BLM Wyoming Sensitive Species Policy and List

March 31, 2010

Introduction

The USDI Bureau of Land Management (BLM) Wyoming has prepared this list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. Many species are not on this list due to the lack of status, distribution and habitat requirement information which prohibits any management attention.

The goals of this sensitive species policy are to:

- Maintain vulnerable species and habitat components in functional BLM ecosystems.
- Ensure sensitive species are considered in land management decisions.
- Prevent a need for species listing under the Endangered Species Act.
- Prioritize needed conservation work with an emphasis on habitat.

Authority

The authority for this policy and guidance comes from the Endangered Species Act of 1973 (ESA), as amended; Title II of the Sikes Act, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; and the Department Manual 235.1.1A., General Program Delegation, Director, Bureau of Land Management.

Special Status Species include those species listed or proposed for listing under the ESA together with species designated internally as BLM sensitive in accordance with BLM Manual 6840. Actions authorized by the BLM shall further the conservation and/or recovery of federally listed species and conservation of Bureau sensitive species. Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA.

Criteria set forth in the 0.2A section of the 6840 Manual for designating sensitive species are:

1. Species designated as Bureau sensitive must be native species found on BLM-administrated lands for which BLM has the capability to significantly affect the conservation status of the species through management, and either:
    a. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or
    b. The species depends on ecological refugia or specialized or unique habitats on BLM-administrated lands, and there is evidence that such areas are threatened

with alteration such that the continued viability of the species in that area would be at risk.

2. All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau sensitive species.

BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA.

Requesting technical assistance from the FWS, and any other qualified source, on actions that may affect a sensitive species is recommended. It is not the intent of this list to track species rangewide or even statewide as this is done by other entities (WYNDD, WGFD, FWS, GAP, etc.). BLM obligation is:

- determine distribution
- manage habitats

It is also the intent of this list to emphasize planning, management, and monitoring of these species.

Guidance

BLM Washington Office Instruction Memorandum IM 09-039 Special Status Species Management (6840 Manual) was issued on December 12, 2008.

BLM WY Approach

In March 1990, an Umbrella Memorandum Of Understanding (MOU) between the Wyoming Game and Fish Department (WGFD) and USDI BLM Wyoming for Management of the Fish and Wildlife Resources on the Public Lands was signed. The purpose of the MOU was for the two agencies to work together to benefit all wildlife in Wyoming by cooperating in planning, and sharing data among other efforts.

The current status of BLM Sensitive Species lists in some adjacent states as well as lists from other Federal and State agencies in Wyoming were reviewed for this effort. The Montana State Office issued an Instruction Memorandum (IM) in April 2009, listing 75 animals and 105 plants. Arizona, Colorado, Idaho, Nevada, Oregon/Washington, and Utah are in the process of updating their lists. In 2005, BLM Arizona listed a total of 34 mammal, bird, reptile, amphibian, fish, and invertebrate species and 44 species of plants. The current Colorado list has 126 species. The Idaho Sensitive Species List issued in 2003 includes 85 animals and 126 plants. In addition, they have 69 species on a Watch List that may warrant sensitive status based on new information concerning threats, species biology or statewide trends. Nevada list (2003) counts 171 animal species (72 invertebrates) and 107 species of plants. In 2008, BLM Oregon/Washington updated

its list to a total of 720 species, including 44 species of fungi and 69 non-vascular plant species. The current California-BLM Animal Sensitive Species list numbers 66 species. A separate list of plants updated in 2009 includes 648 species.

The Wyoming Natural Diversity Database (WYNDD) maintains a list of Wyoming Plant and Animal Species of Special Concern. It provides information on global and state abundance, legal status and distribution about species in Wyoming that are rare, endemic, disjunct, threatened or otherwise biologically sensitive. Plants and animals are considered for inclusion on lists if they are vulnerable to extirpation at the global or state level due to: their rarity (e.g., restricted distribution, small population size, low population density); inherent vulnerability (e.g., specialized habitat requirements, restrictive life history); threats (e.g., significant loss of habitat, sensitivity to disturbances). This information can be found on the internet at: http://uwadmnweb.uwyo.edu/wyndd

The Comprehensive Wildlife Conservation Strategy (CWCS) is the Wildlife Action Plan produced by the State of Wyoming in 2005. This plan identified 279 Species of Greater Conservation Need in Wyoming and the key habitats for these species. Threats to the SGCN species, proposed actions to conserve them and their associated habitats, and monitoring measures were also identified. The purpose of this plan is to serve as a point of reference in the management and conservation of Wyoming's wildlife and their habitats. The SGCN were identified using a matrix of population variables and habitat variables. The codes of NSS1, NSS2, NSS3, and NSS4 refer to each species' level of sensitivity. The Wyoming State Wildlife Action Plan is currently under review and will be updated in 2010.

The Forest Service (USFS) Regions cover Wyoming: Region 2 (Rocky Mountain Region) in the eastern part of the state (Bighorn, Black Hills, Medicine Bow, and Shoshone National Forests and Thunder Basin National Grassland) and Region 4 (Intermountain Region) in the western part of Wyoming (Ashley, Bridger-Teton, Caribou, Targhee, Wasatch-Cache National Forests and Flaming Gorge National Recreation Area). The Sensitive Species list of Region 2 was updated in 2009 and includes 179 species of plants, mammals, birds, amphibians, reptiles, fish, and invertebrates, the majority (91) of which are plants. Region 4 lists 230 mammal, bird, reptile and amphibian, fish, insect, and plant sensitive species and distribution by forests is shown. This list is included in the Intermountain Region Proposed, Endangered, Threatened, and Sensitive Species list that was updated in 2009. The Bighorn National Forest Emphasis Species list includes 6 Management Indicator Species (MIS), 35 species of local concern and 15 demand species, along with 40 Threatened, Endangered, and Sensitive (TES) species. MIS species require NEPA analysis at the project level; species of local concern and demand species would also likely be analyzed in projects, although with less rigor than the other two categories. Black Hills National Forest lists a total of 31 plant, invertebrate, bird, and mammal species of local concern.

Evaluation/Monitoring/Review Process

The BLM Sensitive Species List is meant to be dynamic. The State Office wildlife and botany staff will annually review the list and solicit recommendations from BLM and non-BLM appropriate authorities for additions and deletions. If biological information shows that a species needs to be included, or removed, the appropriate Field Manager or the State Office can make a nomination for an addition or deletion with sufficient scientific justification and supporting data concerning the above-listed criteria. Under this scenario, if such a species occurs in more than one Field Office, consensus will be sought from the other Field Offices before action is taken.

All federally designated candidate species, proposed species, and delisted species in the 5 years following their delisting shall be conserved as Bureau sensitive species.

The List

Using the criteria set forth in Manual 6840 (see page 1 above), BLM Wyoming is designating the following list of plants and animals to be Sensitive Species. While using these criteria, the process of including species on the list is still subjective. This list does not include those species already formally designated by the FWS as Federally endangered, threatened, proposed, and/or candidate.

Many species are not included on the list because their status is largely unknown and basic inventory is needed. It is the BLM Wyoming's intent that the WYNDD's and WGFD's lists should be regularly consulted by field personnel to develop inventory projects designated to gather information on population size, trend, and distribution for these poorly known species. They should also be the target for budgetary funding for inventory purposes.

BLM Sensitive Species List

MAMMALS:

Pygmy Rabbit - *Brachylagus idahoensis*

Pygmy Rabbit is appropriate for inclusion under criterion number 1b. It is distributed in the southwestern portion of Wyoming (WGFD 2005). *Brachylagus idahoensis* was petitioned for listing under the Endangered Species Act but the U.S. Fish and Wildlife Service concluded that the petition did not contain substantial scientific information to move ahead with a more detailed study of the species (70 FR 29253). The Pygmy Rabbit has been recently petitioned again in 2008 (73 FR 1312). This species relies on dense sagebrush areas especially for food and cover. Pygmy rabbit abundance and trend in Wyoming are unknown. Restrictive home range requirements and high habitat specificity make *Brachylagus idahoensis* vulnerable to disturbance. The major threats include: habitat loss and fragmentation due to road and oil/gas development, fire, and the expansion of non-native vegetation, such as cheatgrass (Keinath and McGee 2004). Specialized ecological refugia are threatened on BLM-administered lands and Pygmy Rabbit is thereby designated as Sensitive in Wyoming.

Townsend's Big-eared Bat - *Corynorhinus townsendii*

Townsend's big-eared bat is appropriate for inclusion under criterion number 1b. This species is distributed throughout most of Wyoming but is concentrated in the southeastern and north-central portions of the state (Hester and Grenier 2005). Townsend's big eared bat requires undisturbed roosting structures such as caves or abandoned mines during all seasons and stages of its life cycle. Also, *C. townsendii* has high degree of site fidelity. There is little data available about population trend and abundance. The major threats on BLM-administered lands are: the disturbance or loss of roost sites in caves and abandoned mines due to recreation in caves, mine reclamation, and renewed mining; loss, degradation, and disturbance of foraging habitat; pesticides and other contaminants (Gruver and Keinath 2003; Gruver and Keinath 2006). Specialized ecological refugia are threatened and Townsend's Big-eared Bat is thereby designated as Sensitive in Wyoming.

White-tailed Prairie Dog - *Cynomys leucurus*

White-tailed Prairie Dog is appropriate for inclusion under criterion number 1a. It is distributed in the western and the central parts of Wyoming, mostly dominated by sagebrush (WGFD 2005). In 2008 the U.S. Fish and Wildlife Service initiated a status review. The results will be submitted by June 1, 2010 (73 FR 24910). White-tailed prairie dog abundance continues to fluctuate dramatically at the local scale. White-tailed prairie dogs have a high fidelity to its habitat

(Keinath 2004). Population status and trends are unknown but are suspected to be stable (WGFD 2006). Sylvatic plague, poisoning, recreational shooting, and habitat loss and fragmentation due to energy development, livestock grazing, and road development are considered the major threats (Keinath 2004). White-tailed has recently undergone a downward trend and it is thereby designated as Sensitive in Wyoming.

