based on potential management impacts to the species or species habitat.

Table 4--Species of concern that require additional plan components

Type	Common name	Group
Mammal	Grizzly bear	--
Fish	Yellowstone cutthroat trout	--
Invertebrate	Yellowstone checkerspot ⁶	Butterfly group
Plant	Fremont's bladderpod	Fremont county group
Plant	Fremont County twinpod	Fremont county group
Plant	Absaroka goldenweed	--

Grizzly bear

The general trend in the Yellowstone grizzly bear population has been upward since the species came under the protection of the Endangered Species Act in 1975. Current population estimates are two to three times greater than when the bear was listed. Bears have continued to expand into new areas within and outside the original grizzly bear recovery zone, with the greatest expansion south on the Bridger-Teton National Forest and east on the Shoshone.

In April 2007, the Yellowstone distinct population segment of grizzly bears was removed from the federal list of threatened and endangered species (USDI Fish and Wildlife Service 2007).

Grizzly bears have variable habitat, and eat everything from carcasses to moths to whitebark pine seeds to garbage. The most important elements in grizzly bear habitat are minimizing grizzly bear/human conflicts and protecting key food sources.

Plan components

Projects and activities will be consistent with direction in the 1986 Forest Plan as amended by the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the

⁶ The Yellowstone checkerspot is sometimes referred to as the Gillette's checkerspot. In the Shoshone National Forest's Plan Set of Documents, it will be referred to as the Yellowstone checkerspot.

Greater Yellowstone Area National Forests Record of Decision (USDA Forest Service 2006). This direction is being retained from the 1986 Forest Plan as amended and provides the plan components for grizzly bear habitat management on the Shoshone.

Yellowstone cutthroat trout

Yellowstone cutthroat trout is a subspecies of cutthroat trout that was historically found in the Yellowstone River drainage in Montana and Wyoming and in the Snake River drainage in Wyoming, Idaho, Utah, Nevada, and probably Washington (Varley and Gresswell 1988, Behnke 1992). Another undescribed subspecies, the fine-spotted Snake River cutthroat trout, occurs only within the native range of the Yellowstone cutthroat trout (Behnke 1992). Because this subspecies cannot be distinguished genetically from the Yellowstone subspecies at this time, the fine-spotted Snake River cutthroat trout is considered as a morphologically divergent ecotype of the more broadly distributed Yellowstone subspecies (Gresswell 2008).

Range wide, current distribution information indicates that populations have declined significantly from historic levels largely due to influences from introduced non-native fish that hybridize and/or compete with Yellowstone cutthroat trout and human alteration of stream habitat, especially on private lands.

As a result of the significant declines range wide, numerous federal and state resource management agencies and non-governmental organizations have designated the Yellowstone cutthroat trout as a species of special concern or a sensitive species (USDI Fish and Wildlife Service 2006). Yellowstone cutthroat trout is a Forest Service Region 2 sensitive fish species. A petition for listing as a threatened species under the Endangered Species Act was submitted in 1998. Although listing was determined to be unwarranted in 2001 (USDI Fish and Wildlife Service 2001), a court-ordered status review was initiated in 2005 and published in February 2006. Despite acknowledged declines in the distribution and abundance of Yellowstone cutthroat trout from historic levels, the presence of many populations, especially in headwater streams, precluded listing under the Endangered Species Act (USDI Fish and Wildlife Service 2006). Management actions initiated in the past several decades appeared to stabilize and occasionally improve the probability of persistence of the Yellowstone cutthroat trout. More recent events, including the introduction of non-indigenous lake trout in Yellowstone Lake (the stronghold of Yellowstone cutthroat trout), the spread of *Myxobolus cerebralis* (the causative agent of whirling disease), and climate change resulting in recent drought in the intermountain west have resulted in further population declines in many areas. The petitioners have filed intent to sue but have taken no action.

Status on the Shoshone National Forest

Historically, the Shoshone National Forest had about 877 miles of stream habitat containing Yellowstone cutthroat trout (Gresswell 2008). Currently, the Forest contains about 146 stream miles of core populations (>99 percent genetically pure) or about 17 percent of the historic stream miles. The Forest currently has an additional 39 stream miles of conservation populations (>75 percent but < 99 percent genetically pure). Core and conservation groups combined comprise about 21 percent of the historic distribution on the Forest. Additional stream miles contain Yellowstone cutthroat trout on the Forest but are highly hybridized and/or sympatric with other non-native trout. As a result, they are considered recreational fisheries.

Current threats

The primary threats to the persistence of Yellowstone cutthroat trout on the Forest include competition and/or hybridization with non-native fish species, the effects of climate change, and spread of aquatic nuisance species. The decline and disappearance

of individual populations or assemblages have led to increasing isolation and fragmentation of the remaining groups, a fact that increases their susceptibility to the demographic influences of disturbance (both human and natural) and genetic factors.

Generally, most stream habitat conditions are at or moving toward desired conditions, providing suitable habitat for Yellowstone cutthroat trout. Barriers to aquatic passage at stream crossings have also been identified as threats.

Responses to threats

The Forest Service has cooperated with the Wyoming Game and Fish Department and other agencies in development of a Yellowstone cutthroat trout range wide memorandum of agreement that covers historic and current populations, risks, and recommended land management activities (Montana Fish, Wildlife and Parks et al. 2000). Region 2 of the Forest Service is in the process of completing a Yellowstone cutthroat trout species conservation assessment for the Shoshone. Additionally, the Forest is working cooperatively with the Wyoming Game and Fish Department to develop its long-term Yellowstone cutthroat trout management plan.

