US Army Corps of Engineers ®
Walla Walla District
BUILDING STRONG®

AQUATIC INVASIVE SPECIES WATERCRAFT INSPECTION STATIONS

Arizona, Colorado, New Mexico, Utah, and Wyoming

Federal Natural Resources Law Compliance
and
Biological Evaluation

ADMINISTRATIVE RECORD – DO NOT DESTROY

FILE NUMBER: PM-LE-2020-XXXX

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1. Background

The U.S. Army Corps of Engineers (Corps) has received authority through Section 1039(d) of the Water Resources and Reform Development Act of 2014 (Public Law 113-121) to stop the spread of certain aquatic invasive species (AIS) into the Upper Colorado River Basin (UCB). The Corps will help support each of the states' existing AIS control programs, including the establishment of watercraft inspection stations.

The main AIS of concern at this time are zebra mussels (*Dreissena polymorpha*) and quagga mussels (*Dreissena rostriformis bugensis)*, from the family Dreissenidae. These dreissenid mussel species were believed to be accidentally introduced into the U.S. in the 1980s from foreign shipping vessels discharging their ballast water. Since their introduction, they have spread throughout the Great Lakes and major river systems in the U.S. and Canada (Figure 1). The UCB is one of the last large watersheds that has not been colonized by these exotic dreissenids and should be protected against any potential infestation. These mussels are notorious for their biofouling capabilities by colonizing water supply pipes of hydroelectric and nuclear power plants, public water supply plants, and industrial facilities. They colonize pipes constricting flow, therefore reducing the intake in heat exchangers, condensers, firefighting equipment, and air conditioning and cooling systems. These small mussels can colonize a waterbody in such large numbers that they change its water quality characteristics and clarity. This can lead to severely detrimental ecological changes to the waterbody in just a few years.

The 2007 discovery of adult quagga mussels at Lake Mead, Nevada led many resource management agencies in the western U.S. to initiate watercraft inspection and decontamination programs (Elwell and Phillips 2016). Now not only have watercraft inspection station programs expanded, but UCB states, Federal, provincial, Tribal, local, and non-governmental organizations are engaged in a vast network of regionally coordinated efforts in the defense against dreissenids in the UCB. Regional defense is defined as "using resources in a cost-effective, inter-jurisdictional, coordinated, and collaborative response to prevent mussels from entering uninfested areas, and to contain aquatic invasive species at their source" (PNWER and PSMFC 2015). The UCB states coordinate efforts and make decisions as part of this regional strategy, while operating within the scope of their specific budgets and statutory authority.

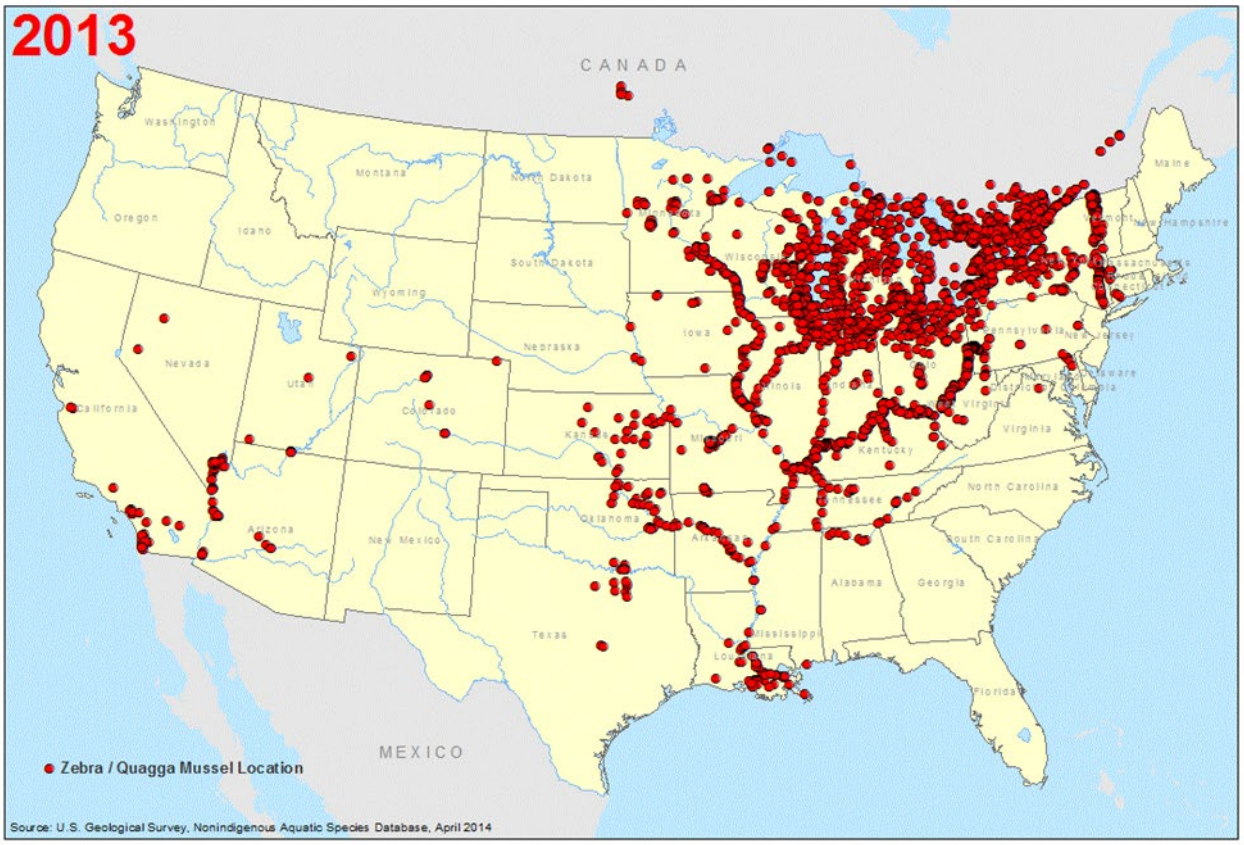

Figure 1. Location of Dreissenid Populations in 2013

The dreissenid detection rate of the watercraft inspection stations within the UCB varies, but is very low. However, it may only take one infected boat to trigger an expansion of the economic and ecological disaster. In 2014, there were an estimated 759,772 boats inspected in the western states, with 187 found to be fouled (PNWER and PSMFC 2015); for an infection rate of 0.025 percent. This rate could be inaccurate due to the fact that stations are not manned 100 percent of the time and not all routes are monitored. There are also a low number of boat haulers who fail to stop at a check station. Thus, risk of infestation could be higher than detections indicate.

In 2012-2013 the Washington State Patrol inspected 54 watercraft that were being hauled commercially. Thirteen of them (24%) were contaminated with zebra or quagga mussels (WDFW 2015). During the same time period 26 watercraft were inspected after voluntary requests from the public and six (23%) were contaminated with zebra/quagga mussels (WDFW 2015).

It is highly probable that some infected boats do not get inspected prior to being launched in now-uninfected waters in the UCB. It is possible some infected boats will someday be missed. Larval dreissenids are very difficult to detect and can survive anywhere there is water within a boat (e.g., live well, bait box, bilge, undrained engine cooling lines, etc.).

2. Project Purpose and Need

The underlying purpose of this action is to prevent the spread of exotic dreissenids into the UCB. The proposed action is to implement a coordinated regional effort to enhance inspection, decontamination and related efforts, aiding in preventing potentially infested watercraft and associated equipment from entering waters within the UCB.

Dreissenids can be transferred between unconnected waterways by trailered boats. Once a waterway is infected, these mussels can reproduce rapidly and spread downstream. The risk of infecting rivers and reservoirs in the UCB is high, and it is estimated that a dreissenid infestation in the UCB could incur hundreds of millions of dollars in costs.

3. Project Description

The UCB states follow similar protocols and standards for watercraft inspections based on *Uniform Minimum Standards and Protocols for Watercraft Inspection and Decontamination Programs for Dreissenid Mussels in the Western United States* (Elwell and Phillips 2016). Watercraft inspection stations are one means to prevent dreissenids and other AIS from spreading. Watercraft inspection stations are strategically located based on several factors: key entry points into states (also referred to as “high-risk gateways” by PNWER and PSMFC [2015]); routes from infected water bodies (e.g., Lake Mead, Lake Powell, and Lake Havasu) to local water bodies; safety of personnel and public; ease of public access; infrastructure availability for setting up facilities (electricity, water, restrooms, etc.); and available space for decontamination, where applicable (Figure 2).

Because key entry points into states and routes between water bodies are a major component of keeping AIS out of the UCB, the majority of watercraft inspection stations are located along the perimeter of each state, rather than in the central regions of the states. Data collected over several years has indicated that much of the boat traffic in central regions is local, and therefore does not pose as great a threat of AIS contamination. Most stations are established at a determined location for the length of the season, and some states such as Washington and Montana, also have roving stations assigned to move around certain geographical areas. All watercraft are required to stop at an open inspection station, though a small number do not.

A typical station consists of a shelter/covering, such as a shipping container, a construction trailer, canopy, or tent; a transport vehicle; signage; a pressure washer; outreach materials; and applicable personnel amenities (heaters for cold weather, portable restrooms, etc.). A watercraft inspection typically includes an interview to collect information pertaining to origination, boat usage, cleaning habits, knowledge of AIS, etc.; distribution of information about AIS; and a boat inspection, which could result

in decontamination of the vessel with hot water. Regulations for contaminated or "fouled" boats varies among states. The use of hot water (140°F, 60°C) and drying are highly effective tools to kill dreissenid mussels (Elwell and Phillips 2016).

Based on the screening interview, a watercraft inspector will either inspect the boat, let the boat pass through, perform a hot wash, or perform a full decontamination. Clean water will be hauled to each inspection site in a truck-mounted or trailer-mounted tank. Scientific research on dreissenid mortality indicates that 120°F (49°C) (internal) and 140°F (60°C) (engines/external) is necessary to achieve an effective decontamination (Elwell and Phillips 2016). This temperature is also used for hot washes. Hot water is applied with a high-pressure washer to kill and remove mussels and other AIS. A hot wash is typically performed when a vessel is grimy or contains dead mussels or weeds. It entails spraying hot water all over the surface of the vessel and into the engine to kill anything not seen and takes approximately 20 minutes to complete. A decontamination is performed when live mussels are present. Decontaminations involve the same equipment, but are more detailed, taking hours instead of minutes. Some states perform decontaminations onsite at the inspection station, and other states send the boat to another location, such as shipyard or impound lot.

The temporary establishment of watercraft inspection stations allows them to be easily moved and placed in the most effective locations each year. Each year, the states make a determination on whether a station should be added, relocated, or closed, or if hours of operation should be adjusted. The effectiveness of a station is determined by the criteria in the preceding paragraph, as well as the degree of boat traffic and percentage of fouled vessels. A station's proximity to other stations is another factor that influences its effectiveness because of the importance of maintaining a degree of redundancy in the event boats pass a station without stopping. As stated in the report by PNWER and PSMFC (2015), "It is important to understand that no one station is the key to prevention efforts. There are examples of fouled conveyances passing through stations, or avoiding stations on certain roadways. As a result, a network of perimeter and interior stations, including permanent and roving stations, is integral to preventing a dreissenid introduction."

Watercraft inspection stations are typically set up in existing paved or gravel areas. Any runoff from cleaning a vessel will either percolate directly into the ground, evaporate, or go into a retention basin where it will percolate into the ground. No new ground disturbance will occur to establish watercraft inspection stations (without first performing an ESA-listed plant evaluation or survey). Also there will be no possibility of water or debris from a hot wash or other decontamination from entering any waterbody. There are instances where a wash/decontamination will be performed at a watercraft owner's residence. In such instances, trained staff will evaluate the location, including where any runoff could go. If there is any chance of discharging to an uninfected waterbody, the watercraft will be hauled to an area where no water or debris from the wash/decontamination will be discharged to a waterbody. Wash water will also not be

allowed to flow over land with any type of vegetation (without first performing an ESA-listed plant evaluation or survey).

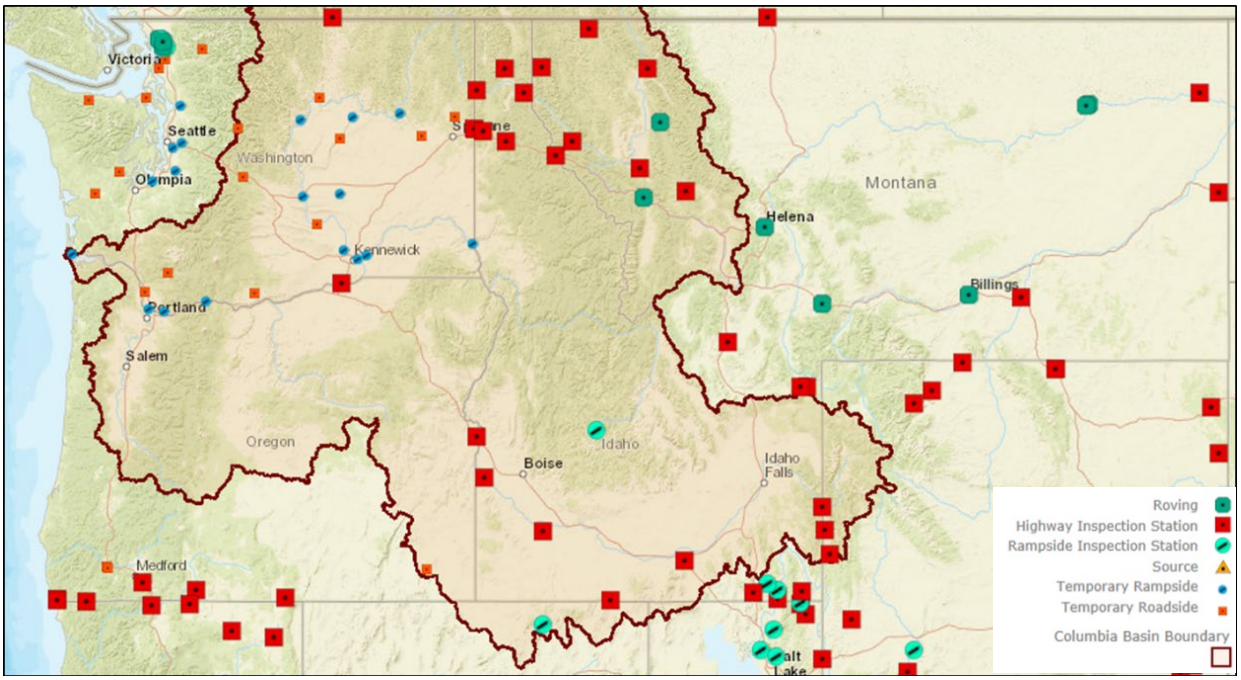

Figure 2. 2016 Proposed and Current Watercraft Inspection Stations by Type

Source: USGS, PSMFC GIS Center | ESRI, HERE, DeLorme, FAO, NOAA, USGS, EPA, NPS. Note: The three types of stations correspond to the figure as follows:

- Permanent = Highway and Rampside Inspection Stations;
- Temporary = Temporary Highway and Rampside Inspection Stations; and
- Roving = Roving. For clarification, permanent stations are only permanent in the sense that they are in the same location for the entire season.

4. Work Schedule

All watercraft inspection stations in the five study-area states are temporarily established each year during the recreation season, which typically ranges from sometime in early or late spring to late summer or early fall, depending on the state and specific station. Hours of operation also vary by state and specific station. Operations for most stations begin between 7 a.m. and 10 a.m. and end between 5 p.m. and 7 p.m. (PNWER and PSMFC 2015). Stations are typically operated by two personnel for each shift, with additional personnel for high traffic days, such as on holiday weekends.

In 2015, WDFW implemented several nighttime inspections from 10 p.m. to 6 a.m., through a grant from PSMFC and Bonneville Power Administration. Nighttime checks were conducted in August on six occasions at six locations. During this pilot program 182 boats were inspected. No dreissenids were found during these inspections, though two boats originated from waters infested with dreissenids. A majority of the boats (~70%) were stopped between 3 and 6 a.m. (WDFW and PSMFC 2005). This pilot program proved there can be a significant amount of nighttime watercraft transport.

5. Federal Natural Resource Laws

5.1. Endangered Species Act

Biological information for this evaluation was obtained from Federal Register (FR) notices and various internet sites; mainly https://www.fws.gov/endangered/. Some citations in this evaluation were taken directly from the FR notices where complete references were unable to be retrieved in a timely manner. The information presented here is from the best science available at the time of listing, or more recent information. Table 1 summarizes the U.S. Fish and Wildlife Service (USFWS) Endangered Species Act (ESA)-listed species and the status of their critical habitat. Table 2 lists the National Marine Fisheries Service (NMFS) ESA-listed species.

Only effects from the establishment of watercraft inspection stations are addressed in this evaluation. Effects to an individual species are discussed with the information for each species (e.g. 5.1.14 golden paintbrush). A summary of effects to similar groupings of species (e.g. amphibians, mammals, etc.) are discussed in Section 5.2. Should dreissenids ever become established within the Upper Colorado River Basin, there would likely be significant effects to fish and other aquatic organisms. These potential effects would be complex and far-reaching. They are not addressed in this evaluation.

Table 1. USFWS Threatened and Endangered Species List for Arizona (02EAAZ00-2020-SLI-0937), Colorado (06E24000-2020-SLI-1315), Western Colorado (06E24100-2020-SLI-0293), New Mexico (02ENNM00-2020-SLI-1089), Utah (06E23000-2020-SLI-0648), and Wyoming (06E13000-2020-SLI-0271).