Black-tailed Prairie Dog – *Cynomys ludovicianus*

Black-tailed Prairie Dog is appropriate for inclusion under criterion number 2. In Wyoming, it is found in the eastern third of the state at elevations below 1,700 m (5,600 ft.), (WGFD 2006). This species occurs in short-grass prairies in the southeast part of the state and in the mixed-grass prairies of the northeast. *C. ludovicianus* have high fidelity for their habitat, once selected and require large tracts of land per colony (Buseck et al. 2005). In 2004, the USFWS removed the black-tailed prairie dog from the Candidate List of the ESA (69 FR 51217). Currently, Fish and Wildlife Service is reviewing a 2008 petition to add this species to the threatened and endangered species list (73 FR 73211). Prairie dog populations have declined between 2001 and 2004 due to sylvatic plague infestation and control programs. Currently colonies seem in the process of recovering from these declines. However, Wyoming has likely lost 1.5% of its total Black-tailed Prairie Dog acreage between 2003 and 2006 (Grenier et al. 2004, 2007 in Cerovski 2007). The major threats to this species are intensive control programs and sylvatic plague. Other potential threats are habitat loss and fragmentation by road and oil/gas development and recreational shooting (69 FR 51217). Black-tailed Prairie Dog was removed from the Federal candidate list and lost its Federal status, therefore this species is designated as Sensitive in Wyoming.

Spotted Bat - *Euderma maculatum*

Spotted bat is appropriate for inclusion under criterion number 1b. Its distribution in Wyoming is still unknown, although according to Clark and Stromberg (1987 in Hester and Grenier 2005) it may be expected to occur throughout the west part of the state. This species occurs in a wide variety of habitats and roosts in cracks and crevices in cliffs and canyons (Hester and Grenier 2005). Roost sites have to be in close proximity of foraging and water sources (Luce, 2004). Human disturbance impacts have been increased in the last decades but there is not enough information about the species abundance and population trend (Luce and Keinath 2007). The main threats to this species on BLM-administered lands are: alteration of foraging habitat and water resources, due to energy development, timber harvest and over-grazing by livestock; roost disturbance due to recreational climbing; use of pesticides (Keinath 2004). Specialized ecological refugia are restricted and threatened on BLM administered lands, and Spotted Bat is thereby designated as Sensitive in Wyoming.

Long-eared Myotis - *Myotis evotis*

Long-eared myotis is appropriate for inclusion under criterion number 1b. It occurs throughout most of Wyoming at elevations between 5000 and 9800 ft. This species inhabits primarily coniferous forest and woodland (Hester and Grenier 2005). Long-eared Myotis uses a wide variety of roosts, including buildings, rock crevices, and hollow trees. Roosts are more likely to be found in close proximity of foraging sites and water sources. Its abundance and population trend are unknown in Wyoming. The major threats on BLM-administered lands are: disturbance or modification of the roost environment caused by human activities; alteration of foraging areas such as wetlands and riparian systems; wind energy development; chemicals used in forest management practices and toxins associated with mining operations (Buseck and Keinath 2004). Specialized ecological refugia are threatened and Long-eared Myotis is thereby designated as Sensitive in Wyoming.

Fringed Myotis - *Myotis thysanodes*

Fringed myotis is appropriate for inclusion under criterion number 1b. This species is probably found in suitable habitat in most of Wyoming (Hester and Grenier 2005). Fringed myotis is rare and patchily distributed. It is believed to be stable at low numbers in Wyoming (NatureServe 2009). According to the Forest Ecosystem Management Assessment Team (1993, in Keinath 2003) this species depends on mature forest ecosystems and has strong site fidelity. This species is extremely sensitive to disturbance at roost sites (Keinath 2003). The major threats include: disturbance or modification of the roost environment due to the reduction of tree snag density and human activities such as cave recreational area development; chemical pollutants; water flow and persistence alteration (Keinath 2004). Specialized ecological refugia are threatened by and Fringed Myotis is thereby designated as Sensitive in Wyoming.

Wyoming Pocket Gopher - *Thomomys clusius*

Wyoming Pocket Gopher is appropriate for inclusion under criterion number 1b. Distribution of the species is believed to be restricted to Sweetwater and Carbon Counties, in Wyoming (Beauvais and Dark-Smiley 2005). This species has been petitioned for listing under the Endangered Species Act (74 FR 6558). Population trends of Wyoming pocket gophers are essentially unknown and very little information exists about its life history (Keinath and Beauvais 2006). Movement and dispersal capabilities of northern pocket gophers are limited and it is assumed that Wyoming pocket gophers are similarly restricted (Beauvais and Dark-Smiley 2005). Habitat loss and fragmentation due to road and oil/gas development and environmental stochastic events could be considered the major threats on BLM-administered lands (Keinath and Beauvais 2006). Wyoming pocket gopher occurs in geographically restricted and specialized areas that are threatened by human activities, and this species is thereby designated as Sensitive in Wyoming.

Idaho Pocket Gopher - *Thomomys idahoensis*

Idaho pocket gopher is appropriate for inclusion under criterion number 1b. In Wyoming, it is found in the southwestern part of the state. This species occurs in shallow, stony soils in open sagebrush, sagebrush-grassland, and mountain meadow habitats (WGFD 2005). Very little information is known regarding abundance and population trends of Idaho Pocket Gopher in Wyoming. Movement and dispersal capabilities of northern pocket gophers are rather limited and it is assumed that Idaho pocket gophers are similarly restricted. Potential threats to this species on BLM-administered lands are soil disturbance and compaction due to increased petroleum exploration and extraction and increased road densities (Beauvais and Dark-Smiley 2005). Wyoming pocket gopher occurs in geographically restricted and specialized areas that are threatened by human activities, and it is thereby designated as Sensitive in Wyoming.

Swift Fox - *Vulpes velox*

Swift fox is appropriate for inclusion under criterion number 1b. In Wyoming it occurs in the northeastern, east-central, southeastern, and south-central portions of the state (WGFD 2006). This species is generally uncommon (Dark-Smiley and Keinath 2003), and its population trend within Wyoming is currently unknown (Stephens and Andersons 2005). Swift foxes require large open areas of prairie and grassland habitats (Dark-Smiley and Keinath 2003). The major threats on BLM-administered lands are: collisions with automobiles; destruction and fragmentation of suitable habitat due to energy development; predation and interspecific competition (with coyote and red fox); decline of colonial rodents populations (Stephens and Andersons 2005). Specialized ecological refugia are threatened and Swift Fox is thereby designed as Sensitive in Wyoming.

Preble's Meadow Jumping Mouse – *Zapus hudsonius preblei*

Preble's Meadow Jumping Mouse is appropriate for inclusion under criterion number 2. It is found in the southeastern portion of Wyoming in Converse, Platte, Albany, and Laramie Counties (73 FR 39790). Population density and trends are not well known in Wyoming (WGFD 2005). *Zapus hudsonius preblei* depends on riparian ecosystems which are physically narrow, and represent a very small percentage of the landscape (Smith et al. 2004). On July 10, 2008, the Service removed Endangered Species Act protections for Preble's meadow jumping mouse populations in Wyoming (73 FR 39790). The State of Wyoming has committed to conducting ongoing monitoring efforts for the Prebles and to ensuring its long-term viability (Freudenthal 2008 in 73 FR 39790).The major threats include: habitat loss and fragmentation due to water, road and oil/gas development; overgrazing; recreational development (73 FR 39790). Preble's Meadow Jumping Mouse was delisted from its threatened status under the Federal Endangered Species Act (ESA) and in losing Federal status, it is designated as Sensitive in Wyoming.

BIRDS:

Northern Goshawk - *Accipiter gentilis*

Northern Goshawk is appropriate for inclusion under criterion number 1b. It is distributed in most of the state (WGFD 2005). In Wyoming it is a resident breeder and short distant migrant (Smith and Keinath, 2004). According to Dorn and Dorn (1999 in Smith and Keinath 2004) goshawks are uncommon in summer and rare in winter. This species inhabits forests, both deciduous and coniferous ones, with different forest ages, structural conditions, and successional stages (WGFD 2005). Northern Goshawks require a nest area, a post-fledging family area, and a foraging area for breeding: some forests, such as old growth forests, can provide habitats available at all three scales within home ranges. Population trend is unknown. The major threats on BLM-administered lands are: alteration or loss of nesting and foraging areas due to timber harvest and catastrophic fires; fire suppression; loss of vegetation cover; grazing (Smith and Keinath 2004; Kennedy 2003). Specialized ecological refugia are threatened on BLM lands and Northern Goshawk is thereby designated as Sensitive in Wyoming.

Baird's Sparrow - *Ammodramus bairdii*

Baird's Sparrow is appropriate for inclusion under criterion number 1b. It is a short- to medium distance migrant within North America and occurs in eastern Wyoming, mostly during migration. This species is a grassland specialist and requires an area of about 63 ha during breeding season (Luce and Keinath 2003).The main threats on BLM-administered lands are overgrazing, burning, and native grassland fragmentation due to energy development and road construction (Luce and Keinath 2003; Wiggins 2006). Baird's Sparrow specialized ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming.

Sage Sparrow - *Amphispiza belli*

Sage Sparrow is appropriate for inclusion under criteria number 1a and 1b. It occurs in the summer throughout most of the state where sagebrush is present (WGFD 2005). Sage Sparrows prefer large and undisturbed tracts of tall and dense sagebrush. Such habitat is declining across large areas (Hansley and Beauvais 2004). This species is considered common in Wyoming and populations are declining (WGFD 2005). The main threat is habitat loss, degradation and fragmentation due to invasion of cheatgrass, wildfires and prescribed burns, off-road motorized use, grazing and increasing road and energy development (Holmes and Johnson 2005). Sage sparrow is undergoing a downward trend and its specialized ecological refugia are threatened, and this species is thereby designated as Sensitive in Wyoming.

Burrowing Owl - *Athene cunicularia*

Burrowing Owl is appropriate for inclusion under criterion number 1b. In Wyoming, its highest concentration is in the south and east, although Borrowing Owls occur and breeds throughout most of the state (WGFD 2006). This species requires short-grass habitats and prefers open areas within grasslands, deserts and shrub-steppes (McDonald et al. 2004). The availability of burrows is the limiting factor in Burrowing Owl habitat (Lantz et al. 2004). The Burrowing Owl is considered an uncommon summer resident in Wyoming (WGFD 2005) and its population trend in the last years is unknown (Lantz et al. 2004). The major threats are: habitat loss and fragmentation due to invasion of cheatgrass, energy and road network development (Lantz et al. 2004); declining of colonial burrowing mammals, especially prairie dogs; human disturbance; the use of insecticides and rodenticides; loss to predation (McDonald et al. 2004). Burrowing Owl specialized refugia are threatened, and this species is thereby designated as Sensitive in Wyoming.