The focus of these plans includes the removal of non-native fish and reintroduction of genetically pure populations of cutthroat trout into previously occupied habitat. The plans also include introduction of Yellowstone cutthroat trout into suitable fishless waters outside wilderness areas where feasible and not in conflict with other management activities. Other recommended activities include maintaining or enhancing existing population distribution and genetic purity and reconnecting isolated populations from barriers created at stream crossings.

We have initiated a process to determine and map the current extent of aquatic nuisance species in and adjacent to the Forest. Further, we plan to model and determine the potential for spread and initiate preventive measures, including information and education.

Managers have recently surveyed stream crossings where fish are present to determine aquatic passage capabilities. Barriers to fish passage have been prioritized and corrected or scheduled to be corrected based on species present, miles of potential habitat available, costs, and funding opportunities.

Appropriate land management activities that do not adversely affect and will benefit Yellowstone cutthroat trout in the long term will continue.

Plan components

Plan components were developed to emphasize reintroduction of genetically pure populations of cutthroat trout into previously occupied habitat, maintenance of existing populations, and maintenance of habitat while allowing management activities. Plan components for other resources including watershed, riparian habitat, range, and water quality will help support the desired habitat and stream conditions for Yellowstone cutthroat trout.

Yellowstone checkerspot

This species has a very limited distribution and is found only in Wyoming, Montana, Idaho, and Alberta, Canada. Known distribution on the Shoshone is limited to two areas in the northern Beartooth Mountains, two locations in the Fitzpatrick Wilderness, and one site on the Washakie Ranger District.

Habitat for this species is moist valley openings and meadows near streams and conifers (mostly spruce and pine), sometimes with sagebrush nearby (Scott 2001). Williams (1988) described the Yellowstone checkerspot habitat on the Shoshone National Forest

as always wet and having a small stream passing through, though several are marshy without obvious flowing water. The checkerspot occurs infrequently near rivers, perhaps because of flood disturbance of host plants, nectar sources, larvae, and adults. Nectar is supplied by a number of plants, most commonly aster, senecio, and agoseris. The Yellowstone checkerspot will primarily lay its eggs on honeysuckle and twinberry, but also uses western valeriana, speedwell, lousewort, or snowberry. This species also utilizes conifer trees for roosting and mating (Scott 2001). Most sites have been disturbed, with fire being the most common disturbance. Lodgepole pine is the most common overstory species near Yellowstone checkerspot colonies, indicating common disturbance history in these areas. Species abundance is correlated to nectar abundance (Scott 2001).

Threats include road construction, grazing, and timber harvest, all of which threaten the nectar or host plants.

Plan components

Plan components focus on maintaining nectar and host plants for the butterfly species. Species distribution is limited and little management activity occurs in these areas. A guideline was developed to ensure prescribed burning activities contribute toward desired conditions for maintenance of Yellowstone checkerspot.

Fremont County plant group

Fremont County twinpod

Fremont County twinpod is found on Bureau of Land Management areas of environmental concern and on lands managed for multiple use by the Bureau of Land Management Lander and Worland Field Offices, Wind River Indian Reservation, and the Shoshone National Forest. All known occurrences on the Shoshone National Forest are on the Washakie Ranger District.

Human-related threats are generally low due to the taxon's occurrence in relatively remote, rugged terrain that is not regularly accessed, coupled with a relatively low-to-moderate potential for natural resource extraction within its known habitat. Fremont County twinpod may be vulnerable to impacts from a variety of anthropogenic threats, primarily unauthorized off-road vehicle use, non-motorized recreational activities such as hiking, livestock grazing, disturbance from road construction, and residential, oil, gas, or mineral development. The expansion of non-native cheatgrass also poses a threat to the species. The taxon's rarity is likely due in part to discontinuous habitat availability across a narrow geographic range, which is also responsible for its inherent ecological and geographic vulnerability. Due to species isolation, human activities that affect the quality and quantity of the habitat of individual populations of *P. saximontana* var. *saximontana* could also adversely impact the long-term survival of this species (Glisson 2004).

Fremont's bladderpod

Fremont's bladderpod is a local endemic that is restricted to the east side of the Wind River Range and continuous Beaver Rim of the Sweetwater Basin in Fremont County, Wyoming. All occurrences on the Shoshone National Forest are on the Washakie Ranger District, with one occurrence within the Fitzpatrick Wilderness.

Fremont's bladderpod is found on calcareous substrates of sparsely vegetated slopes and ridges.

Fremont's bladderpod is potentially threatened by limestone quarrying and road construction. It occurs in special management areas and on lands managed for multiple use by the Bureau of Land Management Lander Field Office and the Shoshone National Forest.

Its limited distribution compounds the effects of direct threats, which include competition with invasive plants, road construction, quarrying, and unauthorized off-road vehicle use. Other potential threats include oil and gas development, grazing, and trampling.

Plan components

Very little management activity is anticipated where these plants are distributed. A plan guideline was included to limit the expansion of cheatgrass that may result from prescribed fire.

Absaroka goldenweed

Absaroka goldenweed is found in the North Absaroka Wilderness and on lands managed for multiple use by the Bureau of Land Management Cody Field Office and the Shoshone National Forest. The species is found within the Absaroka Mountains of Wyoming, with most occurrences within the North Absaroka Wilderness, with several along the Beartooth Highway

The species occurs on open meadows, slopes, and ridges on sandstone or limestone substrates at elevations from 6,400 to 10,300 feet.

Some areas of habitat are disturbed by highway construction and competition with invasive plants. Grazing does not appear to be a significant threat in most areas. (The plant is not favored forage.) Loss of habitat from residential development could be a threat on private lands.

Plan components

Most management activities do not impact this species. A plan guideline was included to limit the expansion of cheatgrass that may result from prescribed fire

References cited (in progress)