Section	Common Name	Scientific Name	Status	Critical Habitat?
5.1.1	Black-footed Ferret	*Mustela nigripes*	non-essential	no
5.1.2	Canada Lynx	*Lynx canadensis*	threatened	yes
5.1.3	Gray Wolf	*Canis lupus*	non-essential	no
5.1.4	Grizzly Bear	*Ursus arctos horribilis*	threatened	yes
5.1.5	New Mexico Meadow Jumping Mouse	*Zapus hudsonius luteus*	endangered	yes
5.1.6	North American Wolverine	*Gulo gulo luscus*	threatened	no
5.1.7	Utah Prairie Dog	*Cynomys parvidens*	threatened	no
5.1.8	California Condor	*Gymnogyps californianus*	endangered	yes
5.1.9	Gunnison Sage-grouse	*Centrocercus minimus*	threatened	yes
5.1.10	Least Tern	*Sterna antillarum*	endangered	no
5.1.11	Mexican Spotted Owl	*Strix occidentalis lucida*	threatened	yes
5.1.12	Piping Plover	*Charadrius melodus*	threatened	yes
5.1.13	Southwestern Willow Flycatcher	*Empidonax traillii extimus*	endangered	yes
5.1.14	Whooping Crane	*Grus americana*	endangered	yes
5.1.15	Yellow-billed Cuckoo	*Coccyzus americanus*	threatened	proposed
5.1.16	Northern Mexican Gartersnake	*Thamnophis eques megalops*	threatened	proposed
5.1.17	Jemez Mountains Salamander	*Plethodon neomexicanus*	endangered	no
5.1.18	Bonytail	*Gila elegans*	endangered	yes
5.1.19	Colorado Pikeminnow	*Ptychocheilus lucius*	endangered	yes
5.1.20	Greenback Cutthroat Trout	*Oncorhynchus clarkii stomias*	threatened	no
5.1.21	Humpback Chub	*Gila cypha*	endangered	yes
5.1.22	June Sucker	*Chasmistes liorus*	endangered	yes
5.1.23	Kendall Warm Springs Dace	*Rhinichthys osculus thermalis*	endangered	no
5.1.24	Pallid Sturgeon	*Scaphirhynchus albus*	endangered	no

Section	Common Name	Scientific Name	Status	Critical Habitat?
5.1.25	Razorback Sucker	*Xyrauchen texanus*	endangered	yes
5.1.26	Rio Grande Silvery Minnow	*Hybognathus amarus*	endangered	yes
5.1.27	Virgin River Chub	*Gila seminuda (=robusta)*	endangered	yes
5.1.28	Zuni Bluehead Sucker	*Catostomus discobolus yarrowi*	endangered	yes
5.1.29	Uncompahgre Fritillary Butterfly	*Boloria acrocnema*	endangered	no
5.1.30	Barneby Reed-mustard	*Schoenocrambe barnebyi*	endangered	no
5.1.31	Barneby Ridge-cress	*Lepidium barnebyanum*	endangered	no
5.1.32	Blowout Penstemon	*Penstemon haydenii*	endangered	no
5.1.33	Brady Pincushion Cactus	*Pediocactus bradyi*	endangered	no
5.1.34	Chapin Mesa Milkvetch	*Astragalus schmolliae*	candidate	no
5.1.35	Clay Phacelia	*Phacelia argillacea*	endangered	no
5.1.36	Clay Reed-mustard	*Schoenocrambe argillacea*	threatened	no
5.1.37	Clay-loving Wild Buckwheat	*Eriogonum pelinophilum*	endangered	yes
5.1.38	Colorado Hookless Cactus	*Sclerocactus glaucus*	threatened	no
5.1.39	Debeque Phacelia	*Phacelia submutica*	threatened	yes
5.1.40	Dudley Bluffs Bladderpod	*Lesquerella congesta*	threatened	no
5.1.41	Dudley Bluffs Twinpod	*Physaria obcordata*	threatened	no
5.1.42	Fickeisen Plains Cactus	*Pediocactus peeblesianus fickeiseniae*	endangered	yes
5.1.43	Heliotrope Milk-vetch	*Astragalus montii*	threatened	yes
5.1.44	Jones Cycladenia	*Cycladenia humilis var. jonesii*	threatened	no
5.1.45	Knowlton's Cactus	*Pediocactus knowltonii*	endangered	no
5.1.46	Kodachrome Bladderpod	*Lesquerella tumulosa*	endangered	no
5.1.47	Last Chance Townsendia	*Townsendia aprica*	threatened	no

Section	Common Name	Scientific Name	Status	Critical Habitat?
5.1.48	Mancos Milk-vetch	*Astragalus humillimus*	endangered	no
5.1.49	Mesa Verde Cactus	*Sclerocactus mesae-verdae*	threatened	no
5.1.50	Navajo Sedge	*Carex specuicola*	threatened	yes
5.1.51	Osterhout Milkvetch	*Astragalus osterhoutii*	endangered	no
5.1.52	Pagosa Skyrocket	*Ipomopsis polyantha*	endangered	yes
5.1.53	Parachute Beardtongue	*Penstemon debilis*	threatened	yes
5.1.54	Pariette Cactus	*Sclerocactus brevispinus*	threatened	no
5.1.55	Penland Alpine Fen Mustard	*Eutrema penlandii*	threatened	no
5.1.56	Penland Beardtongue	*Penstemon penlandii*		no
5.1.57	San Rafael Cactus	*Pediocactus despainii*	endangered	no
5.1.58	Shrubby Reed-mustard	*Schoenocrambe suffrutescens*	endangered	proposed
5.1.59	Siler Pincushion Cactus	*Pediocactus sileri*	threatened	no
5.1.60	Uinta Basin Hookless Cactus	*Sclerocactus wetlandicus*	threatened	no
5.1.61	Ute Ladies'-tresses	*Spiranthes diluvialis*	threatened	no
5.1.62	Welsh's Milkweed	*Asclepias welshii*	threatened	yes
5.1.63	Western Prairie Fringed Orchid	*Platanthera praeclara*	threatened	no
5.1.64	Whitebark Pine	*Pinus albicaulis*	candidate	no
5.1.65	Zuni Fleabane	*Erigeron rhizomatus*	threatened	no

5.1.1. Black-footed Ferret (*Mustela nigripes*)

Since March 11, 1967, the black-footed ferret (*Mustela nigripes*) has been listed as endangered across its entire range, with the exception of several reintroduced populations designated as experimental. In November 2008, the Service completed a 5-year review of black-footed ferret recovery efforts. This review found that the species remains one of the most endangered mammals in the United States, and continues to warrant endangered status. Despite the radically-altered environment facing reintroduced ferrets today, scientists believe that the recovery of the species is within reach. The black-footed ferret does not occur in the basin. No Black-footed ferret habitat will be altered. The proposed action will have no effect on Black-footed ferret or their habitat.

5.1.2. Canada Lynx (*Lynx canadensis*)

Canada lynx (*Lynx canadensis*) was listed as threatened in 2000. Critical habitat was designated in 2006 and was revised in 2009 and 2014. Lynx can be found in Idaho, Montana, and Washington. The distribution of lynx in North America is closely associated with the distribution of North American boreal forest. In Canada and Alaska, lynx inhabit the classic boreal forest ecosystem known as the taiga. The range of lynx populations extends south from the classic boreal forest zone into the subalpine forest of the western United States, and the boreal/hardwood forest ecotone in the eastern United States. Forests with boreal features extend south into the contiguous United States along the North Cascade and Rocky Mountain Ranges in the west, the western Great Lakes Region, and northern Maine. Within these general forest types, lynx are most likely to persist in areas that receive deep snow and have high-density populations of snowshoe hares, the principal prey of lynx.

The lynx is a medium-sized cat with long legs, large, well-furred paws, long tufts on the ears, and a short, black-tipped tail. The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back, and grayish-white or buff-white fur on the belly, legs and feet. Summer pelage of the lynx is more reddish to gray-brown. Adult males average 10 kg (22 lbs.) in weight and 85 cm (33.5 in) in length (head to tail), and females average 8.5 kg (19 lbs.) and 82 cm (32 in). The lynx's long legs and large feet make it highly adapted for hunting in deep snow.

Factors affecting lynx habitat include human alteration of the distribution and abundance, species composition, successional stages, and connectivity of forests, and the resulting changes in the forest's capacity to sustain lynx populations. Forest fragmentation may eventually become severe enough to isolate habitat into small patches, thereby reducing the viability of wildlife that are dependent on larger areas of forest habitat (Litvaitis and Harrison 1989). Lynx are relatively rare in the contiguous United States because of habitats that are inherently unable to support cyclic, high-

density snowshoe hare populations and are thus unable to sustain cyclic, high-density lynx populations.

All watercraft inspection sites are along existing roadways. Many of these roadways are heavily travelled, though some remote sites are only minimally traveled. Lynx are likely to avoid areas with highways and where humans are active, especially during daylight when most of the check stations operate. No lynx habitat will be altered. The proposed action will have no effect on Canada lynx or their designated critical habitat.

5.1.3. Gray Wolf (*Canis lupus)*

Gray wolf was listed as endangered in 1978. It is now delisted in part of its range, generally in Idaho, Montana, eastern Washington, and northeast Oregon. Critical habitat has not been designated. Listed wolves can be found in Oregon and Washington.

Gray wolves are the largest wild members of the dog family (Canidae). Adult gray wolves range from 18-80 kg (40-175 lbs.) depending upon sex and region (Mech 1974). In the Northern Rocky Mountains (NRM), adult male gray wolves average over 45 kg (100 lbs.), but may weigh up to 60 kg (130 lbs.). Females weigh slightly less than males. Fur color is frequently a grizzled gray, but it can vary from pure white to coal black (Gipson *et al.* 2002). Wolves normally live in packs of 2 to 12 animals. In the NRM, pack sizes average about 10 wolves in protected areas, but a few complex packs have been substantially bigger in some areas of Yellowstone National Park (Smith *et al.* 2006). Packs typically occupy large distinct territories from 518 to 1,295 square kilometers (km^2) (200-500 square miles (mi^2)) and defend these areas from other wolves or packs.

The gray wolf is an integral component of the ecosystems to which it historically belongs. The wide range of habitats in which wolves can thrive reflects their adaptability as a species, and includes temperate forests, mountains, tundra, taiga, and grasslands. Ungulates are the typical prey of wolves, but wolves also readily scavenge. Beaver are among the smallest important prey but wolves can utilize smaller mammals, birds, and fish. Some threats to individual wolves still exist, but most have been sufficiently reduced or eliminated.

Watercraft inspections will occur along existing highways or otherwise developed areas. No wolf habitat will be affected. There will be no effect on gray wolves from the proposed actions.

5.1.4. Grizzly Bear (*Ursus arctos horribilis*)

Grizzly bear was listed as threatened in 1975. Critical habitat has not been designated. Grizzly bears can be found in Idaho, Montana, and Washington. They have been proposed for delisting in part of their range (e.g. Greater Yellowstone Ecosystem).

Grizzly bears are a member of the brown bear species (*U. arctos*) that occurs in North America, Europe, and Asia; the subspecies *U. a. horribilis* is limited to North America (Rausch 1963; Servheen 1999). Grizzly bear coloring ranges widely across geographic areas, from blond to deep brown or black. The differences, once attributed to subspeciation, are now thought to be primarily due to the different environments these bears inhabit, particularly with regard to diet and temperature. The grizzly has a large hump over the shoulders which is a muscle mass used to power the forelimbs in digging. The head is large and round with a concave facial profile. They reach weights of 180-680 kg (400-1,500 lb.); the male is on average 1.8 times as heavy as the female, an example of sexual dimorphism. In spite of their massive size, these bears can run at speeds of up to 55 km/h (35 mph).

Excessive human-caused mortality was the primary factor contributing to grizzly bear decline during the 19th and 20th centuries (Leopold 1967; Koford 1969; Servheen 1990; Servheen 1999; Mattson and Merrill 2002; Schwartz *et al.* 2003). Current threats are related to human-grizzly conflicts and habitat fragmentation. However, overall human-caused mortality rates have been low enough to allow the Greater Yellowstone Ecosystem grizzly bear population to increase in numbers and range (Schwartz *et al.* 2006a; Schwartz *et al.* 2006b; Bjornlie *et al.* 2014).

Grizzly bears are likely to avoid areas where watercraft inspection stations will be established. No suitable bear habitat will be affected. There will be no effect on grizzly bears from the proposed action.

5.1.5. New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*)

The New Mexico meadow jumping mouse (*Zapus hudsonius luteus;* jumping mouse) lives in dense riparian herbaceous vegetation along streams from southern Colorado to central New Mexico and eastern Arizona. It is a subspecies that has been of conservation concern since it was made a candidate for listing by the U. S. Fish and Wildlife Service (Service) under the Endangered Species Act of 1973, as amended (Act) in 2007 (72 FR 69033, December 6, 2007). The jumping mouse is active only during the warm growing season of the grasses and forbs on which it depends. The jumping mouse is a true hibernator, usually entering hibernation in September or October and emerging the following May or June.

The jumping mouse requires dense riparian herbaceous vegetation associated with seasonally available or perennial (persistent) flowing water and adjacent uplands that can support the vegetation characteristics needed by foraging, breeding, and hibernating jumping mice. Although the jumping mouse commonly uses riparian vegetation immediately adjacent to a perennial stream, other features that may provide habitat for the jumping mouse likely include: seasonal streams; wetland or marshes that contain areas of saturated soils, but no visible running water. The jumping mouse occurs from elevations ranging from about 1,371 m (4,500 ft) in the middle Rio Grande generally up to elevations of about 2,438 m (8,000 ft).

Watercraft inspections will occur along existing highways or otherwise developed areas. No jumping mouse habitat will be altered. The proposed action will have no effect on jumping mouse or their designated critical habitat.

5.1.6. North American Wolverine (*Gulo luscus*)

North American wolverine was proposed for listing as threatened in 2013. The listing proposal was withdrawn in 2014, then reversed by court ruling in 2016. Wolverines naturally have low population numbers and a wide distribution. Wolverines range throughout mountainous terrain in Idaho, Oregon, Montana, and Washington.

The wolverine is the largest terrestrial member of the family Mustelidae, with adult males weighing 12 to 18 kg (26 to 40 lbs.) and adult females weighing 8 to 12 kg (17 to 26 lbs.) (Banci 1994). It resembles a small bear with a bushy tail. It has a round, broad head; short, rounded ears; and small eyes. There are five toes on each foot, with curved and semiretractile claws used for digging and climbing (Banci 1994).

The primary threat to the North American wolverine is from habitat and range loss due to climate warming. Wolverines inhabit habitats with near-arctic conditions wherever they occur. In the contiguous United States, wolverine habitat is restricted to high-elevation areas in the West. Wolverines are dependent on deep persistent snow cover for successful denning, and they concentrate their year-round activities in areas that maintain deep snow into spring and cool temperatures throughout summer. Wolverines in the contiguous United States exist as small and semi-isolated subpopulations in a larger metapopulation that requires regular dispersal of wolverines between habitat patches to maintain itself.

Wolverines are generally restricted to high elevation, rugged habitats and would not be found along lower elevation highways with high human presence, especially during daylight when most watercraft inspection activity would occur. Therefore there would be no effect on North American wolverine or their habitat.

5.1.7. Utah Prairie Dog (*Cynomys parvidens*)

Utah prairie dogs (*Cynomys parvidens*) prefer arid grasslands, but can also be found in desert rangelands, sagebrush- steppe habitat, edges of ponderosa pine stands, agricultural fields, and urban areas. Utah prairie dogs forage primarily on grasses and forbs, and tend to select plant species with higher moisture content. They often select colony sites in swales where the vegetation can remain moist even in drought conditions. Vegetation must be of short stature to allow prairie dogs to see approaching predators and have visual contact with other prairie dogs in the colony. Prairie dogs avoid areas where brushy species dominate, with 23-inch tall shrubs at 23 percent cover. Well-drained soils are needed for Utah prairie dogs to excavate burrow sites. Burrows must be deep enough (at least 3.3 ft) to protect the prairie dogs from predators and environmental and temperature extremes.

The Utah Division of Wildlife Resources maps Utah prairie dog habitat across the species range. The availability of mapped prairie dog habitat will allow inspection stations to avoid impacts to populations and habitat. Watercraft inspections will occur along existing highways or otherwise developed areas. No Utah prairie dog habitat will be altered. The proposed action will have no effect on Utah prairie dogs or their habitat.

5.1.8. California Condor (*Gymnogyps californianus*)

The California Condor (*Gymnogyps californianus*; condor) is one of the largest flying birds in the world. Adults weigh approximately 10 kg (22 lb) and have a wing span of up to 2.9 m (9.6 ft) (USFWS 1996). Adults are black, with white underwing linings and edges. Head and neck are mostly naked gray skin in juveniles and red in adults. Five to six years are required for individuals to attain adult characteristics.

Nesting sites are in various rock formations, including caves, crevices, and potholes in isolated regions of the southwestern U.S. Foraging for carrion occurs over long distances, as a condor can travel 80-160 km (48-96 miles) per day in search of food. Flights follow routes over foothills and mountains. Roosting is usually on rock cliffs, snags, or in live conifer stands. These areas are important for resting, preening, and socializing.

Captive-reared condors have been reintroduced as a nonessential experimental population of condors in the Vermillion Cliffs area in northern Arizona (Coconino County, December 1996). Condors from the Arizona reintroduction are generally found in, or in the vicinity of, Grand Canyon National Park and the Kaibab Plateau in Arizona and Zion National Park in Utah. Field notes on the northern Arizona reintroduction are at www.peregrinefund.org.