Ferruginous Hawk - *Buteo regalis*

Ferruginous Hawk is appropriate for inclusion under criterion number 1b. It breeds across a large portion of Wyoming, and some individuals are found during winter in the southern part of the state. This species occupies arid and open grassland, and shrubsteppe. (Travsky and Beauvais 2005). Wyoming populations are suspected to be stable (WGFD 2006). Ferruginous hawks rely on large areas of native grass and shrubs with abundant prairie dogs, other ground squirrels, and jackrabbits (Travsky and Beauvais 2005). Also, this species is sensitive to human activities and disturbances during the breeding season and appears to have high site fidelity (Travsky and Beauvais 2005; Gillihan et al. 2004). The major threats on BLM-administered lands are: habitat loss and fragmentation due to energy development, increasing road density and cheatgrass invasion; declining of prairie dogs and ground squirrel activities; human disturbance during the reproductive period; overgrazing; recreational activities, especially motorized vehicle trails; wind energy development (Travsky and Beauvais 2005; Collins and Reynold 2005). Specialized ecological refugia are threatened, and Ferruginous Hawk is thereby designated as Sensitive in Wyoming.

Greater Sage-grouse - *Centrocercus urophasianus*

Greater Sage-Grouse is appropriate for inclusion under criterion number 1b. It occurs throughout Wyoming where sagebrush is present. U.S. Fish and Wildlife Service initiated a status review of the Greater sage-grouse to determine if the species should be protected under the Endangered Species Act (73 FR 10218). This species depends upon sagebrush habitat. Suitable habitat consists of plant communities dominated by sagebrush and a diverse native grass and forb understory. Suitable winter habitat requires sagebrush above snow (USRB Working Group 2008; Connelly et al. 2004). Abundance has declined, primarily as a result of loss, fragmentation, and

degradation of sagebrush habitat. The major threats include: loss, fragmentation, and degradation of sagebrush habitat due to invasive species invasion, energy and road development, wildfire, grazing, strip/coal mining, weather, and expansion of pinyon-juniper forests (USDI-FWS 2005). Other threats are West Nile virus and recreational activities. Specialized ecological refugia are threatened and Greater Sage-grouse is thereby designated as Sensitive in Wyoming.

Mountain Plover – *Charadrius montanus*

Mountain Plover is appropriate for inclusion under criterion number 2. It was proposed for listing as a threatened species in 1999. In September 2003 the Service withdrew the listing, because new information indicated that the threats to the species included in the proposed listing were not as significant as earlier believed (68 FR 53083). The U.S. Fish and Wildlife Service recently identified the mountain plover as a Bird of Conservation Concern (FWS 2008; 74 FR 11128). The mountain plover is also protected under the Migratory Bird Treaty Act (16 U.S.C. 703). It is found throughout Wyoming in suitable habitat (WGFD 2006). Mountain Plover nests in grasslands, mixed grassland areas, short-grass prairie, shrub steppe, cultivated lands, and prairie dog towns. This species has a narrow range of habitat requirements and appears to have a high degree of site fidelity (Smith and Keinath 2004; Dismore 2003). In Wyoming, population trends are not well documented (WGFD 2006). The major threats are: loss, degradation, and fragmentation of nesting habitat; disturbance by human activities; eradication of prairie dog colonies (68 FR 53083). Mountain Plover was removed from proposed Federal listing status and, as it lost its Federal status this species is designated as Sensitive in Wyoming.

Yellow-billed Cuckoo - *Coccyzus americanus*

Yellow-billed Cuckoo is appropriate for inclusion under criterion number 2. It is found mainly along the eastern edge of Wyoming (WGFD 2005). The continental divide is considered the boundary between the two subspecies of Yellow-billed cuckoo, the western and the eastern ones, which are both present in this state (Bennett and Keinath 2003). In Wyoming yellow-billed cuckoos generally inhabit relatively large stands of cottonwood-willow habitat below 7,000 feet. They are riparian obligates and require low, dense, shrubby vegetation for nest sites (WGFD 2005). Western Yellow-billed Cuckoos are restricted to closed-canopy, deciduous, riparian forests with a dense shrub understory. This habitat specificity makes this species particularly vulnerable to habitat alteration (Bennett and Keinath 2003). This species is considered “very rare” by WYNDD (Keinath and Beauvais 2002) and an uncommon summer resident by WGFD, and Dorn and Dorn (1999). Population trend is uncertain in Wyoming, but in the northern periphery of the cuckoo’s historic range numbers are almost certainly reduced due in part to habitat loss and elimination of potential source populations (Bennett and Keinath 2003). The major threats are: loss and fragmentation of breeding habitat, such as lowland riparian woodland areas; human presence, to which cuckoos are very sensitive; livestock grazing; stream channelization and stabilization; pesticides, that can also reduce prey abundance; tamarisk

invasion (Bennett and Keinath 2003). Yellow-billed Cuckoo is a federally designated candidate species and it is thereby designated as Sensitive in Wyoming.

Trumpeter Swan - *Cygnus buccinator*

Trumpeter Swan is appropriate for inclusion under criterion number 1b. Although it has been found in many parts of Wyoming, resident birds are concentrated in some known breeding and wintering sites in western Wyoming (WGFD 2005). In 2003 the Tri-State Area flock of trumpeter swans was petitioned for listing under the Endangered Species Act (68 FR 4221). Trumpeter swans nest in clear and quiet water bodies (ponds, lakes, and marshes) with relatively static levels and shallow margins that are important for foraging. It is assumed that in Wyoming this species requires 140-154 ice-free days to complete a reproductive cycle, as it happens in Alaska. The species is considered common in summer, uncommon in winter by Dorn and Dorn (1990 in Travsky and Beauvais 2004) and uncommon by WGFD (2005). Most of these birds are assumed to be yearlong residents, with some as migrating in for winter from breeding sites in Canada. Trumpeter Swan has large area requirements, high specificity for rather rare environments, and high site fidelity to wintering habitats (Travsky and Beauvais 2004; Slater 2006). The major threats on BLM-administered lands are: overcrowding on limited habitat by wintering Canadian swans and resident United States swans; the conversion, disturbance, and degradation of breeding and (especially) winter habitat by various human land uses and activities; pollution; collision with power lines and fences; illegal shooting (Travsky and Beauvais 2004; Slater 2006). Specialized ecological refugia are threatened and Trumpeter Swan is thereby designated as Sensitive in Wyoming.

Peregrine Falcon - *Falco peregrinus*

Peregrine Falcon is appropriate for inclusion under criterion number 1a. It is found scattered throughout most of Wyoming, but breeds mostly in the western half of the state (WGFD 2005). *Falco peregrinus* inhabits various open habitats near nesting cliffs and mountains (Nicholoff 2003). This species nests on cliffs that are 45 m (150 ft) or more height, and its density depends on availability of nesting sites in proximity to an adequate food source (Hays and Milner 2004). Peregrine Falcon has been delisted in 1999 and will be monitored until 2015 (USFWS 2003). Threats include loss of wetland habitat of primary prey, poachers robbing nests, shooting by hunters, and food chain contamination from use of persistent pesticides (NatureServe 2009). Peregrine Falcon has recently undergone a downward trend and is thereby designated as Sensitive in Wyoming.

Bald Eagle – *Haliaeetus leucocephalus*

Bald Eagle is appropriate for inclusion under criterion number 2. It nests throughout Wyoming with the most significant concentrations in Teton, Sublette, and Carbon counties (WGFD 2005). Bald eagles occur near large lakes and rivers in forested areas where adequate prey and old, large-diameter cottonwood or conifer trees are available for nesting (FWS 2004). In July 2007 the U.S. Fish and Wildlife Service removed the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife (72 FR 37346). The Post delisting Monitoring Plan will monitor the status of the bald eagle over a 20 year period with sampling events held once every 5 years (Millar et al. 2007). The major threats are: habitat loss due to development of riparian areas for industrial and recreational uses, lack of cottonwood regeneration and construction of reservoirs and dams (FWS 2004); disturbance at nest and roost sites; contaminants (Travsky and Beauvais 2004). Bald Eagle was delisted from its threatened status under the Federal Endangered Species Act (ESA) and in losing Federal status, it is designated as Sensitive in Wyoming.

Loggerhead Shrike - *Lanius ludovicianus*

Loggerhead Shrike is appropriate for inclusion under criterion number 1a. All shrikes in Wyoming are migratory and occur throughout the state. According to Dorn and Dorn (1999) the Loggerhead Shrike is a “common summer resident” in Wyoming from roughly March through September. Important habitat characteristics are the presence of dense shrubs or trees for nesting with nearby open herbaceous areas for foraging (grasslands or pastures) and a high perch density (Keinath and Schneider 2005). Although shrike populations appear to be stable in Wyoming since 1980, this species has declined range wide, and shows a statistically significant downward trend in abundance across states, provinces, and physiographic strata based on Breeding Bird Survey (BBS) data (Sauer et al. 2008). The causes of this decline are still unknown, although it probably has been caused by loss of suitable wintering and/or breeding habitat, combined with pesticides effects (Keinath and Schneider 2005). Population declines should be expected in Wyoming due to decreasing number of birds entering from neighboring areas (Wiggins 2005). The major threats are loss and degradation of breeding and wintering habitats, cattle grazing, collisions with vehicles, and drought (Keinath and Schneider 2005; Wiggins 2005). Loggerhead Shrike has recently undergone a downward trend and it is thereby designated as Sensitive in Wyoming.

Long-billed Curlew - *Numenius americanus*

Long-billed Curlew is appropriate for inclusion under criterion number 1b. It can be found throughout most of Wyoming in suitable habitat. Long-billed Curlew occurs in a variety of grasslands communities, from shortgrass prairies to cultivated hay fields to sagebrush-grasslands (Dark-Smiley and Keinath 2004). Although once common in the state, the Long-billed Curlew is

now considered uncommon in Wyoming, and infrequent throughout the eastern short grass prairies (Dark-Smiley and Keinath 2004; WGFD 2006). BBS data suggest a statistically significant (1966-2007) population decline in USFWS Region 6 and the Central BBS Region (Sauer et al. 2008). Populations in Wyoming are suspected to be stable to declining due to habitat loss. This species has high habitat specificity for its breeding, wintering, and foraging habitats (Dark-Smiley and Keinath 2004). The greatest threat to this species on BLM-administered lands in Wyoming is habitat loss, degradation, and fragmentation due to urban and oil/gas development, climate change, and some invasive species infestations. Other threats are: disturbance during breeding season by excessive vehicle traffic, recreation, and grazing; nests destruction caused by the agricultural practice called "dragging" (Dark-Smiley and Keinath 2004; Sedgwick 2006). Specialized ecological refugia are threatened on BLM-administered lands and Long-billed Curlew is thereby designated as Sensitive in Wyoming.

Sage Thrasher - *Oreoscoptes montanus*

Sage Thrasher is appropriate for inclusion under criterion number 1b. It is considered a common summer resident and occurs throughout most of Wyoming where sagebrush is present (WGFD 2005). Sage thrashers are sagebrush obligates and seem to be quite selective in sites used for nesting and breeding habitat (Buseck et al. 2004). In Wyoming, this species does not appear to decline (Sauer et al. 2008; Nicholoff 2003). According to WGFD (2005) populations are declining. The greatest threat to Sage Thrasher is habitat loss, modification, and fragmentation due to invasion of nonnative plant species (cheatgrass), agricultural practices, fire, urban and natural resource development, and increased recreational activity (Buseck et al. 2004). Specialized ecological refugia are threatened and Sage Thrasher is thereby designated as Sensitive in Wyoming.

White-faced Ibis - *Plegadis chichi*

White-faced Ibis is appropriate for inclusion under criterion number 1b. It normally occurs in the southern portion of Wyoming from May through September. This species is rare in Wyoming and is known from only eight breeding locations within the state. The abundance trend of White-faced ibis within Wyoming is uncertain. This species appears to rely on shallow wetland areas, such as ponds, reservoirs, marshes and shorelines with abundant emergent vegetation for nesting. The major threats on BLM-administered lands are habitat loss and degradation due to cattle grazing and development in wetland areas; pesticides; human disturbance of breeding colonies (Dark-Smiley and Keinath 2003). Specialized ecological refugia are limited and threatened and White-faced Ibis is thereby designated as Sensitive in Wyoming.

Brewer's Sparrow - *Spizella breweri*

Brewer's Sparrow is appropriate for inclusion under criteria number 1b. It is considered a common summer resident in Wyoming and occurs throughout most of the state (WGFD 2005). The Brewer's Sparrow is a sagebrush obligate. BBS data indicate rangewide declines in distribution and abundance of breeding populations (Sauer et al. 2008). However, according to Monitoring Wyoming's birds, Brewer's sparrow densities increased in sagebrush steppe habitat between 2002 and 2007. The major threats on BLM-administered lands are habitat loss, degradation and fragmentation due to road and oil/gas development, invasion of cheatgrass, livestock grazing, wildfires and prescribed burns (Holmes and Johnson 2005). Specialized ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming.

Columbian Sharp-tailed Grouse- *Tympanuchus phasianellus columbianus*

Columbian Sharp-tailed Grouse is appropriate for inclusion under criterion number 1b. In Wyoming, it occurs only in Carbon County (Hoffman and Thomas 2007). In 2006 U.S. Fish and Wildlife received a petition to list the Columbian Sharp-tailed Grouse under the Endangered Species Act but did not initiate a further status review (71 FR 67318). It is found in mountain-foothills shrub and sagebrush-snowberry habitats in the transitional zone between sagebrush-grass and forested habitats (WGFD 2005). Only very small populations (<1,000 breeding birds) remain in Wyoming. Sagebrush and mountain shrub cover types provide critical breeding, nesting, and brood-rearing habitats for Columbian Sharp-tailed Grouse (Hoffman and Thomas 2007). During winter, this subspecies requires sites, such as riparian areas, close to breeding complex with deciduous trees and shrubs for feeding, roosting, and escape cover (WGFD 2005). The major threats are: habitat loss and degradation due to road and oil/gas development, excessive livestock grazing, and cheatgrass invasion; pesticides; disturbance by recreation (Hoffman and Thomas 2007). Specialized ecological refugia are limited and threatened on BLM-administered lands and Columbian Sharp-tailed Grouse is thereby designated as Sensitive in Wyoming.

FISH:

Bluehead Sucker - *Catostomus discobolus*

Bluehead Sucker is appropriate for inclusion under criteria number 1a and 1b. It is distributed in the Southern and Western parts of the state, in the Little Snake River and three tributaries, Savery Creek, Muddy Creek, and Littlefield Creek (Ptacek et al. 2005). Bluehead Suckers usually occur in the main current of the stream and prefer turbid to muddy streams often with high alkalinity. This species is rare and its distribution has dramatically declined on site, stream, subdrainage, and drainage scales (WGFD 2005). Habitat loss (degradation and fragmentation)

due to construction of passage barriers, stream channelization and manipulation of flood regime (Ptacek et al. 2005), and effects of non-native fishes are believed responsible for the decline of this species (NatureServe 2009). It seems that number of subpopulations, population size, and habitat quality are continuing to decline (NatureServe 2009). Hybridization with non-native white sucker appears to be compromising the genetic purity of several populations of bluehead sucker (Karpowitz 2006). Other threats are: road construction, timber harvest, and grazing of riparian areas, predation (Ptacek et al. 2005). Bluehead Sucker has been undergoing and is predicted a downward trend. Also its ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming.

Flannelmouth Sucker - *Catostomus latipinnis*

Flannelmouth Sucker is appropriate for inclusion under criteria number 1a and 1b. In Wyoming it occurs in the Green and Little Snake river drainages. This species prefers large rivers with deep riffles and runs, but it also inhabits small tributaries (WGFD 2005). The flannelmouth sucker has undergone in abundance across its native range (Rees et al. 2005). In Wyoming it has declined on stream, subdrainage, and drainage scales (WGFD 2005). Loss of habitat due to alteration of the hydrologic and thermal characteristics of rivers and the introduction of nonnative species are believed to be responsible for the decline in this species (NatureServe 2009). This species is still declining because genetic integrity of its populations is negatively affected by hybridization with non-native white suckers. The other major threats are: habitat degradation, road construction, timber harvest, and grazing of riparian areas (Rees et al. 2005). This species has been undergoing and is predicted to undergo a downward trend. Also, its ecological refugia are threatened and this specie is thereby designated as Sensitive in Wyoming.

Northern Leatherside Chub - *Lepidomeda copei*

The Northern Leatherside Chub is appropriate for inclusion under criterion number 1b. This species was recently renamed. Genetic studies suggest that what has been considered as the leatherside chub (*Gila copei*) may actually be two distinct species, the northern leatherside chub (*Lepidomeda copei*) and the southern leatherside chub (*Lepidomeda aliciae*). To accommodate this renaming, the species formerly referred to as the "leatherside chub" is now listed as the "northern leatherside chub" (*Lepidomeda copei*) on the Wyoming BLM Sensitive Species List (Johnson et al 2004). It is found in the Bonneville Basin and upper Snake River in Wyoming, as well as in Sulphur Creek and Bear River in Uinta County. This species also occurs in Lincoln County (WGFD 2005). The Northern Leatherside Chub inhabits streams with a broad range of temperatures and requires habitats with healthy riparian vegetation and intact streambanks (Utah DNR 2009). This species is rare in Wyoming and its abundance has decreased throughout the native range. Northern Leatherside Chub decline has probably been due to, and the major threats consist of: habitat alteration and fragmentation due to water development and stream alterations; the introduction of nonnative fish predators; livestock grazing (NatureServe 2009; Utah DNR

2009). Recent population trend is unknown (Utah DNR 2009). The U.S. Fish and Wildlife Service will initiate a 12 month status review for the northern leatherside chub (74 FR 41649). Non-native fish predators appear to ecologically fragment northern leatherside chub into patchy peripheral stream habitats, potentially impacting local demographic processes (Walser et al. 1999 in Utah DNR 2009). Ecological refugia are becoming more and more specialized and are threatened, thereby this species is designated as Sensitive in Wyoming.

Roundtail Chub - *Gila robusta*

Roundtail Chub is appropriate for inclusion under criteria 1a and 1b. It occurs in tributaries to the Green River and in several lakes in the upper portion of the basin (Karpowitz 2006; Rees et al. 2005). In 2009 the U.S. Fish and Wildlife Service found that the petitioned action to list *Gila robusta* in the lower Colorado River basin under the Endangered Species Act was warranted but precluded. This species was thereby added to the list of Candidate species (74 FR 32352). Roundtail chubs are found in large, swift rivers. In Wyoming a great decline occurred during construction of Fleming Gorge Reservoir and no current trend information is available (NatureServe 2009). According to Wyoming Game and Fish (2005) suitable habitats are decreasing and the distribution of the roundtail chub in Wyoming appears to be declining on site, stream, and subdrainage scales. The major threats are: habitat degradation and fragmentation due to impoundment, channel downcutting, substrate sedimentation, water diversion, and groundwater pumping; road construction; timber harvest; grazing; competition with and predation by non-native species (Rees et al. 2005; NatureServe 2009; Karpowitz 2006). Roundtail chub is predicted to undergo a downward trend and its ecological refugia are threatened, thereby this species is designated as Sensitive in Wyoming.

Yellowstone Cutthroat Trout - *Oncorhynchus clarkii bouvieri*

Yellowstone Cutthroat Trout is appropriate for inclusion under criterion number 1b. This species is native to the Yellowstone River drainage downstream to the Tongue River, including the Big Horn and Clarks Fork River drainages, and also occurs in Pacific Creek and other Snake River tributaries (WGFD 2005). Yellowstone Cutthroat trout was petitioned for listing as Threatened or Endangered but the U.S. Fish and Wildlife Service found that listing was not warranted (71 FR 8818). It inhabits rivers, creeks, beaver ponds, large lakes (NatureServe 2009). Recent trends appear to be stable or upward, with a few notable exceptions (i.e., Yellowstone Lake, Teton River) (NatureServe 2009). However, genetic integrity of Yellowstone Cutthroat Trout populations has been negatively affected by hybridization with non-native salmonids. The major threats are competition, hybridization, diseases, and predation by non-native fish species; habitat loss and degradation by over-appropriated water, livestock grazing, energy development, mining, and road development; climatic events; climate change. (May et al. 2007). Yellowstone Cutthroat Trout specialized ecological refugia are threatened and this species is thereby designated as Sensitive.

Fine-spotted Snake River Cutthroat Trout - *Oncorhyncus clarkii ssp. (O. c. behnkei)*

Fine-spotted Snake River Cutthroat Trout is appropriate for inclusion under criterion number 1b. It is found principally in the western portion of Wyoming: Snake River between Jackson Lake and Palisades Reservoir, Wyoming and Idaho; tributaries of the Snake River from the Gros Ventre River to the Salt River; throughout the Gros Ventre River drainage except in headwater streams where the Yellowstone cutthroat trout occurs (NatureServe 2009). This subspecies occurs in large rivers with swift current and requires clear, cool, well-oxygenated water (NatureServe 2009). Fine spotted cutthroat trout is more abundant today than it was historically; it has not declined significantly in native range and has been extensively stocked outside native range (Behnke 1992). Specialized ecological refugia are threatened on BLM-administered lands and this species is thereby designated as Sensitive in Wyoming.