Little information exists to document the precise causes of mortality to the condor, but they probably have been diverse. Former threats include shooting, egg and quill collection, and ceremonial use. Current threats include collisions with human-made structures, electrocution on powerlines, and poisoning from lead, DDT, cyanide, and anti-freeze.

Watercraft inspections will occur along existing highways or otherwise developed areas. No condor habitat will be altered. The proposed action will have no effect on condors or their designated critical habitat.

5.1.9. Gunnison Sage-grouse (*Centrocercus minimus*)

Gunnison sage-grouse (*Centrocercus minimus*) occupy a small fraction of their historical range, having been extirpated by habitat conversion from much of their presumed historical distribution in southwest Colorado, southeast Utah, northeast Arizona, and northern New Mexico. Distribution was probably always somewhat fragmented, but fragmentation has been greatly exacerbated by habitat loss. In 2004, there were approximately 3,200 breeding birds occur in 7 populations, approximately 2,400 of which occur in the Gunnison Basin. Sage-grouse require open range sagebrush throughout the year for food and cover.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Gunnison Sage-grouse habitat will be altered. The proposed action will have no effect on Gunnison Sage-grouse or their designated critical habitat.

5.1.10. Least Tern (*Sterna antillarum*)

The Interior Least Tern (*Sternula antillarum*) is the smallest of the terns found in North America. Meriwether Lewis and William Clark recorded their first observation of an Interior Least Tern on August 5, 1804 along the Missouri River, near present day Omaha, Nebraska while on their 1803—1805 "Voyage of Discovery" across North America (2013 Tern and Plover Conservation Partnership Annual Report). Historically, terns nested on sparsely-vegetated sandbars along major rivers in the Central United States. Much of their natural habitat has been lost because of broad-scale changes to our natural river systems that include invasive plants, dams and reservoirs, river channelization, bank stabilization, hydropower generation, and water diversion.

The Interior Least Tern does not occur in the basin, and no habitat will be altered. The proposed action will have no effect on Interior Least Tern or their designated critical habitat.

5.1.11. Mexican Spotted Owl (*Strix occidentalis lucida*)

The Mexican Spotted Owl (*Strix occidentalis lucida*; spotted owl) is a medium-sized owl with large dark eyes and no ear tufts. Plumage is brown with numerous white spots and posterior underparts have short, horizontal bars or spots. Length is about 0.4 m (17 in) and wingspan is 1.0 m (3.3 ft).

Spotted Owls occur in varied habitat, consisting of mature montane forest and woodland, shady wooded canyons, and steep canyons. In forested habitat, uneven-aged stands with a high canopy closure, high tree density, and a sloped terrain appear to be key habitat components. They can also be found in mixed conifer and pine-oak vegetation types. Generally nests in older forests of mixed conifer or ponderosa pine/ Gambel oak. Nests are found in live trees in natural platforms (e.g., dwarf mistletoe brooms), snags, and on canyon walls. Elevation ranges from 1,249 to 2,743 m (4,100 to 9,000 ft). The primary threat is believed to be destruction and modification of nesting habitat from unnatural fuel loadings and the resultant threat of high-severity, stand replacing wildfire.

Current range is the Colorado Plateau and southern Rocky mountains in Colorado, Utah, Arizona, New Mexico, and far western Texas, south through the Sierra Madre Occidental and Oriental to the southern end of the Mexican Plateau. The majority of the owls are found on National Forests, National Park Service, and Bureau of Land Management lands.

Habitats along highways lack the structural, vegetational, and prey base characteristics of Mexican Spotted Owl habitat. No trees will be impacted by the proposed action.

Watercraft inspections will occur along existing highways or otherwise developed areas. No spotted owl habitat will be altered. The proposed action will have no effect on Mexican Spotted Owl or their designated critical habitat.

5.1.12. Piping Plover (*Charadrius melodus*)

The Northern Great Plains population of Piping Plover (*Charadrius melodus*) is one of three that comprise the species range across North America. Piping plovers breed and raise young mainly on sparsely vegetated beaches, cobble pans, and sand spits of glacially formed sand dune ecosystems. On the wintering grounds, piping plovers forage and roost along barrier and mainland beaches, sand, mud, and algal flats, washover passes, salt marshes, and coastal lagoons. Threats to populations and habitat are similar on the breeding and wintering ranges. Habitat destruction and degradation are pervasive and have reduced physically suitable habitat. Human disturbance and predators further reduce breeding and wintering habitat quality and affect survival.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Piping Plover habitat will be altered. The proposed action will have no effect on Piping Plover or their designated critical habitat.

5.1.13. Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The Southwestern Willow Flycatcher (*Empidonax traillii extimus*) breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands, including lakes (e.g., reservoirs). Most of these habitats are classified as forested wetlands or scrub-shrub wetlands. Habitat requirements for wintering are not well known, but include brushy savanna edges, second growth, shrubby clearings and pastures, and woodlands near water. The Southwestern Willow Flycatcher has experienced extensive loss and modification of breeding habitat, with consequent reductions in population levels.

Destruction and modification of riparian habitats have been caused mainly by: reduction or elimination of surface and subsurface water due to diversion and groundwater pumping; changes in flood and fire regimes due to dams and stream channelization; clearing and controlling vegetation; livestock grazing; changes in water and soil chemistry due to disruption of natural hydrologic cycles; and establishment of invasive non-native plants. Its breeding range includes far western Texas, New Mexico, Arizona, southern California, southern portions of Nevada and Utah, and southwestern Colorado.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Southwestern Willow Flycatcher habitat will be altered. The proposed action will have no effect on Southwestern Willow Flycatcher or their designated critical habitat.

5.1.14. Whooping Crane (*Grus americana*)

Whooping crane was listed as endangered in 1970. Critical habitat has been designated. Within the states included in this action, this large bird can be found in Montana. The whooping crane is a bi-annual migrant, traveling between its summer habitat in central Canada, and its wintering grounds on the Texas coast, across the Great Plains of the U.S. in the spring and fall of each year. The migratory corridor runs in an approximately straight line from the Canadian Prairie Provinces of Alberta and Saskatchewan through the Great Plains states of eastern Montana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas. The complete corridor is approximately 3,862 km (2,400 miles) long by 354 km (220 miles) wide, a zone that encompasses 95% of known sightings of whooping cranes. Autumn migration normally begins in mid-September, with most birds arriving on the Texas wintering grounds between late October and mid-November.

The whooping crane is the largest wading bird in North America, standing 1.5 m (4-5 feet) tall. Its wingspan is 2.3 m (7.5 feet). The adult has a snow white body with contrasting black legs, black wing tips and black markings below the eyes. The top and sides of the adult's head lack feathers and are bright red. Immature birds have a white underside, white secondary feathers and black wingtips. These cranes will occasionally extend their huge wings and jump a few feet into the air. It has a vibrant trumpet-like call from which it gets its name.

Historic habitat loss and hunting drastically reduced the whooping crane population. Before human interference, there were believed to be 15,000-20,000 whooping cranes, which fell to about 1,400 in 1860 and then plummeted to an all-time low of 15 birds in 1941. Whooping cranes are now generally safe from hunting and egg collection, which hastened their decline. However, their biggest threat, loss of wetlands, persists. Though the areas that the birds frequent are protected, they are isolated and make the entire population vulnerable to any disastrous ecological event or change. With assistance, the whooping crane population is slowly rebounding.

Whooping cranes prefer wetlands and do not use habitat along highways where watercraft inspection stations are or will be established. The proposed action will have no effect on whooping cranes or their designated critical habitat.

5.1.15. Yellow-billed Cuckoo (*Coccyzus americanus*)

Western Yellow-billed Cuckoo was listed as threatened in 2014. Critical habitat was also proposed in 2014. Oregon and Washington are not included in the proposal. This bird is listed within all four states in the project area. Yellow-billed cuckoos use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. In the Midwest, cuckoos prefer shrublands of mixed willow and dogwood, and dense stands of small trees such as American elm. In the central and

eastern U.S., Yellow-billed Cuckoos nest in oaks, beech, hawthorn, and ash. In the West, nests are often placed in willows along streams and rivers, with nearby cottonwoods serving as foraging sites.

Yellow-billed Cuckoos are fairly large, long, and slim birds. The mostly yellow bill is almost as long as the head, thick, and slightly down curved. They have a flat head, thin body, and very long tail. Wings appear pointed and swept back in flight. Yellow-billed cuckoos are warm brown above and clean whitish below. Their blackish face mask is accompanied by a yellow eye ring. In flight, the outer part of the wings flash rufous. From below, the tail has wide white bands and narrower black ones.

Caterpillars top the list of yellow-billed cuckoo prey: individual cuckoos eat thousands of caterpillars per season. On the East coast, periodic outbreaks of tent caterpillars draw cuckoos to eat as many as 100 caterpillars in one sitting. Fall webworms and the larvae of gypsy, brown-tailed, and white-marked tussock moths are also part of the cuckoos lepidopteran diet, often supplemented with beetles, ants, and spiders. They take advantage of the annual outbreaks of cicadas, katydids and crickets, and will hop to the ground to chase frogs and lizards. In summer and fall, cuckoos forage on small wild fruits, including elderberries, blackberries, and wild grapes. In winter, fruit and seeds become a larger part of their diet.

In the West, much of the yellow-billed cuckoos riparian habitat has been converted to farmland and housing, leading to population declines and the possible extirpation of cuckoos from British Columbia, Washington, Oregon, and Nevada.

No trees or suitable Yellow-billed Cuckoo habitat will be affected by the proposed establishment of watercraft inspection stations. Birds will easily avoid the inspection sites. The proposed action will have no effect on yellow-billed cuckoo or their proposed critical habitat.

5.1.16. Northern Mexican Gartersnake (*Thamnophis eques megalops*)

The northern Mexican Gartersnake (*Thamnophis eques megalops*) reaches a maximum length of 44 inches. It ranges in background color from olive to olive-brown to olive-gray. Three stripes run the length of the body with a yellow stripe down the back that darkens toward the tail. A portion of the lateral stripe occurring on the fourth scale row distinguishes *T. eques* from other gartersnake species. Paired black spots extend along the dorsolateral fields. A light-colored crescent extends behind the corners of the mouth.

This species is most frequently found between 3,000 and 5,000 ft in the United States. The northern Mexican Gartersnake is found in both lotic and lentic habitats that include cienegas and stock tanks (in southern Arizona), as well as river habitat that includes pools and backwaters. It forages along the banks of waterbodies feeding primarily upon native fish and adult and larval leopard frogs. It may also supplement its diet with earthworms and leeches and vertebrates such as lizards, small rodents, salamanders,

treefrogs, and toads. The northern Mexican gartersnake occurs in Gila River and perhaps Mule Creek in New Mexico.

Watercraft inspections will occur along existing highways or otherwise developed areas. No northern Mexican Gartersnake habitat will be altered. The proposed action will have no effect on northern Mexican Gartersnake or their habitat.

5.1.17. Jemez Mountains Salamander (*Plethodon neomexicanus*)

The Jemez Mountains salamander (*Plethodon neomexicanus*) is a strictly terrestrial species that does not utilize surface or standing water for any life function. This species of salamander does not possess lungs. Breathing occurs through its highly permeable skin, which must remain moist at all times to prevent desiccation and death. The salamander lives underground for most of the year, and emerges above ground when seasonal rains occur, generally July through September, but emergence is based on microhabitat temperature and moisture. Salamanders forage, mate, and shelter while above ground.

Underground habitat supports sheltering for the salamander when not aboveground, and it is believed that the species lays its eggs underground. Underground habitat is in forest or meadow areas containing spaces provided by rocks with fractures or loose rocky soils; rotted tree root channels; or burrows of rodents or large invertebrates. The U.S. Fish and Wildlife Service (Service) took action today designating approximately 90,716 acres in the Jemez Mountains of northern New Mexico in Los Alamos, Rio Arriba, and Sandoval Counties as critical habitat for the Jemez Mountains salamander.

The Jemez Mountains Salamander occurs in mountain forests at the edge of the Upper Colorado Basin. The proposed action will have no effect on Jemez Mountains Salamander or their habitat.

5.1.18. Bonytail (*Gila elegans*)

Bonytail (*Gila elegans*) are large chub (averaging 12-14 inches in length), characterized by a small head, large fins and a long thin caudal peduncle. Adults are gray or olive-green on the back with silvery sides and a white belly; they can reach lengths exceeding 22 inches and weigh over 2 pounds. Modification of original river conditions by dam construction, flow depletion from irrigation and other uses, hybridization with other Gila species, and the introduction of non-native fishes. Adult populations exist in reservoirs; however, recruitment under these circumstances is not sufficient to sustain the population.

Found in slower water habitats in the mainstream such as eddies, pools, side channels, and coves. They are found in streams below 1,219 m (4,000 ft) elevation. Endemic to the Colorado River basin and found throughout the mainstem rivers and backwaters of the Upper and Lower Basins. The last natural population is found in Lake Mohave. Hatchery-produced and cove-reared bonytails have been stocked into Lakes Havasu

and Mohave (La Paz and Mohave counties, Arizona). Both reservoirs have ongoing reintroduction efforts using Lake Mohave stock.

Critical habitat encompasses the Colorado River from Hoover Dam to Davis Dam and another section of the Colorado River from the northern boundary of Havasu National Wildlife Refuge to Parker Dam including Lake Havasu in Mohave County, Arizona. Additional critical habitat is located in Colorado, Utah, Nevada, and California.

Watercraft inspections will occur along existing highways or otherwise developed areas. No bonytail habitat will be altered. The proposed action will have no effect on bonytail or their designated critical habitat.

5.1.19. Colorado Pikeminnow (*Ptychocheilus lucius*)

The Colorado Pikeminnow (*Ptychocheilus Lucius*; pikeminnow) is the largest American minnow [up to 1.8 m (6 ft) long and 36 kg (80 lbs)]. Dusky-green in color and slender bodied with gold flecks on the dorsal surface with slender long head and large mouth. Inhabits rivers with high silt content, warm water, turbulence, and variable flow by season under 1,219 m (4,000 ft) in elevation. Adults are migratory and inhabit pools and eddies just outside of the main current, while young are found in backwater areas. Endemic to the Colorado River and its major tributaries in Arizona, New Mexico, Utah, Colorado, and Wyoming. Alteration of river conditions and loss of habitat caused by dam construction, irrigation dewatering, and channelization; and the introduction of exotic competitive and predatory fish species.

Watercraft inspections will occur along existing highways or otherwise developed areas. No pikeminnow habitat will be altered. The proposed action will have no effect on pikeminnow or their designated critical habitat.

5.1.20. Greenback Cutthroat Trout *(Oncorhynchus clarkii stomias*)

The Greenback Cutthroat Trout, (*Oncorhynchus clarki stomias*), is a rare subspecies of cutthroat trout. Only two small historic populations of greenback cutthroat trout were initially known to exist - Como Creek and South Fork, Cache La Poudre River. These two small headwater streams of the South Platte River drainage collectively represented 4.6 kilometers of stream habitat and supported less than 2,000 greenbacks. Since then, seven additional historic populations have been identified, five populations in the South Platte River drainage and two populations in the Arkansas River drainage.

The Greenback Cutthroat Trout currently occurs in 61 sites that total 166 hectares of lakes and 165 kilometers of stream habitat in the upper tributaries of the South Platte and Arkansas River drainages. Nine “historic” populations remain that have been identified through recovery efforts conducted since 1973. Pure greenbacks have been introduced into 52 additional streams and lakes within the species historic range. The

extant populations in the Arkansas River drainage are believed to be stable and self-sustaining.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Greenback Cutthroat Trout habitat will be altered. The proposed action will have no effect on Greenback Cutthroat Trout or their habitat.

5.1.21. Humpback Chub (*Gila cypha*)

Humpback Chub (*Gila cypha*) are a fairly large (less than 51 cm (20 in) long) minnow characterized by a narrow, flattened head and long fleshy snout, large fins, and a very large hump between the head and the dorsal fin. Endemic to the Colorado River Basin from below Lake Mead to Flaming Gorge on the Green River, Wyoming, and the Yampa River, Colorado. Their historic distribution in the Colorado River Basin is uncertain. The species occurs in the Grand Canyon and Marble Canyon (Coconino County, Arizona) portions of the mainstream Colorado River (Mohave County, Arizona) and in the lower Little Colorado River. It also is found in portions of the Colorado and Green rivers of Utah and Colorado as well as portions of the Yampa River in Colorado.

Occurs in a variety of riverine habitats, especially canyon areas with fast current, deep pools, and boulder habitat. Generally found in habitats below 1,219 m (4,000 ft) in elevation. Alteration of historic habitat caused by dam construction and operation, water diversion, and channelization; competition with and predation by exotic fishes; and hybridization with other *Gila* species. Critical habitat for the humpback chub is designated for portions of the Colorado, Green, and Yampa Rivers in the Upper Basin and the Colorado and Little Colorado Rivers in the Lower Basin in Colorado, Utah, and Arizona.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Humpback Chub habitat will be altered. The proposed action will have no effect on Humpback Chub or their designated critical habitat.

5.1.22. June Sucker (*Chasmistes liorus*)

The June sucker (*Chasmistes liorus*) is a member of the lakesucker family Catostomidae. The species reaches between 17 – 24 inches in length, averages 5 pounds, and lives up to 40+ years. June sucker has a large, robust body; a wide rounded head with a distinct hump on the snout. Blackish or brownish in color above with white on the belly. Due to its rarity, few biological data have been collected pertaining to its life history. Depending on water flow and temperatures, adults generally initiate the spawning migration to the lower three miles of the Provo River up to the Geneva Road Diversion during the second and third weeks of June.