Colorado River Cutthroat Trout - *Oncorhynchus clarkii pleuriticus*

Colorado River Cutthroat Trout is appropriate for inclusion under criteria number 1a and 1b. It occurs in the Green River, Black's Fork and Little Snake River enclaves. Colorado River cutthroat trout have hybridized with non-native salmonids reducing the genetic integrity of this subspecies (CRCT Conservation Team 2006). Some of the healthiest and purest populations of this subspecies can be found in small stream tributaries of the Little Snake River in Carbon County and in the Wyoming Range of Sublette County (WGFD 2005). The majority of populations are restricted to relatively small (<6 km) and/or unproductive headwater (above 2,438 m) streams (Young 2008). This subspecies requires cool, clear water and well-vegetated streambanks for cover and bank stability (NatureServe 2009). It is likely that the genetic integrity of many Colorado River Cutthroat Trout populations, especially the smallest and least productive, is being negatively affected by hybridization with non-native salmonids (Young 2008). The major threats are: diseases, predation by, and hybridization with non-native salmonids; climate change; habitat degradation and fragmentation; vulnerability of isolated populations; overgrazing; heavy metal pollution; water depletion and diversion (CRCT Conservation Team 2006); fire, post-fire debris torrents, and floods (Young 2008). Colorado River Cutthroat Trout is undergoing and is predicted to undergo a downward trend. Also, its specialized ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming.

Bonneville Cutthroat Trout - *Oncorhynchus clarkii Utah*

Bonneville Cutthroat Trout is appropriate for inclusion under criterion number 1b. In Wyoming it occurs in the Smith Fork and Thomas Fork drainages of the Bear River system, in the southwestern portion of the state (WGFD 2005). Bonneville cutthroat trout prefer small headwater streams, even though they can be also found in lakes and beaver ponds (NatureServe 2009). This subspecies requires relatively cool, well oxygenated, water and the presence of

clean, well-sorted gravels with minimal fine sediments for successful spawning. The genetic integrity of Bonneville Cutthroat Trout populations is negatively affected by hybridization with non-native salmonids. Decline occurred mostly from 1850 and 1950 has been due to, and major threats consist of: water development, commercial fish harvest, timber harvest, livestock grazing, urban development, overfishing (not now a threat) and introduction of nonnative salmonids (NatureServe 2009; Lentsch et al. 2000). Bonneville Cutthroat Trout specialized ecological refugia are threatened and it is thereby designated as Sensitive in Wyoming.

Hornyhead Chub – *Nocomis biguttatus*

Hornyhead Chub is appropriate for inclusion under criteria number 1a and 1b. It is relatively uncommon in Wyoming, but has been found in the Laramie River downstream from Wheatland Reservoir 2 as well as in the North Laramie River (WGFD 2005). Hornyhead chubs usually occur in small to medium-sized streams with gravel bottom, rarely in lakes or large rivers (WGFD 2005; Miller et al. 2005). During a survey performed in 1997 Dr. Tim Patton and the Wyoming Game and Fish Department found the hornyhead chub to occur in only two of 181 sites that were sampled within the Missouri River Drainage of Wyoming (Patton 1997). The major threats to the Hornyhead Chub are: habitat loss and fragmentation due to water management, flow modifications, and destructions of riparian zones; competition with and predation by non-native species (Miller et al. 2005). Hornyhead Chub has been probably undergoing a downward trend and the small Wyoming populations are isolated and threatened. This species is therefore designated as Sensitive in Wyoming.

REPTILES

Midget Faded Rattlesnake – *Crotalus viridis concolor*

Midget Faded Rattlesnake is appropriate for inclusion under criterion number 1b. In Wyoming it occurs only in the lower Green River valley from Green River and Rock Springs to the Utah-Wyoming border (WGFD 2005). These snakes inhabit high, cold desert dominated by sagebrush and with an abundance of rock outcrops and exposed canyon walls. Since the presence of particular rock outcrops, that provide adequate hibernacula, is an important habitat requirement, this species has high habitat specificity (Travsky and Beauvais 2004). The major anthropogenic threats are: vehicle collision, which is likely to be increased by oil/gas and road development; unrestricted motorized recreation; unregulated collections by reptile enthusiasts (NatureServe 2009). Midget Faded Rattlesnake specialized ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming.

AMPHIBIANS:

Boreal Toad (Northern Rocky Mountain Population) - *Bufo boreas boreas*

The Northern Rocky Mountain Population of Boreal Toad is appropriate for inclusion under criterion number 1b. In Wyoming, it is found in the western part of the state (WGFD 2005). Boreal toads inhabit wet habitats in foothills, montane, and subalpine areas (McGee and Keinath 2004). This subspecies relies on both aquatic and terrestrial habitats for reproduction, foraging, and over wintering. Sites that combine suitable wetland habitats adjacent to suitable terrestrial habitat are relatively limited and vulnerable (Keinath and McGee 2005). The major direct threats to boreal toads on BLM-administered lands in Wyoming are: air quality and atmospheric deposition; timber harvest; grazing; fire and fire management activities; toxic chemicals; introduction of non-native species; road and trail development; off-road vehicle use; development and management of recreational facilities; development and management of water impoundments; harvest and commerce, habitat fragmentation; the lack of information on specific populations; disease; climatic change (McGee and Keinath 2004). Specialized ecological refugia are limited and threatened on BLM-administered lands and this species is thereby designated as Sensitive in Wyoming.

Northern Leopard Frog - *Rana pipiens*

Northern Leopard Frog is appropriate for inclusion under criterion number 1a and 1b. The Service has recently started to undertake a status review of this species whether to propose adding the northern leopard frog population in 19 states west of the Mississippi River and Great Lakes to the federal list of threatened and endangered species (74 FR 31389). It is found in most of Wyoming around beaver ponds (WGFD 2005). Northern leopard frogs require small fishless ponds for reproduction and upland habitats for summertime foraging (Smith and Keinath 2004; 2007). This species has been declining in most of its western range (WGFD 2005). Northern Leopard Frog has apparently been extirpated in the Targhee National Forest of western Wyoming and adjacent Idaho, and severely reduced in numbers in the Laramie area (Smith and Keinath 2007). Based on U.S. census data (Lang and Simmons 2001), Smith and Keinath (2007) predicted that the abundance of northern leopard frogs will continue to trend down. The major threats include: loss and degradation of habitat due to livestock grazing, urban development, oil and gas development, poor forestry practices, groundwater pumping, mining, invasive plant species, and non-native predators; diseases; road impacts, water pollution, air pollution, and effects due to climate change (74 FR 31389). Northern Leopard Frog has been undergoing and is predicted to undergone a downward trend. Also, specialized ecological refugia are more and more limited and threatened on BLM-administered land and this species is thereby designated as Sensitive in Wyoming.

Columbia Spotted Frog – *Rana luteiventris*

Spotted Frog is appropriate for inclusion under criterion number 1b. In Wyoming, it occurs in the western and north central parts of the state. Columbia spotted frogs can be found in a variety of vegetation communities, including subalpine forest grasslands and sagebrush habitats, at elevations from 1,700 feet to 6,400 feet (WGFD 2005). Spotted Frog requires both aquatic and terrestrial habitats and exhibits strong site fidelity (Patla and Keinath January 2005). Information is insufficient to determine the population trend (Patla and Keinath August 2005). The major threats include: loss and habitat degradation due to livestock grazing, water manipulation, road development, introduced sport fish; disease; some timber practices; oil and gas development; contaminants; recreation; beaver eradication; drought and climate change; UV-B radiation, mosquito abatement (Patla and Keinath January 2005). Specialized ecological refugia are threatened and Spotted Frog is thereby designated as Sensitive in Wyoming.

Great Basin Spadefoot – *Spea intermontana*

Great Basin Spadefoot is appropriate for inclusion under criterion number 1b. In Wyoming, this species occurs mostly west of the Continental Divide in the Wyoming Basin and the Green River Valley, but is also found east of the divide in Fremont and Natrona counties (WGFD 2005). Great Basin Spadefoot relies on both aquatic and terrestrial. They also require safe passages between these areas and loose soil to burrow (Buseck et al. 2005; WGFD 2005). Abundance data about *S. intermontana* across its range is lacking, but this species is considered relatively stable at the national level (NatureServe 2009). The major threats include: habitat alteration and fragmentation due to road and oil/gas development, water manipulation, and environmental contamination; invasive plant species, such as cheatgrass, and non-native predators (Buseck et al. 2005). Specialized ecological refugia are threatened and Great Basin Spadefoot is thereby designated as Sensitive in Wyoming.

PLANTS:

Meadow Pussytoes - *Antennaria arcuata*

Meadow Pussytoes is appropriate for inclusion under criterion number 1b. In Wyoming, it mostly occurs in: the Sweetwater River Valley and the South Pass area of the southern Wind River Range in the vicinity of Atlantic City and Jeffrey City (Fremont County); the northern Green River Basin (Sublette County). This species is found primarily in subirrigated meadows within broad stream channels dominated by *Deschampsia caespitosa, Juncus balticus, Poa pratensis, P. nevadensis), Koeleria macrantha,* and *Carex praegracilis* at 4950-7900 feet (Fertig 2000). If the graminoid cover becomes too dense and the soils too mesic *A. arcuata* can decline or be eliminated. These plants are restricted to geographically isolated wet areas adjacent to springs

and seeps. The major threats are trampling by off-road vehicles, mineral/energy development, water projects, recreational activity, and competition from introduced and native weeds (NatureServe 2009). Specialized ecological refugia are threatened and Meadow Pussytoes is thereby designated as Sensitive in Wyoming.

Laramie Columbine - *Aquilegia laramiensis*

Laramie Columbine is appropriate for inclusion under criterion number 1b. It is endemic to the Laramie Mountains in southeast Wyoming (Albany and Converse counties) (Fertig, updated by Handley, 2008). This species occurs in shaded microsites associated with outcrops and boulders at 6300 ft to 10100 ft. Population trends are unknown. Potential threats are herbicide treatments, collection for garden use, trampling by hikers, and climate change (Marriott and Horning a, b, 2004; Marriott and Pokorny 2006). Specialized ecological refugia are threatened and Laramie Columbine is thereby designated as Sensitive in Wyoming.