June sucker is endemic to Utah Lake, Utah. This lake covers approximately 95,000 surface acres, the average depth is 9 feet. It is approximately 23 miles long and 13 miles wide, while being slightly saline, turbid, and highly eutrophic. The only known spawning habitat is the lower three miles of the Provo River.

The species was considered abundant in the early 1800s. The first dramatic decline in the population happened in the late 1960s when 2 miles of the Provo River was dewatered killing 1,500 metric tons of fish. Following this, hundreds of June suckers were lost in 1932 when Utah Lake was drained dry during a four year drought. Another decline in the population occurred following the introduction of predacious walleye (*Stizostedion vitreum*) and white bass (*Morone chrysops*) into Utah Lake in the 1950s.

Other factors that have contributed to the decline of the June sucker include loss of spawning habitat and reduced water flows in spawning habitat, altered water flows, dewatering, increased sedimentation, increased level of dissolved solids, increased turbidity, urbanization, channelization and loss of recruitment. These activities remain threats to the June sucker presently.

Watercraft inspections will occur along existing highways or otherwise developed areas. No June Sucker habitat will be altered. The proposed action will have no effect on June Sucker or their designated critical habitat.

5.1.23. Kendall Warm Springs Dace *(Rhinichthys osculus thermalis*)

The Kendall Warm Springs dace (*Rhinichthys osculus thermalis*) is a member of the Cyprinidae family, and is the only fish species to inhabit the 85° F spring water in the Bridger-Teton National Park in Wyoming. Adults range from one to two inches in size, with a grayish-green body with dark blotches and a dark lateral stripe on their sides. Spawning is thought to occur several times a year in shallow pools and streams not more than one foot deep.

The Kendall Warm Springs are located in the Bridger-Teton National Forest in western Wyoming at an elevation of 7,840 feet, Kendall Warm Springs is made up of numerous thermal seeps and springs scattered along and originating from the north face of a small limestone ridge, the springs flow into a stream which joins the Green River over an embankment.

The Kendall dace are dispersed throughout the stream and use plant growth as their primary escape cover. Adult dace may occur in small schools within the main channel, but most remain in pools or quiet eddies where plant growth or other debris breaks the current. For nursery areas Kendall Warm Springs dace fry use still water pockets in the dense mats of aquatic vegetation, as well as backwater areas along the sides of the main channel.

Watercraft inspections will occur along existing highways or otherwise developed areas. The Kendall Warm Springs dace occurs in a well-delineated area that will be avoided for expanding inspection stations. No habitat will be altered. The proposed action will have no effect on Kendall Warm Springs dace or their habitat.

5.1.24. Pallid Sturgeon (*Scaphirhynchus albus*)

The Pallid Sturgeon (*Scaphirhynchus albus*) is native to the Missouri and Mississippi Rivers and, therefore, adapted to the pre-development habitat conditions that existed in these large rivers. These conditions generally can be described as large, free—flowing, warmwater, turbid habitat with a diverse assemblage of physical habitats that were in a constant state of change. Modification of the pallid sturgeon's habitat by human activities has blocked fish movement, destroyed or altered spawning areas, reduced food sources or ability to obtain food, altered water temperatures, reduced turbidity, and changed the hydrograph of the river system. Overfishing, pollution, and hybridization that occurs due to habitat alterations also have probably contributed to the species' population decline.

The Pallid Sturgeon does not occur in the Upper Colorado Basin. The proposed action will have no effect on Pallid Sturgeon or their designated critical habitat.

5.1.25. Razorback Sucker (*Xyrauchen texanus*)

The Razorback Sucker (*Xyrauchen texanus*) has a flattened head and the body is stout with olive-brown above to yellowish on the belly. A long, high, sharp-edged keel-like hump is found behind the head. The head and tail are quite dark in breeding males. Can grow to 0.9 m (3 ft) in length and over 2.7 kg (6 lbs.) in weight. They are found in backwaters, flooded bottomlands, pools, side channels and other slower moving habitats near strong currents under 1,829 m (6,000 ft) elevation.

In the Upper Colorado River Basin, small remnant populations are found in the Green, Yampa, and mainstream Colorado rivers, and the San Juan River near the New Mexico-Utah border. Critical habitat includes parts of the Yampa, Greene, Duchesne, White, Colorado, and San Juan rivers.

Alteration of river conditions and loss of habitat caused by dam construction, irrigation dewatering and channelization; and introduction of exotic fish species, such as black bullhead, carp, and channel catfish.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Razorback Sucker habitat will be altered. The proposed action will have no effect on Razorback Sucker or their designated critical habitat.

5.1.26. Rio Grande Silvery Minnow (*Hybognathus amarus*)

The Rio Grande Silvery Minnow (*Hybognathus amarus*) only occurs in one reach of the Rio Grande in New Mexico, a 280 km (174 mi) stretch of river that runs from Cochiti Dam to the headwaters of Elephant Butte Reservoir. The Rio Grande Silvery Minnow uses only a small portion of the available aquatic habitat. In general, the species most often uses silt substrates in areas of low or moderate water velocity (e.g., eddies formed by debris piles, pools, and backwaters). The Rio Grande Silvery Minnow is rarely found in habitats with high water velocities, such as main channel runs, which are often deep

and swift. Throughout much of its historic range, the decline of the Rio Grande Silvery Minnow is attributed primarily to destruction and modification of its habitat due to dewatering and diversion of water, water impoundment, and modification of the river (channelization).

The Rio Grande Silvery Minnow does not occur in the Upper Colorado Basin. The proposed action will have no effect on Rio Grande Silvery Minnow or their designated critical habitat.

5.1.27. Virgin River Chub (*Gila seminuda (=robusta)*)

The Virgin River Chub (*Gila seminuda (=robusta)*) is a silvery medium-sized minnow averaging 20 cm (8 in) in length, but growing to 45 cm (18 in). Most common in deeper areas where waters are swift, but not turbulent, as is generally associated with boulders or other cover. It occurs over sand and gravel substrates in water less than 30° C (86° F), and is very tolerant of high salinity and turbidity. Occurs within the Moapa River and the mainstream Virgin River below 1,372 m (4,500 ft) in elevation from Pah Tempe Springs downstream to the Mesquite Diversion in extreme northwestern Arizona (Mohave County).

The Virgin River Chub does not occur in the Upper Colorado Basin. The proposed action will have no effect on Virgin River Chub or their designated critical habitat.

5.1.28. Zuni Bluehead Sucker (C*atostomus discobolus yarrowi*)

The Zuni Bluehead Sucker (*Catostomus discobolus yarrow;* Bluehead Sucker) Coloration varies with habitat conditions, silvery tan to dark green above, silvery to yellowish or dirty-white below. Head often with a bluish cast, especially in large adults. The population of the Little Colorado River is markedly different than those in the Zuni River, with thickened body shapes, short fins, and generally smaller size. Sexually mature bluehead suckers usually attain standard lengths of 90 to 200 mm (3.5 to 8 inches).

This species occupies a variety of habitats from headwater streams to large rivers, it is almost always found in moderate to fast flowing water above a rubble-rock substrate. Young fish prefer quiet, shallow areas near shoreline. Spawning occurs in spring and summer when water temperatures are above 16°C. As with certain other suckers (e.g., the Sonora sucker, *C. insignis*), gravid females are probably attended by more than one male, and deposit their eggs in coarse gravel. The fry occupy backwater areas until they are able to swim strongly enough to remain in place in stronger currents. The Zuni bluehead sucker feeds upon algae and other small organisms which are found on the bottom substrate.

Current distribution of Zuni bluehead suckers are limited to headwaters of the Zuni drainage in New Mexico and Kinlichee Creek and its tributaries in Apache County, Arizona and Cibola, McKinley, and San Juan counties, New Mexico. Once common in

the Little Colorado and Zuni River drainages, it is now thought to be reduced to about 10 percent of historical range.

Dramatic declines in distribution and abundance in past 20 years are mainly attributable to poor watershed management and perhaps establishment of several non-native predators. The primary threats to this subspecies are road construction, logging, over-grazing, reservoir construction, irrigation withdrawals, and stocking of exotic fishes.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Bluehead Sucker habitat will be altered. The proposed action will have no effect on Bluehead Sucker or their designated critical habitat.

5.1.29. Uncompahgre Fritillary Butterfly (*Boloria acrocnema*)

The Uncompahgre fritillary butterfly (*Boloria acrocnema*) was discovered on Mount Uncompahgre in Colorado in 1978. The Uncompahgre fritillary butterfly is a small butterfly with a 2 – 3 centimeter (1 inch) wingspan. Males have rusty brown wings criss-crossed with black bars; females' wing are somewhat lighter. Underneath, the forewing is light ochre and the hind wing has a bold, white jagged bar dividing the crimson brown inner half from the purple-grey scaling on the outerwing surface. The body has rusty brown thorax and a brownish black abdomen.

The Uncompahgre fritillary butterfly has one of the smallest ranges of North American butterflies. Its habitat is limited to 11 verified sites in the San Juan Mountains. All known populations are associated with large patches of snow willow (Salix nivalis) above 3,658 meters (12,000 feet), which provide food and cover. The species is found primarily on northeast-facing slopes, which are the coolest and wettest microhabitat available in the San Juan Mountains. Females lay their eggs on snow willow, which is also the larval food plant, while adults take nectar from a wide range of flowering alpine plants.

At the time of listing, threats to the species include, collection, trampling by humans or livestock, small population size, low genetic variablility, lack of protective regulations, and adverse climate conditions. The Service was petitioned to list the species in 1979. Subsequently, the Service included the Uncompahgre fritillary butterfly in a notice of petition findings in 1984 (49 FR 2485), which stated that listing butterfly was warranted but precluded. The butterfly was then listed as endangered in 1991 (56 FR 28712), because of its small geographic range and the declining population. The recovery plan was published in 1994.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Uncompahgre fritillary butterfly habitat will be altered. The proposed action will have no effect on Uncompahgre fritillary butterfly or their habitat.

5.1.30. Barneby Reed-mustard (*Schoenocrambe barnebyi*)

Barneby Reed-mustard (*Schoenocrambe barnebyi*) is vulnerable to habitat disturbing activities associated with mining claim assessment work, to potential uranium mining

and processing, and to recreational foot traffic in Capitol Reef National Park. *Schoenocrambe barneby*i is a perennial herbaceous plant with sparsely leafed stems 22 to 35 cm (9 to 15 inches) tall arising from a woody root crown. The leaves are entire with a smooth margin, 1.5 to 5 cm (0.6 to 3 inches) long and 0.5 to 2.5 cm (0.2 to 1 inch) wide. The leaf blades are alternately arranged on the stem and are attached to the stem by a petiole. The flowers of *S. barnebyi* have petals that are light purple with prominent darker purple veins and measure about 12 mm (0.4 inch) long and 2.5 mm (0.1 inch) wide. The entire flowers are about 1 cm (0.4 inch) across in full anthesis and are displayed in a raceme of, commonly, two to eight flowers at the end of the plant's leafy stems.

Schoenocrambe barnebyi grows on steep slopes having northern exposures with red clay soils rich in selenium and gypsum, overlain with sandstone talus that are derived from the Moenkopi and Chinle geologic formations. Two populations of *S. barnebyi* are known (about 2,000 individuals), one on BLM lands near the Muddy Creek in the southern portion of the San Rafael Swell and one in Capitol Reef National Park in the Fremont River drainage west of Fruita.

Barneby Reed-mustard are generally restricted to specialized habitats with well-known populations. Watercraft inspections will occur along existing highways or otherwise developed areas. No Barneby Reed-mustard habitat will be altered. The proposed action will have no effect on Barneby Reed-mustard or their habitat.

5.1.31. Barneby Ridge-cress (*Lepidium barnebyanum*)

Barneby ridge-cress (Lepidium barnebyanum) is an herbaceous perennial in the mustard family. It grows 2 - 6 inches tall and up to 8 inches wide. The stems are smooth with narrow leaves clustering at the base of the plant. The Barneby ridge-cress blooms in May with cream-colored flowers that are about 1/4 inch across. Barneby ridge-cress is closely related to Jones' pepperweed; however the plants look completely different. The Barneby ridge-cress is a diminutive cushion-like plant whereas Jones' pepperweed is not. Barneby ridge-cress may be confused with other diminutive cushion-like plants that grow in the same habitat, but the Barneby ridge-cress is unmistakable when flowering.

Barneby ridge-cress is endemic to the Indian Canyon drainage, which is mainly on Ute Tribal lands, and grows with other mound-forming species in piñon-juniper communities. It is found on ridge crests of white shale outcrops in the Uinta and Green River formations at 5,900 - 6,600 feet in Duchesne County, Utah.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Barneby ridge-cress habitat will be altered. The proposed action will have no effect on Barneby ridge-cress or their designated critical habitat.

5.1.32. Blowout Penstemon (*Penstemon haydenii*)

Species information: Blowout penstemon (*Penstemon haydenii)* is a perennial herb, typically 12 inches or less in height, with 6-10 groups of milky-blue to pale lavender

flowers. The plant's current known range in Wyoming consists of the Ferris Dunes area in northwest Carbon County, where the plant is restricted to two habitat types: steep, northwest facing slopes of active sand dunes with less than 5 percent vegetative cover; and north-facing sandy slopes on the lee side of active blowouts with 25-40 percent vegetative cover. Known populations in Wyoming are found between 6,680-7,440 feet. Systematic surveys are recommended in areas with sand blowout features at lower elevations (below 6,700 feet).

Blowouts are formed as strong winds deposit sands from the windward side of a dune to the leeward side and create a sparsely vegetated crater-like depression. Threats to blowout penstemon occur when sand dunes are removed or disturbed by vehicles. Surveys should be conducted from mid-June to early-July when flowering occurs. Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys. The Service does not maintain a list of "qualified" surveyors, but we can refer those wishing to become familiar with blowout penstemon to experts who can provide training/services.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Blowout penstemon habitat will be altered. The proposed action will have no effect on Blowout penstemon or their habitat.

5.1.33. Brady Pincushion Cactus (*Pediocactus bradyi)*

Pediocactus bradyi is a small, semiglobose cactus with one (occasionally more) stems up to 6 cm tall and 5 cm in diameter. Its areoles are elliptic and densely white or yellow-villous. There are usually no central spines, but each areole has 14-15 wh.itish radial spines, each 6 mm long and spreading nearly pectinate. The straw-yellow flowers are about 2.5 cm in diameter. The green top-shaped fruit turns brown at maturity. During the dry season, the plants largely retract into the soil.

Pediocactus bradyi is found on the plateaus flanking both sides of the Colorado River, in the area of U.S. Highway 89A. This area is about 23 km (15 miles) in length, north to south, and varies in width from 1.6 km (1 mile) to 4.58 km (3 miles). One population is located in Glen Canyon National Recreation Area with other populations occur scattered throughout the Colorado River area on Bureau of Land Management (BLM) lands and on private lands. *Pediocactus bradyi* grows in gravelly alluvium on the gently sloping (0-10") benches and terraces between 1170-1360 m (3861-4488 feet), in exposed, sunny situations. The exact edaphic requirements need to be determined to discover the reasons for its absence on apparently suitable habitat.

Brady Pincushion Cactus are generally restricted to specialized habitats with well-known populations. The population at Glen Canyon National Recreation Area will be avoided. Watercraft inspections will occur along existing highways or otherwise developed areas. No Brady Pincushion Cactus habitat will be altered. The proposed action will have no effect on Brady Pincushion Cactus or their habitat.

5.1.34. Chapin Mesa Milkvetch (*Astragalus schmolliae)*

Candidate species with no information available.

5.1.35. Clay Phacelia (*Phacelia argillacea*)

The clay phacelia (*Phacelia argillacea*) is a winter annual that germinates in late summer or early autumn, stimulated by late summer or early autumn storms. Following germination, the cotyledons enlarge and become photosynthetic. Initial foliage leaves are small, but by early to mid-October they have formed into basal rosettes from 1 to 7 cm in width. The rosettes continue to grow slowly beneath the cover of winter snow, and begin to bolt only after the snow melts and soil and air temperatures increase sufficiently in May. By late May, the first flowers are opened. As the size of plants increases, the number of flowers displayed by each plant becomes greater, until a climax is reached in late June or early July. Size of plants seems to be a function of amount of soil moisture available to the plants. Spring and early summer rains appear to be important in allowing plants to continue flowering through the summer and into the autumn. Last flowers were observed in mid-October on a short branch of the skeleton of one of the survivors in the 1979 flowering season.

The clay phacelia grows on a shaley clay colluvium substrate of Green River Shale. The present population persists in two quite different phases of that formation. Some plants grow mainly on a fine-textured clay derived from a poorly consolidated shale member of the formation. Other plants grow on a platey slope, with roots penetrating into a buff-to-gray colored clay beneath the platey shingle. Exposure is generally to the east and southeast. The sites are xeric because of steepness of slope and exposure. Both of the population areas are free of snow at one or more times during the winter, and dry early in the spring.

Clay Phacelia are generally restricted to specialized habitats with well-known populations. Watercraft inspections will occur along existing highways or otherwise developed areas. No Clay Phacelia habitat will be altered. The proposed action will have no effect on Clay Phacelia or their habitat.

5.1.36. Clay Reed-mustard (*Schoenocrambe argillacea*)

The clay reed-mustard (*Schoenocrambe argillacea*) is a diminutive perennial herbaceous plant in the mustard family. It grows 6 -12 inches tall from a woody root crown. The leaves are very narrow, up to 1.5 inches long and usually less than 0.1 inches wide. The species produces small flowers, about 0.5 inches wide, in the months of April and May. The flower petals are pale lavender to whitish in color, and possess prominent purple veins. This species can be confused with elegant thelypody and flaxleaf plainsmustard, two closely-related mustard species that grow in the same area. However, clay reed-mustard can be distinguished from these species by its flower color and petal shape.

We are in the process of officially updating the scientific name of clay reed-mustard in

the Federal Register to *Hesperidanthus argillacea*, the most currently accepted taxonomy for this species. This species grows on clay soils that are derived from a mixture of shales and sandstones from the zone of contact between the Uinta and Green River geologic formations in Uintah County, Utah. These soils tend to be rich in gypsum and overlain with sandstone talus. This species most commonly occurs on steep north-facing slopes. It is often found growing with other desert shrub species, including black sagebrush and shadscale saltbrush.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Clay Reed-Mustard habitat will be altered. The proposed action will have no effect on Clay Reed-Mustard or their habitat.

5.1.37. Clay-loving Wild Buckwheat (*Eriogonum pelinophilum*)

The clay-loving wild buckwheat (*Eriogonum pelinophilum*) is a low-growing, rounded, densely branched subshrub (low shrub with ground-hugging stems) in the buckwheat family (Polygonaceae), with dark green, inrolled leaves that appear needlelike, and clusters of white to cream colored flowers with greenish-red to brownish-red bases and veins at the end of the branches. The clay-loving wild buckwheat is estimated to live between 20 and 50 years. Flowering typically occurs from late May to early September with individual flowers lasting fewer than 3 days. Reproduction requires a pollinator. Over 50 species of insects visit clay-loving wild buckwheat flowers; approximately 25 are native bees, and 18 are native ants. Some fruits are removed by harvester ants; however, no information is available on species that may disperse seeds.

The clay-loving wild buckwheat is endemic to the rolling clay (adobe) hills and flats immediately adjacent to the communities of Delta and Montrose, Colorado. The plants extend from near Lazear, east of Delta on the northern end of the species' range, to the southeastern edge of Montrose in Delta and Montrose Counties, Colorado. The plants occur from 5,180 to 6,350 feet in elevation.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Clay-loving wild buckwheat habitat will be altered. The proposed action will have no effect on Clay-loving wild buckwheat or their designated critical habitat.

5.1.38. Colorado Hookless Cactus (*Sclerocactus glaucus*)

The Uinta Basin hookless cactus has been protected under the Endangered Species Act (Act) since 1979 (44 FR 58868), until recently it was considered a part of S. glaucus (Uinta Basin hookless cactus). On September 15, 2009 **(74 FR 47112**), the U.S. Fish and Wildlife Service officially recognized the taxonomic split of this species into three distinct species: *S. brevispinus* (Pariette cactus), *S. glaucus* (Colorado hookless cactus), and *S. wetlandicus* (Uinta Basin hookless cactus).

The common name for *S. glaucus* was changed to Colorado hookless cactus as the species is endemic to western Colorado. *S. wetlandicus* is now known as the Uinta Basin hookless cactus as this species occurs across Utah's Uinta Basin. S. brevispinus is now known as the Pariette cactus as it is limited to the Pariette Draw of the Central Uinta Basin. The Fish and Wildlife Service uses the common name, Colorado hookless cactus, to avoid confusion.

Colorado hookless cactus is a barrel-shaped cactus that ranges from 4 to 18 centimeters (1.5 to 7 inches). The stems have typically 12 to 15 ribs that extend from the ground to the tip of the plant. The funnel-shaped flowers usually have pink to violet tepals with yellow stamens, and are 2 to 5 cm (0.8 to 2 in.) long and 2 to 5 cm (0.8 to 2 in.) in diameter (74 FR 47112). The fruit is short, barrel-shaped, reddish or reddish grey when ripe, 7 to 12 mm (0.3 to 0.5 in.) wide, and 9 to 25 mm (0.35 to 1.0 in.) long. Colorado hookless cactus is generally found on coarse soils derived from cobble and gravel river and stream terrace deposits, or rocky surfaces on mesa slopes at 1,350 to 1,900 meters (4,400 to 6,200 feet) in elevation.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Colorado hookless cactus habitat will be altered. The proposed action will have no effect on Colorado hookless cactus or their habitat.

5.1.39. Debeque Phacelia (*Phacelia submutica*)

The DeBeque phacelia *(Phacelia submutica)* grows on barren patches of shrink-swell clay of the Wasatch Formation at about 5,000 to 6,200 feet elevation in the southern Piceance Basin oil and gas fields of Mesa and Garfield Counties, western Colorado. The 21 known occurrences occupy a total of 61 acres. Plant numbers range from 83 to 38,451, depending on weather. The species entire range is within the southern part of the Piceance Basin, one of the largest natural gas reserves in North America.

Watercraft inspections will occur along existing highways or otherwise developed areas. No DeBeque phacelia habitat will be altered. The proposed action will have no effect on DeBeque phacelia or their designated critical habitat.

5.1.40. Dudley Bluffs Bladderpod (*Lesquerella congesta)*

The Dudley Bluffs bladderpod (*Physaria congesta* or *Lesquerella congesta*) is a rare members of the Brassicaceae (mustard) family. Dudley Bluffs bladderpod is an extremely small cushion plant only 0.4 to 1.2 inches in diameter with a congested mass of bright yellow flowers and narrow silvery leaves rising from a long, thin taproot. The cushion growth habit is an adaptation to erosive badland soils, which has evolved independently in several unrelated taxa in this area. Flowering is typically during April and May, and fruit set from late May into June.

This rare mustard grow on barren white outcrops exposed along drainages by erosion from downcutting of streams in the Picaence Basin in Rio Blanco County, Colorado. The bladderpod is a rare species; its entire range is limited to within 10 miles of the original type locality where it grows on the top and sides of level outcrops where the white shale is exposed.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Dudley Bluffs bladderpod habitat will be altered. The proposed action will have no effect on Dudley Bluffs bladderpod or their habitat.

5.1.41. Dudley Bluffs Twinpod (*Physaria obcordata*)

The Dudley Bluffs twinpod (*Physaria obcordata*) is a rare member of the Brassicaceae (mustard) family. Dudley Bluffs twinpod is 4.8 to 7.2 inches tall with oblanceolate, entire

leaves 0.4 to 0.6 inches wide and 1.6 to 3.8 inches long, with a silvery sheen due to a dense covering of overlapping, dish-shaped trichomes. The species' scientific name refers to the hear-shaped silique or fruit. Flowers are yellow, and typically present in May and June.

This rare mustard grow on barren white outcrops exposed along drainages by erosion from downcutting of streams in the Picaence Basin in Rio Blanco County, Colorado. The range of Dudley Bluffs twinpod is slightly broader than the bladderpod, with some occurences separated by as much as 23 miles, growing on steep sideslopes

Watercraft inspections will occur along existing highways or otherwise developed areas. No Dudley Bluffs twinpod habitat will be altered. The proposed action will have no effect on the Dudley Bluffs twinpod or their habitat.

5.1.42. Fickeisen Plains Cactus (*Pediocactus peeblesianus fickeiseniae*)

The Fickeisen Plains Cactus (*Pediocactus peeblesianus fickeiseniae*) is a very small unbranched to occasionally branched globose cactus. Stems of mature plants are 2.5 to 6.5 centimeters (cm) (1.0 to 2.6 in) tall and up to 5.5 cm (2.2 in) in diameter. They are covered with turbercles that form a spiral pattern around the plant. Each turbercle has 6 to 7 radial spines that are spongy with a long central spine (1.5 to 1.8 cm (0.59 to 0.70 in) that is strongly curved. Flowers are creamy white and bloom mid-April to mid-May; fruiting occurs mid-May to early June. The cactus then retracts below ground and can become buried by surface gravel making detection difficult outside the flowering period.

The Fickeisen Plains Cactus is endemic to the Colorado Plateau, and occurs within the Great Basin grasslands and Great Basin desert scrub vegetation communities at elevations between 1,280 to 1,814 m. Populations occur in shallow, gravelly, and well-drained soils derived from exposed layers of Kaibab limestone. Plants are found on the margins of canyon rims, flat terraces or benches, or on the toe of well-drained hills with less than 20 percent slope.

Current threats include trampling by livestock, nonnative invasive species, rodent and rabbit herbivory, drought, and climate change that exacerbate the effects of small population size. The species is a narrow endemic restricted to Kaibab limestone-derived soils. Because of its rarity and disjunct occurrence, this cactus is vulnerable to depopulation by damage to areas where it occurs. The species seems to have low reproductive capacity, even during favorable weather conditions.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Fickeisen Plains Cactus habitat will be altered. The proposed action will have no effect on Fickeisen Plains Cactus or their designated critical habitat.

5.1.43. Heliotrope Milk-vetch (*Astragalus montii*)

Heliotrope Milk-vetch (*Astragalus montii*) is a perennial, herbaceous plant in the legume family (Fabaceae). The species is very low growing nearly stemless plant approximately

1 to 5 centimeters (cm) (0.4 to 2 in.) tall with pinnately compound leaves (5 to 13 leaflets). Heliotrope Milk-vetch has two to eight flowers borne in a racemose inflorescence. Heliotrope Milk-vetch occurs in three populations land in the Manti-LaSal National Forest.

Heliotrope Milk-vetch occurs within a subalpine mixed grass-forb plant community at high elevation, 10,500 to 11,000 ft on limestone barrens derived from the Flagstaff Geological Formation. The Heliotrope Milk-vetch occurs on shallow and poorly developed soil on exposed bedrock or rock fragments. Soil texture is clay loam to a silty clay loam (light gray to grayish brown color) and soil pH range from 7.5-8.0.

The species preferred habitat on top of hills and benches is unsuitable for inspection stations and will be avoided. Watercraft inspections will occur along existing highways or otherwise developed areas. No Heliotrope Milk-vetch habitat will be altered. The proposed action will have no effect on Heliotrope Milk-vetch or their designated critical habitat.

5.1.44. Jones Cycladenia (*Cycladenia humilis var. jonesii*)

The Jones cycladenia (*Cycladenia humilis var. jonesii*) is a long-lived herbaceous perennial in the Dogbane family (Apocynaceae) which grows 4 to 6 inches tall. It has orbicular, wide-oval or elliptical leaves and produces pink or rose-colored, trumpet shaped showers that resemble small morning glories from mid-April to early June.

Jones cycladenia is known from 26 sites in southern Utah and northern Arizona. It occurs between 4,390 to 6,000 feet elevation in plant communities of mixed desertscrub, juniper, or wild buckwheat Mormon tea. It is found on gypsiferous, saline soils of Cutler, Summerville, and Chinle Formations.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Jones cycladenia habitat will be altered. The proposed action will have no effect on Jones cycladenia or their habitat.

5.1.45. Knowlton's Cactus *(Pediocactus knowltonii*)

The Knowlton's Cactus (*Pediocactus knowltonii*) is a very small cactus, solitary or clustered, globular, ranging in size from 0.7-5.5 cm tall and 1-3 cm in diameter, gray-green with minute radial spines and no central spines. The Knowlton's Cactus occurs in the pinyon-juniper woodland of northwestern New Mexico.

Knowlton's Cactus grows on rolling, gravelly hills of alluvial deposits covered with pea to cobble-sized surficial rocks on the Colorado Plateau. The cactus occurs in the piñon-juniper woodland plant community. The annual precipitation of this region is approximately 30 centimeters, mostly during summer and winter months.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Knowlton's Cactus habitat will be altered. The proposed action will have no effect on Knowlton's Cactus or their habitat.

5.1.46. Kodachrome Bladderpod (*Lesquerella tumulosa*)

The Kodachrome bladderpod (*Lesquerella tumulosa)* is a perennial herbaceous plant which produces a dense mound of cushion like growth. The flowers of Kodachrome bladderpod are yellow. In most years, the plants begin flowering in late April and continue through May with seed dispersal occurring in June. Kodachrome bladderpod is restricted to one population of scattered occurrences found only in Kane County, Utah. The Kodachrome bladderpod grows on white, bare shale knolls at elevations of about 5,700 feet. Today, more than 90 percent of the species' known range occurs on the Grand Staircase-Escalante National Monument, which is managed by the BLM. Private landowners and the Kodachrome Basin State park comprise the rest of the range.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Kodachrome bladderpod habitat will be altered. The proposed action will have no effect on Kodachrome bladderpod or their habitat.

5.1.47. Last Chance Townsendia (*Townsendia aprica)*

The Last Chance townsendia (*Townsendia aprica*) is a low-growing perennial herb in the sunflower family. The species is stemless, with its leaves and flowers around ground level. It measures less than one inch tall and 1 - 2 inches wide. Last Chance townsendia has narrow leaves measuring about 0.5 inches long which are covered with fine hairs. The flower is apricot to yellow-orange in color with a darker colored center than the outer petals. Flowering occurs from April to May while fruiting occurs from May to June. Last Chance townsendia is easily distinguished from other townsedias by the yellow flowers and the short bristles at the top of the ray flower seeds (<0.04 inch).

Last Chance townsendia is endemic to central Utah, where is occurs in Emery, Sevier, and Wayne counties. Soils that allow the species to grow typically have unusual chemistries. The soils are derived from shale lenses with very fine silt textures and high alkalinity. The species is associated with the pinon-juniper grasslands community of the Mancos Shale Formation, and occurs between 6,100 - 8,000 feet in elevation.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Last Chance townsendia habitat will be altered. The proposed action will have no effect on Last Chance townsendia or their habitat.

5.1.48. Mancos Milk-vetch (*Astragalus humillimus*)

The Mancos Milkvetch (*Astragalus humillimus*) is a diminutive, tufted perennial forming clumps up to 30 cm (12 inches) across, that are crowned with a dense aggregation of persistent, spiny leaf stalks. The stems are up to 1 cm (0.4 inch) long, and are crowded with leaves along their entire length. The leaves are up to 4 cm (1.6 inch) long, each with 7-11 oval leaflets, 0.7-2.0 mm (0.1 inch) in length. Flowers are lavender to purplish with a conspicuous lighter-colored spot in the throat of the corolla tube.

Mancos Milkvetch is known only from remote semi-arid sandstone rimrock ledges and mesa tops of northwest New Mexico and southwest Colorado (Four Corners area). The known geographic distribution of Mancos Milkvetch follows a narrow band of Mesozoic sandstone from Mancos Canyon, Colorado to just south of the San Juan River in New Mexico. Mancos Milkvetch is restricted to small, poorly defined tan colored units of the Point Lookout sandstone. The high degree of specificity of the Mancos milkvetch to this substrate suggests the presence of some element in the rock that the plant requires for normal growth. Mancos Milkvetch is usually found on large, nearly flat sheets of sandstone, or can be found in cracks or fissures in the sandstone or at the base of gentle slickrock inclines. The substrate is characterized by exfoliation and this physical property may be an important factor influencing the distribution of the taxon. The mean elevation for known populations is approximately 1,854 meters (5,650 feet).

The restricted species habitat and range is well-defined and will be avoided. Watercraft inspections will occur along existing highways or otherwise developed areas. No Mancos Milkvetch habitat will be altered. The proposed action will have no effect on Mancos Milkvetch or their habitat.

5.1.49. Mesa Verde Cactus (*Sclerocactus mesae-verdae*)

The Mesa Verde cactus (*Sclerocactus mesae-verdae*) occurs in Montezuma County, Colorado, and San Juan County, New Mexico. Mesa Verde Cactus occurs within a rectangular edaphic strip on the Colorado-New Mexico border east of the four corners. In all, five major populations are known, one in the southwestern corner of Colorado and four in northwestern New Mexico.

In general, the Mesa Verde cactus is restricted to clay formations that erode easily, forming low rolling hills {"badlands") with sparse vegetation. The Mancos and Fruitland Formations have high alkalinity, are gypsiferous, and have shrink-swell properties that make them harsh sites for plant growth. The cactus roots are anchored in the Mancos Shale Formation while the base of the plant rests on the Menefee Formation which comprises a very thin surface layer.

The Mesa Verde cactus is most frequently found growing on the tops of hills or benches, slopes of hills, and very rarely on level ground between the hills or benches. The exact geologic strata occupied by the species, and its edaphic requirements are poorly known and need to be determined in order to provide clues to factors restricting its distribution. This cactus grows at 1,600-2,000 meters elevation in areas where annual precipitation varies from 8-20 cm.

The species preferred habitat on top of hills and benches is unsuitable for inspection stations and will be avoided. Watercraft inspections will occur along existing highways or otherwise developed areas. No Mesa Verde cactus habitat will be altered. The proposed action will have no effect on Mesa Verde cactus or their habitat.

5.1.50. Navajo Sedge (*Carex specuicola*)

Navajo Sedge (*Carex specuicola*) is a member of the sedge family (Cyperaceae; FWS 1987) that reaches a height of 25.4-40.6 cm (10-16 in). Numerous stems grow from a rhizome (underground stem), giving each plant a clumped form. Each plant has both male and female flowers, the male flowers occurring only on the ends of stems and the female flowers occurring below the male flowers or in spikes on the sides of stems.

This sedge occurs at seep-springs on vertical cliffs of pink-red Navajo sandstone at 1,740-1,830 m (5,700-6,000 ft) elevation along the deep, sheer-walled canyons of the Colorado Plateau geographic region. The plant community inhabiting the vertical seeps includes monkey flower and orchid.