Porter's Sagebrush - *Artemisia porteri*

Porter's Sagebrush is appropriate for inclusion under criterion number 1b. It is endemic to the Wind River Basin and Powder River Basin in Fremont, Johnson, and Natrona counties, in Wyoming (Fertig 2000). This species occurs primarily in sparsely vegetated *Artemisia pedatifida, A. longifolia,* or *A. porteri* communities on clay flats, badlands slopes, depressions, or gullies at 49600-7000 feet. The major potential threats are oil/gas and mining development, invasive plants, such as cheatgrass, and vehicle disturbance (Fertig 2002). Specialized ecological refugia are threatened and Porter's Sagebrush is thereby designated as Sensitive in Wyoming.

Meadow Milkvetch - *Astragalus diversifolius*

Meadow Milkvetch is appropriate for inclusion under criterion number 1b. It occurs in east-central Idaho, northern Utah, the Spring Valley area in Nevada, and the Great Divide Basin in Sweetwater County, Wyoming. In 2007 *Astragalus diversifolius* was found in Wyoming at the Chain Lakes area of the Great Divide Basin, Sweetwater County. This species is halophyte and is restricted to low topographic positions within sagebrush valleys and closed-basin drainages in moist alkaline meadows at 6500-6620 ft. The major potential threats include: mineral and energy development and noxious weeds (Heidel 2008; Heidel 2009). Specialized ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming.

Dubois Milkvetch - *Astragalus gilviflorus* var. *purpureus*

Dubois Milkvetch is appropriate for inclusion under criterion number 1b. It endemic to the Dubois Badlands in the northwestern Wind River Basin and adjacent foothills of the northeastern Wind River and southern Absaroka ranges in Fremont County, Wyoming (Fertig 2000). Dubois

Milkvetch is found primarily in sparsely vegetated cushion plant/bunchgrass communities on sandy-clay soils with abundant surface gravel at 6400-8800 feet (Fertig 1998). Trends are unknown. Due to its small geographic range this taxon is vulnerable to large scale natural and human disturbances. The major potential threats are: soil erosion and compaction from off-road vehicles, oil/gas and mineral development, and urban expansion in the Dubois area (Fertig 1998; Ladyman 2004). Specialized ecological refugia area threatened and Dubois Milkvetch is thereby designated as Sensitive in Wyoming.

Hyattville Milkvetch - *Astragalus jejunus* var. *articulatus*

Hyattville Milkvetch is appropriate for inclusion under criterion number 1b. It is endemic to the eastern rim of the Bighorn Basin and western slopes of the Bighorn Range in Big Horn County, Wyoming (Fertig 2001). This species occurs in sparsely vegetated cushion plant/bunchgrass/low shrub communities. It is found on stony ridges and barren red clay slopes. Hyattville Milkvetch range is very narrow (5.5 miles x 2.5 miles). Populations may be subjected to annual or short-term fluctuations due to climatic conditions (Fertig and Welp 2001). The major potential threats are off-road vehicle disturbance (Fertig 1999), and competition with Utah Juniper in absence of fire (Fertig and Welp 2001). Specialized ecological refugia are threatened and Hyattville Milkvetch is thereby designated as Sensitive in Wyoming.

Precocious Milkvetch - *Astragalus proimanthus*

Precocious Milkvetch is appropriate for inclusion under criterion number 1b. It is restricted to an area of less than 320 acres near the town of McKinnon in the southern Green River Basin (Sweetwater County) in Wyoming (Fertig 2001). This species occurs typically in cushion plant/bunchgrass communities on dry, thin, rocky clay soils of benches and bluffs at the elevations of 6400- 7200 feet (1950-2195 m) (Fertig and Welp 2001). The major threats are: road construction, off-road vehicle trampling, oil/gas exploration and development, garbage dumps, grazing, and range improvement projects (Marriott 1989 in Fertig and Welp 2001). Due to its limited range, Precocious Milkvetch is vulnerable to extirpation. Recently, The U.S. Fish and Wildlife Service said *A. proimanthus* may warrant protection under the Endangered Species Act "due to the present or threatened destruction, modification, or curtailment of its habitat or range resulting from energy exploration and development" (74 FR 41649; 74 FR 46965). Specialized ecological refugia are threatened and Precocious Milkvetch is thereby designated as Sensitive in Wyoming.

Trelease's Milkvetch - *Astragalus racemosus* var. *treleasei*

Trelease's Milkvetch is appropriate for inclusion under criterion number 1b. It is a regional endemic of northeast Utah (Uinta Basin) and southwest Wyoming (Heidel and Fertig 2003). This taxon is known from the Green River Basin and eastern foothills of the Wyoming Range in

Sublette and Uinta counties. Trelease's Milkvetch occupies mainly badlands outwashes and slopes along major river valleys, on sparsely- vegetated habitat at 6500-7500 (8300) ft (Heidel 2003). Population trends are not available. The major potential threat is surface disturbance due to oil and gas development, road construction, and off-road vehicle use (Heidel and Fertig 2003). Specialized ecological refugia are threatened and Trelease's Milkvetch is thereby designated as Sensitive in Wyoming.

Small Rock Cress – *Boechera (Arabis) pusilla*

Small Rock Cress is appropriate for inclusion under criteria number 1a and 1b. It is state endemic restricted to the Southern Wind River Range (Fremont County), in Wyoming. This species occupies crevices and sparsely vegetated, coarse granite soil in granite-pegmatite outcrops surrounded by sagebrush grassland at 8000-8100 feet (Fertig 2000). *Boechera pusilla* has been declining. The major threats include: ORV use, trampling, and climate change. (Heidel 2005). Recently, The U.S. Fish and Wildlife Service said *Boechera pusilla* may warrant protection under the Endangered Species Act "due to the present or threatened destruction, modification, or curtailment of its habitat or range resulting from ORV use" (74 FR 41649; 74 FR 46965). Small Rock Cress has been undergoing a downward trend and its specialized ecological refugia are threatened, therefore this species is designated as Sensitive in Wyoming.

Slender Moonwort – *Botrychium lineare*

Slender moonwort is appropriate for inclusion under criterion number 2. It has a large range throughout western North America but very spotty distribution and extremely small populations (NatureServe 2009). In Wyoming this species is known from Crook County. The major potential threats rangewide include: herbicide application, nonnative plant species, road maintenance, recreational use, livestock trampling, livestock grazing effects, and small population size (FWS 2007). Slender moonwort was removed from the Federal candidate list, so as it lost its Federal status this species is designated as Sensitive in Wyoming.

Cedar Rim Thistle - *Cirsium aridum*

Cedar Rim Thistle is appropriate for inclusion under criterion number 1b. It is endemic to the Green River Basin in Sublette County, Beaver Rim area of Fremont County, Sweetwater River Valley in Carbon County, and highlands on the east side of Flaming Gorge in Sweetwater County. This species occurs mainly in sparsely vegetated openings within Wyoming sagebrush grasslands at 5800-7500 feet. The major potential threats are: herbicide spraying or release of biocontrol insects intended to control populations of Canada thistle or musk thistle; soil erosion; displacement of plants by off-road vehicles (Fertig 2000). Specialized ecological refugia are threatened and Cedar Rim Thistle is thereby designated as Sensitive in Wyoming.

Ownbey's Thistle - *Cirsium ownbeyi*

Ownbey's Thistle is appropriate for inclusion under criterion number 1b. It is a regional endemic of northeast Utah, southwest Wyoming and northwest Colorado. In Wyoming this species is restricted to Green River Basin on the east side of Flaming Gorge Reservoir in Sweetwater County. Ownbey's Thistle occurs mainly on semi-barrens rims or steep slopes of broken gray slate below shaley cliffs at 6440-8200 feet (Fertig 2000). Due to its small geographic range and high habitat specificity this species is potentially vulnerable to extirpation. The major potential threats are herbicide spraying, biocontrol insects or disturbance by recreational vehicles (Fertig 1999). Specialized ecological refugia are threatened and Ownbey's Thistle is thereby designated as Sensitive in Wyoming.

Many-stemmed Spider-flower - *Cleome multicaulis*

Many-stemmed Spider-flower is appropriate for inclusion under criterion number 1b. It occurs sporadically from central Wyoming to the vicinity of Mexico City (Fertig 2000b). In Wyoming, this species is known from a single large population in the Sweetwater River Valley in Natrona County. Many-stemmed Spider-flower is found mostly on alkaline soils at the margins of spring-fed playa lakes or dried lakebeds at about 5860 feet elevation. From 1992 to 1999 the population was stable or increasing. Threats are low due to the protected status of its habitat (Pathfinder National Wildlife Refuge) (Fertig 2000a). Specialized ecological refugia are threatened and Many-stemmed Spider-flower is thereby designated as Sensitive in Wyoming.

Owl Creek Miner's Candle - *Cryptantha subcapitata*

Owl Creek Miner's Candle is appropriate for inclusion under criterion number 1b. It is restricted to the Owl Creek and Bridger Mountains in the vicinity of Boysen Reservoir and the northern Wind River Basin in Fremont County, Wyoming. It occurs on sandy-gravelly slopes and desert ridges in sparsely vegetated cushion plant communities at 4700-6000 feet elevation (Fertig 1993). Threats are generally low due to the rugged and inaccessible nature of the plant's habitat. Its small natural range makes the species vulnerable to extirpation from chance natural events and development activities on its habitat (Fertig 2000; Fertig 1993). Specialized ecological refugia are threatened and Owl Creek Miner's Candle is thereby designated as Sensitive in Wyoming.

Evert's Wafer-Parsnip - *Cymopterus evertii*

Evert's Wafer-Parsnip is appropriate for inclusion under criterion number 1b. It is endemic to northwestern Wyoming and northeastern Utah. In Wyoming, this species is restricted to the Absaroka Range and Bighorn Basin in Hot Springs and Park counties (Fertig 2000). Subalpine and montane populations occur in sparsely vegetated openings within forests of Engelmann spruce (*Picea engelmannii*), Douglas-fir (*Pseudotsuga menziesii*), and limber pine (*Pinus*

flexilis). Lower elevation populations are found in openings within big sagebrush (*Artemisia tridentata*)-Idaho fescue (*Festuca idahoensis*) grasslands or limber pine-Rocky Mountain juniper (*Juniperus scopulorum*) woodlands. Population trends are not available (Moore and Friedley 2004). Although occurrences are isolated and difficult to access, the restricted geographical range makes this species vulnerable to both human and natural disturbances (Fertig et al. 1999). The major potential threats are fire, extreme weather conditions, global warming, air pollution, oil/gas and mineral development, indirect effects of grazing (soil compaction and soil erosion), herbicide application, and recreation (Fertig et al. 1999; Moore and Friedley 2004). Specialized ecological refugia are threatened and Evert's Wafer-Parsnip is thereby designated as Sensitive in Wyoming.