Formerly known only from a few localities in the Navajo Creek drainage (Cococino County), recent surveys have documented Navajo sedge in other drainage systems in Apache and Navajo Counties. Navajos living in the Navajo Creek area recall the presence of Navajo sedge in areas where it is not found today. Recently, a population was found in San Juan County, Utah.

Surveys for this species are incomplete. Navajo sedge might be located in the general regional area of Arizona and Utah, in seep-springs on canyon walls of Navajo sandstone or other similar eolian sandstone formations. The specialized and limited available habitat make this species vulnerable to threats, including livestock grazing and trampling (at accessible sites) and the potential for habitat loss due to underground water pumping.

Watercraft inspections will occur along existing highways or otherwise developed areas rather than vertical cliffs. No seep-spring habitat will be altered. The proposed action will have no effect on Navajo sedge or their habitat.

5.1.51. Osterhout Milkvetch (*Astragalus osterhoutii*)

The Osterhout milkvetch (*Astragalus osterhoutii*) is endemic to Middle Park near Kremmling in Grand County, Colorado growing on siltstone sediments. The Osterhout milkvetch occurs in scattered colonies (25,000 to 50,000 individuals) over a 15-mile range that overlaps the range of the Penland beardtongue. Ninety percent of the Osterhout milkvetch occurs along Muddy Creek. Up to 60 percent of this major population could be adversely affected through either direct or indirect impacts.

The plants are probably glacial relics now naturally limited to the small existing area of suitable habitat (desert badlands) in Middle Park surrounded by high ranges of the Rocky Mountains. The species occurs on desert badlands with fragile soils that are very vulnerable to surface disturbance from various threats, including off-road vehicles, oil and gas drilling, and mining claims. Osterhout milkvetch shows evidence of light grazing and can be found on old road cuts and fills,-indicating some tolerance for disturbance. The species has benefited from conservation/recovery measure through fee simple

purchase or land exchange by the Bureau of Land Management (BLM), Colorado River Water Conservation District, and The Nature Conservancy.

The restricted species range is well-defined and will be avoided. Watercraft inspections will occur along existing highways or otherwise developed areas. No Osterhout Milkvetch habitat will be altered. The proposed action will have no effect on Osterhout Milkvetch or their habitat.

5.1.52. Pagosa Skyrocket (*Ipomopsis polyantha*)

The Pagosa skyrocket grows on weathered Mancos Shale outcrops at about 7,000 feet elevation in the vicinity of Pagosa Springs in southwestern Colorado. Two known occurrences of the species exist; the largest includes three miles of highway right-of-way and the private properties that extend for about one mile on either side. A smaller occurrence of about 23 acres also includes highway right of way, private, and Bureau of Land Management land.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Pagosa skyrocket habitat is well-documented and will be avoided entirely for inspection stations. The proposed action will have no effect on Pagosa skyrocket or their designated critical habitat.

5.1.53. Parachute Beardtongue (*Penstemon debilis*)

Parachute beardtongue grows only on oil shale outcrops on the Roan Plateau escarpment in Garfield County, Colorado. The total estimated number of plants is about 4,000 individuals. Eighty-two percent of the plants are on lands owned by a natural gas and oil shale production company; the rest are on Bureau of Land Management land. The species entire range is within the southern part of the Piceance Basin, one of the largest natural gas reserves in North America.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Parachute beardtongue habitat will be altered. The proposed action will have no effect on Parachute beardtongue or their designated critical habitat.

5.1.54. Pariette Cactus (*Sclerocactus brevispinus*)

The pariette cactus has been listed as threatened under the Endangered Species Act since 2007. Pariette cactus (*Sclerocactus brevispinus*) is a barrel-shaped cactus that ranges from 2.5 to 8 centimeters (cm) (1.0 to 3.1 inches (in.)) tall. Pariette cactus is a morphologically unique *Sclerocactus*, with flowering adults that are much smaller than either *S. glaucus* or *S. wetlandicus*. Pariette cactus has stems with typically 13 ribs that extend from the ground to the tip of the plant. Along the ribs are areoles (small, cushion-like areas) with hooked spines. There are three types of spines, radial and central, defined by the size and position on the plant (**74 FR 47112**). The 5 to 13 radial spines are located around the margin of the areole, extending in a plane parallel to the body of

the plant. The radial spines are white or gray to light brown, and are 5 to 15 millimeters (mm) (0.2 to 0.6 in.) long. The 0 to 3 central spines are 2 to 5 mm (0.08 to 0.2 in.) long and extend from the center of the areole. The central spines include abaxial and lateral forms. Abaxial spines are typically single and are strongly hooked with the tip almost touching the surface of the areole. Lateral spines are usually absent, but when present are on either side of the abaxial spine, are more or less straight without the obvious bend or hook, and form an acute angle with the abaxial spine (usually 20 to 50 degrees).

The bell-shaped flowers usually have pink tepals (petal-like flower parts not differentiated into petals and sepals) and yellow stamens (the male reproductive organ of the flower), and are 1 to 1.5 cm (0.4 to 0.6 in.) long and 1.2 to 3 cm (0.4 to 1.2 in.) wide (**74 FR 47112**). The fruit is short, barrel-shaped, reddish or reddish grey when ripe, 7 to 12 mm (0.3 to 0.5 in.) wide, and 9 to 25 mm (0.35 to 1.0 in.) long.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Pariette cactus habitat will be altered. The proposed action will have no effect on Pariette cactus or their habitat.

5.1.55. Penland Alpine Fen Mustard (*Eutrema penlandii*)

The Penland Alpine Fen Mustard (*Eutrema penlandii*, Fen Mustard) occurs in alpine meadows at elevations above 11,800 feet in the Mosquito Range of the Rocky Mountains in central Colorado. Plants are most often found along east facing, gentle slopes and basins that are fed moisture by slow-melting snowfields above. They are often rooted in tufts of mosses or hidden among short-bladed grasses.

Fen Mustard is threatened by activities that damage its sensitive habitat or alter local hydrology. Recreation activities such as off-road vehicle use (including winter travel), camping, hiking, and roads pose a great threat to Fen Mustard and its habitat. Land development, including mining, also have an impact on the species. In addition, the effects of climate change are likely to endanger the survival of Fen Mustard, as well as many other plant and animal species adapted to alpine ecosystems.

The Penland Alpine Fen Mustard occurs at high elevation. Watercraft inspections will occur along existing highways or otherwise developed areas. No Penland Alpine Fen Mustard habitat will be altered. The proposed action will have no effect on Penland Alpine Fen Mustard or their habitat.

5.1.56. Penland Beardtongue (*Penstemon penlandii*)

The Penland beardtongue (*Penstemon penlandii*) is endemic to Middle Park near Kremmling in Grand County, Colorado. It is only found within 2 miles of the type locality with approximately 5,000 plants growing on siltstone sediments (late Tertiary / Miocene Troublesome Formation). Penland Beardtongue is recognized by its linear, revolute green leaves, pubescent stems, and intermediate height.

The plants are probably glacial relics now naturally limited to the small existing area of suitable habitat (desert badlands) in Middle Park surrounded by high ranges of the

Rocky Mountains. The species occurs on desert badlands with fragile soils that are very vulnerable to surface disturbance from various threats, including off-road vehicles, oil and gas drilling, and mining claims.

The species has benefited from conservation/recovery measure through fee simple purchase or land exchange by the Bureau of Land Management (BLM), Colorado River Water Conservation District, and The Nature Conservancy.

The restricted species range is well-defined and will be avoided. Watercraft inspections will occur along existing highways or otherwise developed areas. No Penland Beardtongue habitat will be altered. The proposed action will have no effect on Penland Beardtongue or their habitat.

5.1.57. San Rafael Cactus (*Pediocactus despainii*)

The San Rafael Cactus (*Pediocactus despainii*) is a small sub-globose cactus. The species is usually solitary stemmed, 3.8-6.0 cm tall and 3.0-9.5 cm in diameter. The stem apex extends from the ground level to 5 cm above. Central spines are lacking with 9-13 white radial spines. Flowering occurs from March to May with fruiting from May to June. The specific timing of flowering and fruiting varies from year to year apparently due to temperature and moisture conditions of late winter and early spring. Much of the year the cacti shrink underground or back to ground surface, to defend against an annual cycle of extreme heat, drought and cold. The time of year when the cacti retract underground and whether they retract fully under the surface of the soil or remain partially visible appears to vary by individual population and annual weather conditions.

San Rafael cactus grows in fine textured, mildly alkaline soils rich in calcium derived from limestone substrates in soils characterized as mainly alluvium and colluvium. San Rafael cactus most commonly occurs on benches, hill tops and gentle slopes, most abundantly on sites with a south exposure and elevations of 1450-2080 m. San Rafael cactus populations are a component of the vegetative community occurring at the lower elevations of a piñon-juniper woodland plant community and the upper elevations of a galleta-three awn shrub-steppe community.

Watercraft inspections will occur along existing highways or otherwise developed areas. No San Rafael Cactus habitat will be altered. The proposed action will have no effect on San Rafael Cactus or their habitat.

5.1.58. Shrubby Reed-mustard (*Schoenocrambe suffrutescens*)

Shrubby reed-mustard (*Schoenocrambe suffrutescens*) is a perennial herbaceous plant, with clumped stems 4 to 12 inches tall arising from a branching wood root crown. The leaves are entire with a smooth margin, 0.4 to 1 inch long and 0.12 to 0.4 inches wide. The leaf blades are alternately arranged on the stem and are subsessile or attached to the stem by a short petiole. The flower of *S. suffrutescens* have petals that are light yellow or greenish yellow and spatulately shaped measuring about 0.4 inch long and

0.12 inch wide. The entire flowers are about 0.4 inch across in full anthesis and are displayed in a raceme of, commonly, 5 to 20 flowers at the end of the plant's leafy stems.

Schoenocrambe suffrutescens occurs in 3 areas in Uintah and Duchesne Counties. The U.S. Fish and Wildlife Service (Service) now estimates the species is limited to about 3,000 individuals within 3 areas and 7 populations. From 1935, when the species was first discovered, to 1987, when the species was listed, the population declined in size and range. The reasons for the decline are not well understood, but the practice of mining stone within occupied habitat was thought to be a major contributor, as was winter sheep grazing.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Shrubby reed-mustard habitat will be altered. The proposed action will have no effect on Shrubby reed-mustard or their proposed critical habitat.

5.1.59. Siler Pincushion Cactus (*Pediocactus sileri*)

The Siler Pincushion Cactus (*Pediocactus sileri*) is a small, solitary or occasionally clustered, globose cactus about 13.5 cm (5 in) tall (with exceptional specimens reaching 46 cm (18 in)) and 7.6-10.0 cm (3-4 in) in diameter (occasionally larger). Spines are brownish-black, becoming gray to white with age. Flowers are yellowish with maroon veins, 1.9-2.5 cm (0.75-1 in) in diameter and bloom in the spring.

Grows on gypsiferous clay and sandy soils of the Moenkopi Formation. The rounded hills often support a sparser vegetation than adjacent areas of different substrate. Habitat is characterized by desert scrub vegetation, in transitional areas between the Navajo Desert, Sagebrush Desert, and the Mojave Desert. Found at elevations between 850-1,650 m (2,800-5,400 ft), on all aspects of the hills and on slopes varying from 0-80 degrees.

Only several locations are known where relatively dense population clusters occur. Individual plants are widely separated in other areas of the Moenkopi that are marginally suitable for this species. All known localities occur in Kane and Washington counties, Utah, and in northern Mohave and northwestern Coconino counties, Arizona. This species is vulnerable to illegal collection, uranium mining and exploration, off-road vehicle disturbance, and pesticide application.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Siler Pincushion Cactus habitat will be altered. The proposed action will have no effect on Siler Pincushion Cactus or their habitat.

5.1.60. Uinta Basin Hookless Cactus (*Sclerocactus wetlandicus*)

The Uinta Basin hookless cactus has been protected under the Endangered Species Act (Act) since 1979 (44 FR 58868). Until recently it was considered a part of *S. glaucus* (Uinta Basin hookless cactus). On September 15, 2009 (**74 FR 47112**), we officially recognized the taxonomic split of this species into three distinct species: *S.*

brevispinus (Pariette cactus), *S. glaucus* (Colorado hookless cactus), and *S. wetlandicus* (Uinta Basin hookless cactus).

Uinta Basin hookless cactus is a barrel-shaped cactus that ranges from 4 to 25 centimeters tall (1.5 to 10 inches). The stems have typically 12 to 15 ribs that extend from the ground to the tip of the plant. The funnel-shaped flowers are usually pink to violet with yellow stamens, and are 2 to 5 cm (0.8 to 2 in.) long and 2 to 5 cm (0.8 to 2 in.) in diameter (74 FR 47112). The fruit is short, barrel-shaped, reddish or reddish grey when ripe, 7 to 12 mm (0.3 to 0.5 in.) wide, and 9 to 25 mm (0.35 to 1.0 in.) long. Uinta Basin hookless cactus is generally found on coarse soils derived from cobble and gravel river and stream terrace deposits, or rocky surfaces on mesa slopes at 1,350 to 1,900 meters (4,400 to 6,200 feet) in elevation.

At the time of the original listing of the Uinta Basin hookless cactus complex, ongoing and foreseeable threats included mineral and energy development, illegal collection, recreational off-road vehicle use, and grazing.

A recovery outline was completed for the species in (USFWS 2010). This document lays out a preliminary course of action for the recovery of the Uinta Basin hookless cactus. It serves to guide recovery efforts and inform consultation and permitting activities.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Uinta Basin hookless cactus habitat will be altered. The proposed action will have no effect on Uinta Basin hookless cactus or their designated critical habitat

5.1.61. Ute Ladies'-tresses (*Spiranthes diluvialis*)

Ute ladies'-tresses was listed as threatened in 1992. Critical habitat has not been designated. This flowering plant can be found in Idaho and Washington. The species occurs primarily in riparian areas where the vegetation is relatively open and not overly dense, overgrown, or overgrazed (Coyner 1989; Jennings 1989).

Ute ladies'-tresses is a perennial herb with erect, glandular-pubescent stems 12-60 cm tall arising from tuberous-thickened roots. Basal leaves are narrowly linear, up to 1 cm wide and 28 cm long, and persist at the time of flowering. Leaves become progressively smaller up the stem and are alternate. The inflorescence is a sparsely pubescent 3-15 cm long spike of numerous small white or ivory-colored flowers arranged in a gradual spiral. Individual flowers are 7.5-15 mm long and faintly fragrant (with a vanilla-like scent). The lip petal is oval to lance-shaped, narrowed at the middle, and has crispy-wavy margins. Sepals are separate or fused only at the base (not fused into a hood-like structure) and are often spreading at their tips. Fruits are cylindrical capsules with numerous seeds. *Spiranthes diluvialis* has been adversely affected by modification of its riparian habitat. It may also be threatened by livestock grazing.

Watercraft inspection stations will be located in existing developed areas, not near riparian habitat. The proposed action will not affect any riparian habitat where this plant could be located. This action will have no effect on Ute ladies'-tresses.

5.1.62. Welsh's Milkweed (*Asclepias welshii*)

This member of the milkweed family (Asclepiadaceae) is a rhizomatous (with underground stems), herbaceous perennial, 10-40 inches (0.25-1 meter) tall, with large oval leaves. Flowers are cream-colored with a rose-tinged center, and bloom in June and July. The juvenile form has long, linear leaves, so is easily overlooked or misidentified. Due to the clonal nature of this species and its extensive, deep root system, surveys have consisted of counting stems emerging from underground rhizomes rather than counts of individual plants.

Sparsely vegetated semi-stabilized sand dunes and the lee slopes of actively drifting sand dunes derived from Navajo sandstone, at elevations from 4,700 to 6,250 feet (1432 to 1905 meters). An estimated 72,000 stems are distributed over about 8,000 acres (3,075 hectares) in eight populations. About 98% of stems occur in the Coral Pink Sand Dunes, Kane County, Utah. The other populations are at Sands Hill, Kane County Utah; south of Monument Valley, Apache and Navajo counties, Arizona; north of Tuba City and west of Page, Coconino County, Arizona; and three populations at the west end of the Paria-Vermillion Cliffs Wilderness Area on the Utah/Arizona border, Coconino County, Arizona and Kane County, Utah. Potential: Southern Utah and northern Arizona where sand dunes derived from Navajo sandstone occur.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Welsh's Milkweed habitat will be altered. The proposed action will have no effect on Welsh's Milkweed or their designated critical habitat.

5.1.63. Western Prairie Fringed Orchid (*Platanthera praeclara*)

The western prairie fringed orchid occurs in moist tallgrass prairies and sedge meadows. It is commonly found with sedges, reedgrass, and rushes or where those plants meet big bluestem, little bluestem, and switchgrass. The western prairie fringed orchid is well adapted to survive fires. Light grazing does not appear to negatively affect the western prairie fringed orchid, although researchers are still studying the relationship.

Vegetative shoots of the western prairie fringed orchid emerge in late May. Flowers do not emerge until mid-June to late July. The entire plant can display flowers for about 21 days, with individual flowers lasting up to 10 days. Flowers must be pollinated for seed production. Pollination of the western prairie fringed orchid appears to be accomplished only by hawkmoths. The microscopic seeds are dispersed by wind and flooding in early fall. The western prairie fringed orchid is a perennial; however, differences exist between North Dakota and Minnesota populations in how long an individual plant lives. In North Dakota, most plants live 3 years or less and show higher rates of mortality than Minnesota plants.

The western prairie fringed orchid is distinguished by large, white flowers that come from a single stem. Up to 20 flowers may occur on a single plant. The flower is fringed on the margins, giving it a feathery appearance. The western prairie fringed orchid

grows up to 3 feet high. The 2 to 5 leaves are narrow and hug the stem. The Western prairie fringed orchid does not occur in the Upper Colorado Basin.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Western prairie fringed orchid habitat will be altered. The proposed action will have no effect on Western prairie fringed orchid or their designated critical habitat.

5.1.64. Whitebark Pine (*Pinus albicaulis*)

Whitebark pine is listed as a candidate species. Critical habitat has not been designated. This tree can be found in Idaho, Montana, Oregon and Washington. The distribution of whitebark pine includes coastal and Rocky Mountain ranges that are connected by scattered populations in northeastern Washington and southeastern British Columbia (Arno and Hoff 1990; Keane *et al*. 2012). More than 96 percent of the distribution of whitebark pine in the contiguous United States is federally owned or managed, 34 percent of which is designated as wilderness.

Whitebark pine is a tree that is typically 5-20 m (16-66 ft) tall with a rounded or irregularly spreading crown shape. On higher density conifer sites, whitebark pine tends to grow as tall, single-stemmed trees, whereas on open, more exposed sites, it tends to have multiple stems (McCaughey and Tomback 2001). Above tree line, it grows in a krummholz form, with stunted, shrub-like growth caused by high winds and cold temperatures (Arno and Hoff 1989). This pine species is monoecious (with both male pollen and female seed cones on the same tree). Its characteristic dark brown to purple seed cones are 5-8 cm (2-3 in) long and grow at the outer ends of upper branches (Hosie 1969).

Whitebark pine is a 5-needled conifer species placed in the subgenus *Strobus*, which also includes other 5-needled white pines. This subgenus is further divided into two sections (*Strobus* and *Parrya*), and under section *Strobus*, into two subsections (*Cembrae* and *Strobi*). Whitebark pine is a hardy conifer that tolerates poor soils, steep slopes, and windy exposures and is found at alpine tree line and subalpine elevations throughout its range (Tomback *et al*. 2001). It grows under a wide range of precipitation amounts, from about 51 to over 254 cm (20-100 in) per year (Farnes 1990). Whitebark pine may occur as a climax species, early successional species, or seral (midsuccessional stage) co-dominant associated with other tree species. Although it occurs in pure or nearly pure stands at high elevations, it typically occurs in stands of mixed species in a variety of forest community types.

Whitebark pine also provides important, highly nutritious seeds for a number of birds and mammals (Tomback *et al*. 2001). Whitebark pine trees are capable of producing seed cones at 20-30 years of age, although large cone crops usually are not produced until 60-80 years (Krugman and Jenkinson 1974, as cited in McCaughey and Tomback 2001). Therefore, the generation time of whitebark pine is approximately 60 years (COSEWIC 2010). Whitebark pine seed predators are numerous and include more than 20 species of vertebrates including Clark's nutcracker (*Nucifraga columbiana*), pine

squirrels (*Tamiasciurus* spp.), grizzly bears (*Ursus arctos*), black bears (*Ursus americanus*), Steller's Jay (*Cyanocitta stelleri*), and pine grosbeak (*Pinicola enucleator*) (Lorenz *et al*. 2008). Seed predation plays a major role in whitebark pine population dynamics, as seed predators largely determine the fate of seeds. However, whitebark pine has co-evolved with seed predators and has several adaptations, like masting, that has allowed the species to persist despite heavy seed predation (Lorenz *et al*. 2008). Masting is the process by which populations synchronize their seed production and provide varying amounts from year to year. During years with high seed production, typically once every 3–5 years in whitebark pine (McCaughey and Tomback 2001), seed consumers are satiated, resulting in excess seeds that escape predation (Lorenz *et al*. 2008).

Threats to whitebark pine are white pine blister rust and mountain pine beetle infestations. Climate change/global warming may also lead to a decrease in the whitebark pine population.

Watercraft inspections will occur along existing highways or otherwise developed areas. No trees will be affected by the proposed action. Therefore this action will have no effect on whitebark pine.

5.1.65. Zuni Fleabane (*Erigeron rhizomatus)*

The Zuni fleabane (*Erigeron rhizomatus*) is an herbaceous perennial that grows as clusters of numerous erect unbranched stems up to 2.0 ft (0.6 m) tall. The leaves are narrow, up to 0.4 inch (1.0 cm) long, and arranged alternately on the stem. Flower heads are solitary at the ends of the stems. The heads are 0.6-0.7 in (13-16 mm) in diameter with pale blue ray flowers and yellow disk flowers. Flowers in May and June.

Zuni fleabane grows in selenium-rich red or gray detrital clay soils derived from the Chinle and Baca formations. Plants are found at elevations from 7,300-8,000 ft (2,230-2,440 m) in pinyon-juniper woodland. Zuni fleabane prefers slopes of up to 40 degrees, usually with a north-facing aspect. Although the overall vegetative cover is usually high, there are few other competing plants on the steep easily erodible slopes that are Zuni fleabane's primary habitat.

Zuni fleabane is found only in areas of suitable soils in the Sawtooth Mountains and in the northwestern part of the Datil mountains in Catron County, New Mexico. There are 29 known sites in this area, which range in size from a fraction of an acre to about 260 acres (105 hectares). There are two sites on the northwest side of the Zuni Mountains in McKinley County, New Mexico, and one site in Apache County, Arizona.

Watercraft inspections will occur along existing highways or otherwise developed areas. No Zuni fleabane habitat will be altered. The proposed action will have no effect on Zuni fleabane or their habitat.

5.2 Summary of Effects to ESA-listed Species

5.2.1. Mammals

There are seven mammals in this evaluation. All watercraft inspection sites will be sited in previously disturbed areas that are heavily frequented by humans. Wild mammals would avoid these areas. If there is any ground disturbance associated with the establishment of watercraft inspection stations, surveys for small mammals may need to be conducted and the mammals avoided. The small mammals and their states are listed in Table 3.

5.2.2. Birds

There are eight birds in this evaluation. No vegetation which could provide nesting, feeding, or resting habitat will be disturbed by any action associated with the proposed project. If a watercraft inspection station is planned to be developed or modified with ground-disturbing activities, surveys for this species will be conducted by a trained state biologist (Table 3). If any individuals are located, no ground-disturbing actions will occur at the site. ESA-listed birds will not be affected in any way be the proposed action. There will be no effect on ESA-listed birds.

5.2.3. Reptiles

There is one reptile in this evaluation (Northern Mexican Gartersnake). There will be no impact to ponds or streams from any part of the proposed action. There will be no effect on Northern Mexican Gartersnake or their proposed critical habitat.

5.2.4. Amphibians

There is one amphibian in this evaluation (Jemez Mountain Salamander). There will be no impact to forest habitat from any part of the proposed action. There will be no effect on Jemez Mountain Salamanders or their habitat.

5.2.5. Fish

There are eleven fish in this evaluation. There will be no impact on any waterways from establishment or operation of watercraft inspection stations. There will be no discharge of wash water into any waterbody. All wash water from cleaning/decontaminating watercraft will evaporate, percolate into the ground, or be transferred to a location away from any waterbody. There will be no effect to any ESA-listed fish from the proposed action.

5.2.6. Insects

There is one insect in this evaluation (Uncompahgre Fritillary Butterfly). It occurs in high mountain locations far from watercraft inspection stations. The proposed action will

have no effect on Taylor's checkerspot or its designated critical habitat. Similarly, there will be no modification to habitat required by Fender's blue butterfly. The propose action will have no effect on this butterfly or its designated critical habitat.

5.2.7. Plants

There are 36 plant species in this evaluation. Several ESA-listed plants may be found along roadways. These plants are listed in Table 3 with the states they occur in. The measures presented in section 10 of this evaluation will be followed so there will be no effect on any ESA-listed plant species.

Table 3. ESA-listed species requiring site specific survey for any projects with ground disturbing or vegetation disturbing activities.

Additional Survey/Habitat Assessment Required for Ground Disturbance	
Location	Species
Utah	Utah Prairie Dog
Arizona and Utah	Mexican Spotted Owl
Utah and Western Colorado	Yellow-billed Cuckoo
Utah and Western Colorado	Southwestern Willow Flycatcher
Utah	Barneby Reed-mustard
Utah	Barneby Ridge-cress
Utah	Clay Phacelia
Utah	Clay Reed-mustard
Utah	Heliotrope Milk-vetch
Utah	Jones Cycladenia
Utah	Kodachrome Bladderpod
Utah	Last Chance Townsendia
Utah	Navajo Sedge
Utah	Pariette Cactus
Utah	San Rafael Cactus
Utah	Shrubby Reed-mustard
Utah	Siler Pincushion Cactus
Utah	Uinta Basin Hookless Cactus
Utah	Ute Ladies'-tresses
Utah	Welsh's Milkweed
Utah	Winkler Cactus
Utah	Wright Fishhook Cactus

6. Magnuson-Stevens Fishery Conservation and Management Act

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or

biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH.

There will be no impacts to any waterbody from the proposed action. Therefore there will be no adverse effect to EFH and no further consultation is required.

7. Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) authorizes the USFWS to evaluate the impacts to fish and wildlife species from proposed Federal water resource development projects that could result in the control or modification of a natural stream or body of water that might have effects on the fish and wildlife resources that depend on that body of water or its associated habitats.

There will be no impacts to any waterbody from the proposed action. Therefore this act does not apply to the proposed action.

8. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.

Watercraft inspection station sites will be assessed/surveyed to determine presence/absence of suitable habitat/location of ground nesting or shrub nesting birds. No trees, shrubs, or other bird habitat is proposed to be cut or damaged by the establishment of watercraft inspection stations. Birds will not be affected. There will be no take of migratory birds.

9. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions, primarily for Native American Tribes. Take under the BGEPA includes both direct taking of individuals and take due to disturbance. Disturbance is further defined on 50 CFR 22.3.

Watercraft inspection stations are located along existing highways or at launching sites. If eagles are located near an inspection station, they would be accustomed to vehicle traffic on the adjacent roadways. The National Bald Eagle Management Guidelines

(USFWS 2007) will be followed if an inspection station is located within 330 feet of an eagle nest. The proposed action will not disturb or take any bald or golden eagles.

10. Required Stipulations

Most ESA-listed species are not located in close proximity to watercraft inspection stations or other sites where hot washes could be conducted. There will be no effect on any of these species. Some plant or small mammal species could be located along roadways in some counties or locals where watercraft inspection stations could be established. The following stipulations will be followed to eliminate any impacts to ESA-listed and other protected species.

1. No new ground disturbance will occur to establish watercraft inspection stations without performing a survey of the area for ESA-listed species or migratory bird nests if they might be present in the area (see Table 3).

2. Water or debris from a hot wash or other decontamination will be prevented from entering any waterbody.

3. Wash water will not be allowed to flow over land covered by any type of vegetation without performing a survey of the area for ESA-listed plants in specific areas (see Table 3).

4. Any runoff from washing/decontaminating a vessel will either evaporate, percolate directly into the ground, be collected in a retention basin with no possibility of reaching waterbodies or wetlands, or be transferred to a location away from any waterbody.

5. There could be instances where a wash/decontamination will be performed at a watercraft owner's residence. In such instances, trained staff will evaluate the location, including where any runoff could go. If there is any chance of discharging to an uninfected waterbody, the watercraft will be hauled to an area where no water or debris from the wash/decontamination will be discharged to a waterbody.

6. There will be no wetland disturbances or other negative effects to wetlands.

7. Watercraft inspection station sites will be assessed/surveyed to determine presence/absence of suitable habitat/location of ground nesting or shrub nesting birds. No trees, shrubs, or other bird habitat is proposed to be cut or damaged by the establishment of watercraft inspection stations.

11. References

Elwell, L.C., and S. Phillips, editors. 2016. Uniform Minimum Protocols and Standards for Watercraft Inspection and Decontamination Programs for Dreissenid mussels in the Western United States (UMPS III). Pacific States Marine Fisheries Commission, Portland, OR.

Pacific Northwest Economic Region (PNWER) and Pacific States Marine Fisheries Commission (PSMFC). 2015. *Advancing a Regional Defense against Dreissenids in the Pacific Northwest*.

Washington Department of Fish and Wildlife (WDFW). 2015. Aquatic Invasive Species Prevention and Enforcement Program, 2015 Report to the Legislature.

USFWS. 2007. National Bald Eagle Management Guidelines. https://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf

Species-Specific References

Black-footed Ferret

U.S. Fish and Wildlife Service. 2013. Recovery plan for the black-footed ferret (*Mustela nigripes*). U.S. Fish and Wildlife Service, Denver, Colorado. 157 pp.

Canada Lynx

Litvaitis, J.A. and D.J. Harrison. 1989. Bobcat-coyote niche relationships during a period of coyote population increase. Can. J. Zool. 67:1180-1188.

U.S. Fish and Wildlife Service. 2017. Species Status Assessment for the Canada lynx (Lynx canadensis) Contiguous United States Distinct Population Segment. Version 1.0, October, 2017. Lakewood, Colorado.

Gray Wolf

Gipson, P.S., E.E. Bangs, T.N. Bailey, D.K. Boyd, H.D. Cluff, D.W. Smith, and M.D. Jimenez. 2002. Color patterns among wolves in western North America. Wildlife Society Bulletin. 30(3):821-830.

Mech, L.D. 1974. Canis lupus. Baltimore: American Society of Mammalogists, Mammalian Species, 37.

Smith, D.W., D.R. Stahler, D.S. Guernsey, and E. Bangs. 2006. Wolf Restoration in Yellowstone National Park. In: *World Natural Heritage Site Yellowstone and Shiretoko: conservation of wildlife in national parks* (eds. D. R. McCullough, K. Kaji, and M. Yamanaka. Shiretoko). Nature Foundation Press, pp. 242-254.

U.S. Fish and Wildlife Service. 2017. Mexican Wolf Recovery Plan, First Revision. Region 2, Albuquerque, New Mexico, USA. 50 pgs.

Grizzly Bear

Bjornlie, D.D.; D.J. Thompson; F.T. Van Manen; M.A. Haroldson; M.R. Ebinger; and C.M. Costello. 2014. Whitebark pine, population density, and home-range size of grizzly bears in the Greater Yellowstone Ecosystem. PLoS ONE, V9, n2.

Koford, C.B. 1969. The last of the Mexican grizzly bear. IUCN Bulletin 2: 95.

Leopold, A.S. 1967. Grizzlies of the Sierra del Nido. Calif. Acad. Sci. Pacific Discovery XX(5):30-32.

Mattson, D.J. and T. Merrill. 2002. Extirpations of grizzly bears in the Contiguous United States, 1850-2000. Conservation Biology. V16. n4. 1123-1136.

Rausch, R.L. (1963). Geographic variation in size in North American brown bears, *Ursus arctos L.,* as indicated by condylobasal length. Canadian Journal of Zoology 41: 33–45.

Schwartz, C.C., S.D. Miller, and M.A. Haroldson. 2003. Grizzly bear. Pages 556-586 in G.A. Feldhamer, B.C. Thompson, and J.A. Chapman, editors. Wild Mammals of North America. Biology, Management, and Conservation. Second edition. Johns Hopkins University Press. Baltimore, MD.

Schwartz, C.C; M.A. Haroldson; K.A. Gunther; and D. Moody. 2006a. Distribution of grizzly bears in the Greater Yellowstone Ecosystem in 2004. Ursus. V17. n1. 63-66.

Schwartz, C.C., M. A. Haroldson, G. C. White, R. B. Harris, S. Cherry, K. A. Keating, D. Moody, and C. Servheen. 2006b. Temporal, spatial, and environmental influences on the demographics of grizzly bears in the Greater Yellowstone Ecosystem. Wildlife Monographs 161. 68pp.

Servheen, C.W. 1990. Grizzly bear recovery plan. Draft. U.S. Fish and Wildlife Service. Missoula, MT.

Servheen, C. 1999. Status and management of the grizzly bear in the lower 48 United States. Pages 50-54 in C. Servheen, S. Herrero, and B. Peyton, comps. Bears: Status survey and conservation action Plan. IUCN/SSC Bear and Polar Bear Specialist Groups, IUCN, Gland, Switzerland and Cambridge, UK.

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. Missoula, MT 181 pp.

New Mexico Meadow Jumping Mouse

U.S. Fish and Wildlife Service (USFWS). 2014. Species Status Assessment Report New Mexico meadow jumping mouse *(Zapus hudsonius luteus*). U.S. Fish and Wildlife Service, Albuquerque, NM 149 pgs.

North American Wolverine

Banci, V. 1994. Chapter 5: Wolverine. In: Ruggiero, Leonard F.; Aubry, Keith B.; Buskirk, Steven W.; Lyon, L. Jack; Zielinski, William J., tech. eds. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the western United States. Gen. Tech. Rep. RM-254. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. p. 99-127.

Utah Prairie Dog

U.S. Fish and Wildlife Service (USFWS). 2012. Utah prairie dog (*Cynomys parvidens*) revised recovery plan. U.S. Fish and Wildlife Service, Denver, CO. 169 pp.

U.S. Fish and Wildlife Service (USFWS). 2018. Range-Wide General Conservation Plan for the Utah Prairie Dog in Residential and Commercial Development Areas. U.S. Fish and Wildlife Service, Utah Ecological Services Field Office.4/3/2018

California Condor

U.S. Fish and Wildlife Service (USFWS). 1996. Recovery Plan for the California Condor *(Gymnogyps californianus)*. U.S. Fish and Wildlife Service, Portland, OR 74 pgs. http://www.fws.gov/southwest/es/arizona/Documents/RecoveryPlans/California_Condor_1996.pdf.