Williams' Wafer-Parsnip - *Cymopterus williamsii*

Williams' Wafer-Parsnip is appropriate for inclusion under criterion number 1b. It is a state endemic restricted to the Bighorn Mountains of north-central Wyoming in Bighorn, Johnson, Natrona, and Washakie Counties. This species occurs primarily on open, ridgetops and upper slopes with exposed limestone outcrops or talus at 6000-8300 feet. Threats are low. Limestone quarrying and other large scale habitat disturbances are the only potential threats (Fertig 2000). Specialized ecological refugia are threatened and Williams' Wafer-Parsnip is thereby designated as Sensitive in Wyoming.

Wyoming Tansymustard - *Descurainia torulosa*

Wyoming Tansymustard is appropriate for inclusion under criterion number 1b. It is endemic to the southern Absaroka Range in Fremont, Park, and Teton counties, and the Rock Springs Uplift in Sweetwater County, Wyoming. This species is found at the base of steep cliffs at 7700-10500 ft (Fertig 2000). Population trends are not available. Low population size and limited habitat makes *Descurainia torulosa* vulnerable to extinction. Climate can exacerbate this vulnerability. Anthropogenic threats are low. Wyoming Tansymustard habitat can be potentially threatened on BLM-administered lands by oil and gas development and recreational activities (Heidel 2004). Specialized ecological refugia are threatened and Wyoming Tansymustard is thereby designated as Sensitive in Wyoming.

Dune Wildrye - *Elymus simplex* var. *luxurians*

Dune Wildrye is appropriate for inclusion under criterion number 1b. This taxon is only known from Sweetwater County, Wyoming, in the upper Green River Basin. There are five occurrences, all on BLM lands (WYNDD 2009). It inhabits drifting sand dunes at 7130 feet. Potential threats: recreational activities in sand dunes habitats (Heidel et al. 2002). Specialized ecological refugia are threatened and Dune Wildrye is thereby designated as Sensitive in Wyoming.

Winward's narrow leaf goldenweed - *Ericameria discoidea* var. *winwardii*

Winward's narrow leaf goldenweed is appropriate for inclusion under criterion number 1b. This variety of *Ericameria discoidea* has been recognized as a species by Roberts et al. (2005). It is known from Bear Lake Co. Idaho and southern Lincoln Co. Wyoming (two and one occurrences respectively). This taxon inhabits barren clay shale slopes and silty clay out-washes from outcrops at 2070-2135 m in elevation. (Dorn and Delmatier 2005). Potential threats: off-road vehicles and trampling by livestock (NatureServe 2009). Specialized ecological refugia are threatened and Winward's narrow leaf goldenweed is thereby designated as Sensitive.

Entire-Leaved Peppergrass - *Lepidium integrifolium* var. *integrifolium*

Entire-Leaved Peppergrass is appropriate for inclusion under criterion number 1b. It is endemic to northeastern Utah and southwestern Wyoming (Fertig 2000). In Wyoming, it is known only from the southern Overthrust Belt in the Bear River watershed (Lincoln and Uinta counties). Wyoming populations occur in sparsely vegetated, seasonally saturated flats of silts and silt loams at 4954-6266 feet. The habitat of Entire-Leaved Peppergrass has been affected by channelization, ditching, impoundments, plowing to establish cultivated hay, dam construction, road construction, and railroad construction. The major potential threats are: loss of riparian habitat; habitat degradation due to water and road development; road maintenance; herbicide treatment; weed invasion (Heidel 2004). Specialized ecological refugia are threatened and Entire-Leaved Peppergrass is thereby designated as Sensitive in Wyoming.

Sidesaddle Bladderpod - *Lesquerella arenosa* var. *argillosa*

Sidesaddle Bladderpod is appropriate for inclusion under criterion number 1b. It is a regional endemic of eastern Wyoming, southwestern South Dakota, northwestern Nebraska, and northern Colorado (Beatty et al. 2003). In Wyoming this taxon is known from Niobrara County (Fertig 1999). *Lesquerella arenosa* var. *argillosa* occurs on calcareous soils and in dry open areas within grasslands or badlands. It has been associated with soils derived from a certain stratum of the Niobrara formation. Population trend data are not available. The major potential threats are: motorized recreation, road construction and maintenance invasion of non-native plants, trampling by livestock and recreational activities, changes to the natural disturbance regime (e.g., succession, fire, erosion), environmental fluctuations (e.g., global climate change, drought), genetic isolation, and inadequate pollination (Beatty et al. 2003). Specialized ecological refugia are threatened and Sidesaddle Bladderpod is thereby designated as Sensitive in Wyoming.

Fremont Bladderpod - *Lesquerella fremontii*

Fremont Bladderpod is appropriate for inclusion under criterion number 1b. It is endemic of the east side of the Wind River Range and Sweetwater Plateau in Fremont County, Wyoming (Fertig 2000). This species occupies sparsely-vegetated slopes and ridges in cushion plant and

bunchgrasses communities with scattered Limber Pine (*Pinus flexilis*) (Fertig 1995; Heidel and Handley 2004). Short trend is not available. Fremont Bladderpod has a narrow distribution and specialized habitat requirements. The major potential threats are: road and trail development, enhancement and maintenance; quarrying; off-road vehicle recreation; oil and gas exploration and development (Heidel and Handley 2004). Specialized ecological refugia are threatened and Fremont Bladderpod is thereby designated as Sensitive in Wyoming.

Large-fruited Bladderpod - *Lesquerella macrocarpa*

Large-fruited Bladderpod is appropriate for inclusion under criterion number 1b. It is a Wyoming endemic known from the western rim of the Great Divide Basin (Fremont and Sweetwater Cos.) and the Green River Basin, near Opal (Lincoln Co.) and Ross Butte (Sublette Co.) (Fertig 2000).This species typically occupies upland slopes, within sparsely-vegetated habitat of Gardner saltbush squirreltail (*Atriplex gardneri – Elymus elymoides*) communities, or the unvegetated margins of them (Fertig 1995). It is found on barren, fine-textured soils at 6740-7760 ft (Heidel 2009). Due to its small geographic range and climate-related fluctuations, *Lesquerella macrocarpa* is particularly vulnerable to human-induced disturbances during dry years (Fertig 1995). The major potential threats include: roads and recreational activities; wild horses; grazing; mineral and energy development; noxious weeds; drought (Heidel 2009). Specialized ecological refugia are threatened and Large-fruited Bladderpod is thereby designated as Sensitive in Wyoming.

Prostrate Bladderpod - *Lesquerella prostrata*

Prostrate Bladderpod is appropriate for inclusion under criterion number 1b. It is endemic to northeastern Utah, southeastern Idaho and southwestern Wyoming (Fertig 2000). In Wyoming this species is found in the southern Overthrust Belt (Lincoln and Uinta counties). Prostrate Bladderpod occurs in sparsely-vegetated slopes of bunch grasses and cushion plant communities at 6630- 7700 ft. The major potential threats are: oil and gas development, quarrying, and plant competitors such as cheatgrass, sweetclover and alfalfa (Fertig, updated by Heidel 2005; Heidel 2005). Specialized ecological refugia are threatened and Prostrate Bladderpod is thereby designated as Sensitive in Wyoming.

Absaroka Beardtongue - *Penstemon absarokensis*

Absaroka Beardtongue is appropriate for inclusion under criterion number 1b. It is a state endemic and is known only from the Absaroka Range of northwest Wyoming (Park County). An isolated population in Fremont County may be a different, undescribed taxon. *P. absarokensis* occurs on sparsely vegetated steep slopes, rocky ridges, and creek bottoms in montane and subalpine zones at 5920-10000 feet (Mills and Fertig 2000). This species is a habitat specialist because appears to be restricted to andesitic substrates found only along the Absaroka Range.

One occurrence is on BLM lands. *Penstemon absarokensis* is vulnerable because of its limited geographic range, strict habitat requirements, small number of documented occurrences, small area occupied by populations, low abundance, and poor competitive abilities. Threats are low in most populations because of its rugged, largely inaccessible habitat (Beatty et al. 2003). Lower-elevation populations and populations near roads and trails may be at higher risk (Mills and Fertig 2000). The major potential threats are global environmental changes, motorized and non motorized recreation, trail and road construction and maintenance, domestic livestock activities, invasion of non-native species, and erosion (Beatty et al. 2003). Specialized ecological refugia are threatened and Absaroka Beardtongue is thereby designated as Sensitive in Wyoming.

Stemless Beardtongue - *Penstemon acaulis* var. *acaulis*

Stemless Beardtongue is appropriate for inclusion under criterion number 1b. It is endemic to the southern Green River Basin and northern foothills of the Uinta Range in Sweetwater County, Wyoming, and adjacent Daggett County, Utah. This species is restricted to cushion plant/bunchgrass communities within openings in *Artemisia nova* or *A. tridentata* var. *wyomingensis* grasslands on low slopes, outwash fans, ridgetops, and flats at 6080-8020 feet. The major potential threats are: trampling associated with off-road vehicle recreation and livestock trailing; high recreation use near Flaming Gorge Reservoir; expansion of existing roads; completion from exotic weeds; overharvest for commercial use (Fertig and Welp 2001). Specialized ecological refugia are threatened and Stemless Beardtongue is thereby designated as Sensitive in Wyoming.

Gibbens' Beardtongue - *Penstemon gibbensii*

Gibben's Beardtongue is appropriate for inclusion under criteria number 1a and 1b. It is endemic to the Washakie Basin and the Upper North Platte River valley in Wyoming, and the Brown's Park area near the Colorado-Utah border. This species occurs on steep, bare slopes with poor soil development at 6200-7700 feet. Gibben's Beardtongue is restricted to sparsely vegetated grasslands with scattered shrubs where competition with other plant species is minimal. Some populations of *Penstemon gibbensii* have undergone a downward trend. Gibben's Beardtongue is vulnerable to habitat degradation and loss because of its restricted and specialized habitat. All populations in Wyoming and elsewhere are found on tuffaceous deposits derived from the Miocene Brown's Park Formation. The major potential threats are: grazing by livestock and large native ungulates; oil/gas exploration and development; quarrying; trampling by off-road vehicles; road development; weeds (Heidel 2009). Recently, The U.S. Fish and Wildlife Service said *P. gibbensii* may warrant protection under the Endangered Species Act "due to the present or threatened destruction, modification, or curtailment of its habitat or range resulting from energy exploration and development, livestock grazing, and ORV use" (74 FR 41649; 74 FR 46965). Gibben's Beardtongue is undergoing a downward trend and its specialized ecological refugia are threatened, therefore it is designated as Sensitive in Wyoming.