Gunnison Sage-grouse

Bureau of Land Management, Colorado Division of Wildlife, National Park Service, Natural Resources Conservation Service, North American Mediation Associates, U.S. Forest Service, U.S. Fish and Wildlife Service, Utah Division of Wildlife Resources 2005. Gunnison Sage-Grouse Rangewide Conservation Plan, April 2005, 490 pgs.

Least Tern

U.S. Fish and Wildlife Service (USFWS). 1990. Recovery Plan for the interior population of the Least Tern (*Sterna antillarum*). U.S. Fish and Wildlife Service, Twin Cities) Minnesota.

Mexican Spotted Owl

U.S. Fish and Wildlife Service (USFWS). 1995. Recovery Plan for the Mexican Spotted Owl (*Strix occidentalis lucida*). U.S. Fish and Wildlife Service, Albuquerque, NM 348 pgs.
http://www.fws.gov/southwest/es/arizona/Documents/RecoveryPlans/MexicanSpottedOwl.pdf

Piping Plover

U.S. Fish and Wildlife Service (USFWS). 1994. Revised recovery plan for piping plovers (*Charadrius melodus*) breeding on the Great Lakes and northern Great Plains. Technical Agency Review Draft. U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service (USFWS). 1998. Northern Great Plains Piping Plover Recovery Implementation Conducted by the Fish and Wildlife Service in Region 6 (MT, ND, SD, NE, KS, CO) 1986-1997.

U.S. Fish and Wildlife Service (USFWS). 2003. Recovery Plan for the Great Lakes Piping Plover (*Charadrius melodus*). Ft. Snelling, Minnesota. viii + 141 pp.

Southwestern Willow Flycatcher

U.S. Fish and Wildlife Service (USFWS). 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. i-ix + 210 pp., Appendices A-O. 8/30/2002

Whooping Crane

Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2007. International recovery plan for the whooping crane. Ottawa: Recovery of Nationally Endangered Wildlife (RENEW), and U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 162 pp.

Yellow-billed Cuckoo

U.S. Fish and Wildlife Service (Service). 2014a. 50 CFR Part 17 Endangered and threatened wildlife and plants: Determination of threatened status for the western distinct population segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Final Rule. Federal Register 79(192):59992-60038.

U.S. Fish and Wildlife Service (Service). 2014b. 50 CFR Part 17 Endangered and Threatened Wildlife and Plants: Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*); Proposed Rule. Federal Register 79(158):48548-48652.

Northern Mexican Gartersnake

Arizona Game and Fish Department 2017. Final Environmental Assessment for the Final Amendment to Add Northern Mexican Gartersnake to the Lower Colorado River Multi-Species Conservation Program as a Covered Species. Appendix A. 16 Pgs.

Jemez Mountains Salamander

New Mexico Endemic Salamander Team. 2000. Cooperative Management Plan for the Jemez Mountains Salamander (*Plethodon neomexicanus*) on Lands Administered by the Forest Service.

U.S. Fish and Wildlife Service 2013a. Endangered and Threatened Wildlife and Plants; Determination of Endangered Species Status for Jemez Mountains Salamander (*Plethodon neomexicanus*) Throughout Its Range; Final Rule. Federal Register 50 CFR Part 17, September 10, 2013.

U.S, Fish and Wildlife Service 2013b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Jemez Mountains Salamander. Final Rule. Federal Register 50 CFR Part 17, November 20, 2013.

Bonytail

U.S. Fish and Wildlife Service (USFWS). 1990. Bonytail Chub – Revised Recovery Plan. U.S. Fish and Wildlife Service, Denver, CO 35 pgs.

Colorado Pikeminnow

U.S. Fish and Wildlife Service (USFWS). 2002. Colorado pikeminnow (*Ptychocheilus lucius*) Recovery Goals: amendment and supplement to the Colorado Squawfish Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado. 8/1/2002

Greenback Cutthroat Trout

U.S. Fish and Wildlife Service (USFWS). 1998. Greenback cutthroat trout recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado.

Humpback Chub

U.S. Fish and Wildlife Service (USFWS). 2002. Humpback chub (*Gila cypha*) Recovery Goals: amendment and supplement to the Humpback Chub Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado. 8/2/2002

U.S. Fish and Wildlife Service (USFWS). 2018. Species status assessment for the Humpback Chub (*Gila cypha*). U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, CO.

June Sucker

U.S. Fish and Wildlife Service (USFWS). 1999. June sucker *(Chasmistes liorus)* Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado. 61 pp.

Kendall Warm Springs Dace

U.S. Fish and Wildlife Service (USFWS), Wyoming Game and Fish Department, and U.S. Forest Service.1982. The Kendall Warm Springs Dace Recovery Plan, dated July 12, 1982.

Pallid Sturgeon

U.S. Fish and Wildlife Service (USFWS). 1993. Pallid Sturgeon Recovery Plan. U.S. Fish and Wildlife Service, Bismarck, North Dakota. 55 pp.

Razorback Sucker

U.S. Fish and Wildlife Service (USFWS). 2002. Razorback sucker (*Xyrauchen texanus*) Recovery Goals: amendment and supplement to the Razorback Sucker Recovery Plan. U.S. Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado. 8/1/2002

Rio Grande Silvery Minnow

U.S. Fish and Wildlife Service (USFWS). 2010: Rio Grande Silvery Minnow (*Hybognathus amarus*) recovery plan, first revision. Albuquerque, NM. https://ecos.fws.gov/docs/recovery_plan/022210_v2.pdf.

Virgin River Chub

U.S. Fish and Wildlife Service (USFWS). 1994. Virgin River Fishes Recovery Plan. Salt Lake City, Utah. 45 pp.

Zuni Bluehead Sucker
U.S. Fish and Wildlife Service (USFWS). 2014. Zuni Bluehead Sucker (*Catostomus discobolus yarrowi*). Species information provided by U.S. Fish and Wildlife Service, Ecological Services. 1 pg.

Uncompahgre Fritillary Butterfly
Fish and Wildlife Service. 1994. Uncompahgre Fritillary Butterfly Recovery Plan. Denver, CO. 20 pgs.

Barneby Reed-mustard
U.S. Fish and Wildlife Service (USFWS). 1994. Utah reed—mustards: clay reed—mustard (*Schoenocrambe argillacea*), Barneby reed-mustard (*Schoenocrambe barnebyl*), shrubby reed—mustard (*Schoenacranibe suffrutescens*) recovery plan. Denver, Colorado. 22 pp.

Barneby Ridge-cress
U.S. Fish and Wildlife Service (USFWS). 2015. Barneby Ridge-cress (*Lepidium barnebyanum*) Factsheet. U.S. Fish and Wildlife Service, Denver, Colorado. https://www.fws.gov/mountain-prairie/es/barnebyRidgecress.php. accessed 07302020.

Blowout Penstemon
U.S. Fish and Wildlife Service (USFWS). 2015. Blowout penstemon (*Penstemon haydenii*) Factsheet. U.S. Fish and Wildlife Service, Denver, Colorado. https://www.fws.gov/mountain-prairie/es/blowoutPenstemon.php#, accessed 07302020.

Brady Pincushion Cactus
U.S. Fish and Wildlife Service (USFWS). 1985. Brady Pincushion Cactus Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. iv + 68 pp.

Chapin Mesa Milkvetch
U.S. Fish and Wildlife Service 2010. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List *Astragalus microcymbus* and *Astragalus schmolliae* as Endangered or Threatened; Proposed Rule. Federal Register 50 CFR Part 17, December 15, 2010.

Clay Phacelia
U.S. Fish and Wildlife Service (USFWS). 1982. *Phacelia argillacea* Atwood Recovery Plan. U.S. Fish and Wildlife Service. 4/12/1982

Clay Reed-mustard
U.S. Fish and Wildlife Service (USFWS). 1994. Utah reed—mustards: clay reed—mustard (*Schoenocrambe argillacea*), Barneby reed-mustard (*Schoenocrambe barnebyl*), shrubby reed—mustard (*Schoenacranibe suffrutescens*) recovery plan. Denver, Colorado. 22 pp.

Clay-loving Wild Buckwheat

U.S. Fish and Wildlife Service. 1988. Clay-loving Wild-buckwheat Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado. 15 pp.

Colorado Hookless Cactus
U.S. Fish and Wildlife Service (USFWS). 2010. Recovery Outline for the Colorado hookless cactus (*Sclerocactus glaucus*) Colorado Ecological Services Field Office, April 2010. 17 pgs.

Debeque Phacelia
U.S. Fish and Wildlife Service (USFWS). 2013. Recovery Outline DeBeque phacelia (*Phacelia submutica*) Western Colorado Ecological Services Field Office, January 2013. 23 pgs.

Dudley Bluffs Bladderpod
U.S. Fish and Wildlife Service. 2020. Recovery Plan for the Dudley Bluffs Bladderpod (*Physaria (Lesquerella) congesta*) and Dudley Bluffs Twinpod (*Physaria obcordata*). Western Colorado Ecological Services Field Office, Grand Junction, Colorado. 14 pgs.

Dudley Bluffs Twinpod
U.S. Fish and Wildlife Service. 2020. Recovery Plan for the Dudley Bluffs Bladderpod (*Physaria (Lesquerella) congesta*) and Dudley Bluffs Twinpod (*Physaria obcordata*). Western Colorado Ecological Services Field Office, Grand Junction, Colorado. 14 pgs.

Fickeisen Plains Cactus
U.S. Fish and Wildlife Service (USFWS). 2013. Fickeisen Plains Cactus (*Pediocactus peeblesianus* var. *fickeisen**iae*****),** Species Account. Arizona Ecological Services Field Office, https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=Q1C9, accessed 07302020.

Heliotrope Milk-vetch
U.S. Fish and Wildlife Service (USFWS). 1995. Heliotrope milkvetch (*Astragalus montii*) recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 11 pp.

Jones Cycladenia
U.S. Fish and Wildlife Service (USFWS). 2008. Recovery Outline for the Jones Cycladenia (*Cycladenia humilis var. jonesii*). December 2008. 11 pgs.

Knowlton's Cactus
U.S. Fish and Wildlife Service (USFWS). 1985. Knowlton Cactus Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. iv + 53 PP•

Kodachrome Bladderpod
U.S. Fish and Wildlife Service (USFWS). 2009. Recovery Outline for the Kodachrome bladderpod (*Lesquerella tumulosa*). Utah Ecological Services Field Office, August 2009. 11 pgs.

Last Chance Townsendia
U.S. Fish and Wildlife Service. 1993. Last Chance townsendia (*Townsendia aprica*) recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 18 pgs.

Mancos Milk-vetch
U.S. Fish and Wildlife Service (USFWS). 1989. Mancos milkvetch (*Astragalus humillimus*) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, Mexico. 47 pp.

Mesa Verde Cactus
U.S. Fish and Wildlife Service (USFWS). 1984. Mesa Verde Cactus Recovery Plan. U.S. Fish and Wildlife Service,. Albuquerque, New Mexico 63 pp.

Navajo Sedge
U.S. Fish and Wildlife Service (USFWS). 1987. Navajo Sedge (*Carex specuicola*) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, NM 45 pgs.

Osterhout Milkvetch
U.S. Fish and Wildlife Service (USFWS). 1992. Osterhout milkvetch and Penland beardtongue recovery plan. Denver, Colorado. 16 pp.

Pagosa Skyrocket
U.S. Fish and Wildlife Service (USFWS). 2010. Recovery Outline Pagosa skyrocket (*Ipomopsis polyantha*). Western Colorado Ecological Services Field Office. January 2013. 14 pgs.

Parachute Beardtongue
U.S. Fish and Wildlife Service (USFWS). 2013. Recovery Outline Parachute beardtongue (*Penstemon debilis*). Western Colorado Ecological Services Field Office. January 2013. 15 pgs.

Pariette Cactus
U.S. Fish and Wildlife Service (USFWS). 2010. Recovery Outline for the *Sclerocactus brevispinus* (Pariette Cactus). Utah Ecological Services Field Office, April 2010. 17 pgs.

Penland Alpine Fen Mustard
Mosquito Range Mustard (*Eutrema penlandii*) Species Account. Western Colorado Field Office, http://www.fws.gov/coloradoes

Penland Beardtongue
U.S. Fish and Wildlife Service (USFWS). 1992. Osterhout milkvetch and Penland beardtongue recovery plan. Denver, Colorado. 16 pp.

San Rafael Cactus
U.S. Fish and Wildlife Service (USFWS). 2015. Winkler cactus (*Pediocactus winkleri*) and San Rafael cactus (*Pediocactus despainii*) recovery plan. Technical/agency draft. U.S. Fish and Wildlife Service, Denver, Colorado. xii+ 133 pp.

Shrubby Reed-mustard
U.S. Fish and Wildlife Service (USFWS). 1994. Utah reed—mustards: clay reed—mustard (*Schoenocrambe argillacea*), Barneby reed-mustard (*Schoenocrambe barnebyl*), shrubby reed—mustard (*Schoenacranibe suffrutescens*) recovery plan. Denver, Colorado. 22 pp.

Siler Pincushion Cactus
U.S. Fish and Wildlife Service (USFWS). 1986, Siler Pincushion Cactus Recovery Plan, U.S. Fish and Wildlife Service, Albuquerque, New Mexico, 57 pp.

Uinta Basin Hookless Cactus
U.S. Fish and Wildlife Service (USFWS). 2010. Recovery Outline for the *Sclerocactus wetlandicus* (Uinta Basin Hookless Cactus) Utah Ecological Services Field Office April 2010.15 pp.

Ute Ladies'-tresses Orchid
Coyner, j. 1989. Status check on reported historic populations *of Spiranthes diluvialis.* Memorandum, U.S. Fish and Wildlife Service, Salt Lake City, Utah. 9 pp.

Jennings, W.F. 1989. Final report. Species studied: *Eustoma grandiflorum, Spiranthes diluvialis, Malaxis brachypoda, Hypoxia hirsuta, Physaria bellii, Aletes humilis.* Unpublished report prepared for The Nature Conservancy under the Colorado Natural History Small Grants Program. The Nature Conservancy, Boulder. Colorado. 48 pp.

U.S. Fish and Wildlife Service. 1995. Ute ladies'-tresses (*Spiranthes diluvialis*) recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 46 pp.

Welsh's Milkweed
U.S. Fish and Wildlife Service (USFWS). 1992. Welsh's Milkweed (*Asclepias welshii*) Recovery Plan. U.S. Fish and Wildlife Service, Denver, Colorado.

Western Prairie Fringed Orchid
U.S. Fish and Wildlife Service. 1996. *Platanthera praeclara* (western prairie fringed orchid) recovery plan. U.S. Fish and Wildlife Service, Ft. Snelling, Minnesota. vi + 101 pgs.

Whitebark Pine
Arno, S.F. and R.J. Hoff. 1990. *Pinus albicaulis Engelm*. Whitebark pine. Pages 268, 279 In Burns, R.M. and B.H. Honkala (tech. coords.). Silvics of North America. USDA Forest Service, Agriculture Handbook 654. Washington, D.C. 675 pp.

Arno, S.F. and R.J. Hoff. 1989. Silvics of whitebark pine (*Pinus albicaulis*). U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, UT. General Technical Report INT,253. January 1989. 11 pp.

COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2010. COSEWIC assessment and status report on the whitebark pine *Pinus albicaulis*

in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Canada. Available online at: http://www.sararegistry.gc.ca/status/status_e.cfm. x + 44 pp.

Farnes, P.E. 1990. SNOTEL and snow course data: describing the hydrology of whitebark pine ecosystems. Pages 302,304 In Schmidt, W.C. and K.J. McDonald (compilers). Proceedings-Symposium on Whitebark Pine Ecosystems: Ecology and Management of a High-Mountain Resource. 1989 March 29,31. Boseman, Montana. General Technical Report INT,270. Ogden, Utah. USDA Forest Service, Intermountain Research Station. 386 pp.

Hosie, R.C. 1969. Native Trees of Canada. Can. Forest Service. Queens Printer for Canada. Ottawa. 380 pp.

Keane, Robert E., Tomback, D., Aubry, C., Bower, A., Campbell, E., Jenkins, M., Manning, M., McKinney, S., Murray, M., Perkins, D., Reinhart, D., Ryan, C., Schoettle, A., Smith, C. 2012. A range-wide restoration strategy for whitebark pine (*Pinus albicaulis*). General Technical Report RMRS-GTR-279. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, 108 pp.

Lorenz, T.J., C. Aubry, and R. Shoal. 2008. A review of the literature on seed fate in whitebark pine and the life history traits of Clark's nutcracker and pine squirrels. USDA Forest Service, Pacific Northwest Research Station. Portland, Oregon. General Technical Report PNW, 742. April 2008. 62 pp.

McCaughey, W.W. and D.F. Tomback. 2001. The natural regeneration process. Pages 105, 120, Chapter 6 in Tomback, D.F., S.F. Arno, and R.E. Keane (eds.). Whitebark Pine Communities: Ecology and Restoration. Island Press. Washington, D.C. 440 pp.

Tomback, D.F., Arno, S.F., and R.E. Keane. 2001. The compelling case for management intervention. Pages 4-25 In Tomback, D.F., S.F. Arno, and R.E. Keane (eds.). Whitebark Pine Communities: Ecology and Restoration. Island Press. Washington, D.C. 440 pp.

Zuni Fleabane

U.S. Fish and Wildlife Service (USFWS). 1988. Zuni fleabane (*Erlgeron rhlzomatus*) Recovery Plan. U .s. Fish and Wildlife Service, Albuquerque, New Mexico38 pp.