Beaver Rim Phlox - *Phlox pungens*

Beaver Rim Phlox is appropriate for inclusion under criterion number 1b. It is a Wyoming endemic restricted to the Wind River and Green River basins including the East Slope foothills of the Wind River Range and the Beaver Rim (Fremont, Lincoln, and Sublette counties). This species is found on sparsely-vegetated cushion plant/bunchgrass communities and openings in Artemisia nova/A. tridentata grasslands at 5600-8550 ft. (Fertig 2000). Beaver Rim Phlox often occurs in microhabitats between cushion plants, bunchgrasses and shrubs where it can avoid interspecific competition. Population trend is expected to be stable. The major potential threats are: habitat degradation due to mineral and energy development, highway and road construction, pipeline construction, and power lines (Heidel 2009). Specialized ecological refugia are threatened and Beaver Rim Phlox is thereby designated as Sensitive in Wyoming.

Tufted Twinpod - *Physaria condensata*

Tufted Twinpod is appropriate for inclusion under criterion number 1b. It is endemic to the Overthrust Belt in southern Lincoln, southwestern Sublette, and northern Uinta counties, Wyoming. This species occurs primarily in sparsely vegetated cushion plant-bunchgrass communities at 6000-7760 feet. Population trend is not available (Fertig 2002). The major potential threats are trampling or soil compaction associated with off- highway vehicle recreation, oil and gas activities, quarrying, and grazing (Fertig et al. 1998). Specialized ecological refugia are threatened and Tufted Twinpod is thereby designated as Sensitive in Wyoming.

Dorn's Twinpod - *Physaria dornii*

Dorn’s Twinpod is appropriate for inclusion under criterion number 1b. It is endemic to the Overthrust Belt Mountains of Lincoln County and Uinta County, Wyoming. In the Rock Creek Ridge area Dorn’s Twinpod is found mainly in openings within sparsely vegetated communities of *Cercocarpus montanus*, *Achnatherum hymenoides*, and *Poa secunda* at 6500-7600 feet. Populations of *Physaria dornii* from Uinta County are found in cushion plant communities (Fertig 2001). The major potential threats are: off-road vehicle use; oil and gas development; trampling by livestock grazing; noxious weeds; fire suppression (Fertig 1998). Specialized ecological refugia are threatened and Dorn’s Twinpod is thereby designated as Sensitive in Wyoming.

Rocky Mountain Twinpod - *Physaria saximontana* var. *saximontana*

Rocky Mountain Twinpod is appropriate for inclusion under criterion number 1b. It is endemic to Wyoming's southern Bighorn and Wind River Basins, and foothills of the Wind River and Absaroka Ranges (Fremont, Hot Springs, and Park counties). This taxon is also found in Carbon County. Rocky Mountain Twinpod occurs in sparsely vegetated slopes on sandy, gravelly soils at

5200-8850 feet (Mills and Fertig 2000). Habitat appears to be discontinuous within the narrow geographical range and this makes Rocky Mountain Twinpod vulnerable to extinction. No population trend data are available. The major potential threats are environmental stochasticity, climate change, oil and gas development, off-road vehicle activity and non-motorized recreation; indirect effects of grazing (negative impacts on pollinators, trampling) (Glisson 2004). Specialized ecological refugia are threatened and Rocky Mountain Twinpod is thereby designated as Sensitive in Wyoming.

Whitebark Pine – *Pinus albicaulis*

Whitebark Pine is appropriate for inclusion under criterion number 1a and 1b. In Wyoming, it is found in the western part of the state and on Ferris Mtn. This species occurs within montane forests and on thin, rocky, cold soils at or near timberline at 1300 - 3700 m. *P. albicaulis* is severely declining or declining (10% to > 70%) throughout most of its range. The major threats are introduced white pine blister rust, increases in mountain pine beetle, fire suppression, climate change, and their synergistic effects. Whitebark Pine has been undergoing and is predicted to undergo a downward trend (NatureServe 2009): based on recent trends, it may soon be eliminated in as much as 90% of its historic range. Genetic variation within stands occurring on BLM lands is viewed as important to conservation geneticists in developing seed sources resistant to blister rust. Also specialized ecological refugia are threatened and this species is thereby designated as Sensitive in Wyoming. Distribution on BLM lands is localized to approximately 100 acres in Pinedale and approximately 200 acres in the Kemmerer FO areas.

Limber Pine – *Pinus flexilis*

Limber Pine is appropriate for inclusion under criterion number 1a. In Wyoming it is distributed in all the mountains near the timberline and at low elevation. Associated species in Wyoming include Rocky Mountain lodgepole pine, Engelmann spruce, whitebark pine, Rocky Mountain Douglas-fir, subalpine fir, Rocky Mountain juniper, Mountain Mahogany, and common juniper. This species has been declining. The major threats are white pine blister rust, dwarf mistletoe species, increases in mountain pine beetle, fire suppression, climate change, and their synergistic effects (NatureServe 2009). Limber Pine has been undergoing a downward trend and it is estimated that approximately 50% of stands currently are dead or dying in Wyoming.

Persistent Sepal Yellowcress - *Rorippa calycina*

Persistent Sepal Yellowcress is appropriate for inclusion under criterion number 1b. In Wyoming it is known from the North Platte River drainage, and Bighorn, Great Divide, Green River, and Wind River basins in Albany, Big Horn, Carbon, Fremont, Park, Sweetwater, and Washakie counties (Fertig and Welp 1998). This species occurs mainly along moist sandy to muddy banks of streams, stock ponds, and man-made reservoirs near the high-water line at 3660-6800 feet

(Fertig, updated by Handley and Heidel 2008). Populations appear to exhibit annual fluctuations in response to flooding levels (Fertig and Welp 1998). The major threat comes from changes in water management. Other threats are competition from exotic plants, herbicide treatments, trampling by livestock, recreational activities, and coal mining (Fertig, updated by Handley and Heidel 2008). Specialized ecological refugia are threatened and Persistent Sepal Yellowcress is thereby designated as Sensitive in Wyoming.

Shoshonea - *Shoshonea pulvinata*

Shoshonea is appropriate for inclusion under criterion number 1b. It is a regional endemic of northwest Wyoming and south-central Montana. In Wyoming this species is found in the eastern Absaroka Mountains and in the Owl Creek Mountains (Fremont, Hot Springs, and Park counties). *Shoshonea pulvinata* occupies open, exposed, sparsely vegetated sites at elevations between 5,800 and 9,200 feet (Lyman 2005; Fertig and Mills 2000). The major potential threats are: fire or extreme drought; trampling from recreationists; off-road vehicle use; oil and gas development; invasion by exotic plants; and global climate change (Lyman 2005). Specialized ecological refugia are threatened and Shoshonea is thereby designated as Sensitive in Wyoming.

Laramie False Sagebrush - *Sphaeromeria simplex*

Laramie False Sagebrush is appropriate for inclusion under criterion number 1b. It is endemic to the western foothills of the Laramie Range, Shirley Basin, and Shirley Mountains in southeastern Wyoming. This species occurs primarily in cushion plant communities on rocky limestone ridges and gentle slopes (Fertig 1993). The major potential threats are: compaction from vehicles, habitat loss due to new road and trail development, competition from exotic plants, and quarrying (Fertig 2000). Specialized ecological refugia are threatened and Laramie False Sagebrush is thereby designated as Sensitive in Wyoming.

Green River Greenthread - *Thelesperma caespitosum*

Green River Greenthread is appropriate for inclusion under criterion number 1b. It is endemic to southwestern Sweetwater County, Wyoming and southern Duchesne County, Utah (Fertig 1995). In Wyoming, this species is restricted to two small populations that occur in less than 25 acres of habitat. *T. caespitosum* is found in sparsely vegetated cushion plant communities with vegetative cover of 2-15%. The major threat is off-road vehicle recreation. Other potential threats are energy development and the expansion of the city of Green River (Fertig 1999). Specialized ecological refugia are threatened and Green River Greenthread is thereby designated as Sensitive in Wyoming.

Uinta Greenthread - *Thelesperma pubescens*

Uinta Greenthread is appropriate for inclusion under criterion number 1b. It is endemic to Utah and southwest Wyoming. In Wyoming, this species occurs where southwestern Sweetwater and southeastern Uinta counties come together (Heidel 2004). *Thelesperma pubescens* is found on mesa-like mountains in sparsely vegetated cushion plant communities and sagebrush grasslands at 8040-8960 ft (Fertig 2001).Trends between 1988 and 2003 are stable or declining slightly. The major threats are: road development and maintenance; surface disturbances due to oil and gas exploration and development and weed invasion (especially cheatgrass) (Heidel 2004). Specialized ecological refugia are threatened and Uinta Greenthread is thereby designated as Sensitive in Wyoming.

Cedar Mtn. Easter Daisy - *Townsendia microcephala*

Cedar Mtn. Easter Daisy is appropriate for inclusion under criterion number 1b. It is endemic to southwestern Wyoming and known only from the northern foothills of the Uinta Range (Sweetwater and Uinta counties). This species occurs on exposed, west-facing upper slopes and ridges at 8200- 8500 feet (Markow and Fertig 2001). The total population was estimated at 2280-4550 plants (Fertig 1995 in Markow and Fertig 2001). The major potential threats are: road development and maintenance; surface disturbances due to oil and gas exploration and development and weed invasion (especially cheatgrass) (Heidel 2004). Specialized ecological refugia are threatened and Cedar Mtn. Easter Daisy is thereby designated as Sensitive in Wyoming.

Barneby's Clover - *Trifolium barnebyi*

Barneby’s Clover is appropriate for inclusion under criterion number 1b. It is endemic to the southeastern foothills of the Wind River Range and southern Beaver Rim area in Fremont County, Wyoming. The total range of *T. barnebyi* is very restricted. This species is found in ledges, crevices, and seams at 5500-6780 feet. *T. barnebyi* might decrease due to drought and be indirectly threatened by noxious weed treatment in adjoining areas and by cheatgrass (Fertig updated by Heidel 2009). Specialized ecological refugia are threatened and Barneby’s Clover is thereby designated as Sensitive in Wyoming.

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