SAN JUAN RIVER HEADWATERS PROJECT

A PRELIMINARY ENVIRONMENTAL OVERVIEW

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SAN JUAN RIVER HEADWATERS PROJECT
PRELIMINARY ENVIRONMENTAL ASSESSMENT

Introduction

This document has been prepared to describe current conditions and to identify those resources that would likely have to be addressed in the environmental assessment of a proposed land exchange between the U.S. Forest Service and the San Juan Water Conservancy District (SJWCD). This document also identifies potential resources that may be affected on private lands currently controlled by the Conservancy District as a result of connected actions to the Federal land exchange. The purpose of the land exchange is to acquire publically-owned lands that, along with the adjacent aforementioned private lands, would be used for the development of a reservoir under the direction of the SJWCD. The proposed reservoir would be located in the Dry Gulch Basin approximately 2½ miles northeast of Pagosa Springs, Colorado. The reservoir would have a capacity of 11,000 acre-feet and would inundate an estimated area of 330 acres at normal high water. Of that area approximately 58 acres of the total 191 acres comprising the proposed Federal exchange parcel would be inundated by the reservoir.

Description of Lands Associated With the Proposed Reservoir Project

Description of the Federal Parcel Proposed For Exchange

The Federal exchange parcel lies within the San Juan National Forest (SJNF) and is located 2½-3 miles northeast of Pagosa Springs (from the U.S. Highway 160/U.S. Highway 84 intersection). It lies at an average elevation of approximately 7,350 feet. The entirety of the parcel falls within the watershed of Dry Gulch Basin, a low-lying collection area for several ephemeral and intermittent drainages.[1] This drainage system is a tributary to the San Juan River. The general orientation of the landform is west-southwest with local variation associated with the individual drainages that pass through the area. The six ephemeral drainages that flow through the parcel create a somewhat broken topography of ridges and relatively narrow drainage corridors that tend to broaden on the western edge of parcel as they enter the basin. The individual drainages originate from the primary ridge between Fawn Gulch and Dry Gulch and vary considerably in their extensiveness. That portion of the watershed that drains through the Federal parcel encompasses an area of roughly 1,300 acres.

The Federal parcel is occupied by three primary vegetation cover types: upland grassland/shrub, ponderosa pine forest, and riparian/alluvial meadow (Figure 1). These

[1] While all of these drainages naturally flow into the basin, they are currently intercepted by the Park Ditch, which runs along the western edge of the Federal parcel.

communities are important determinants of the plant and wildlife species likely to be associated with the project area.

Upland Grassland/Shrub Community

The upland grassland/shrub community occupies roughly 134 acres (70%) of the Federal parcel. It occurs predominantly on southerly and southwesterly-facing slopes, creating relatively dry site conditions. The vegetation in these areas is variable but generally consists of a sparse or discontinuous shrub cover of rabbitbrush *(Ericameria nauseosa)*, big sagebrush *(Artemisia tridentata)*, Wood's rose *(Rosa woodsii)* and antelope bitterbrush *(Purshia tridentata)*. The herbaceous cover varies in density with site, but is typically sparse to very sparse on upper slopes, increasing in density and species richness toward the middle and lower slopes. The overall density and plant composition of the herbaceous layer has likely been significantly influenced by past livestock grazing practices.

Common plants on the upper slopes of this cover type include pussytoes *(Antennaria spp.)*, Louisiana sagewort *(Artemisia ludoviciana)*, Whipple's cholla *(Cylindropuntia viridiflora)*, horse cinquefoil *(Potentilla hippiana)*, milkvetch *(Astragalus spp.)*, bladderpod *(Physaria acutifolia)*, blue grama *(Bouteloua gracilis)*, Indian ricegrass *(Achnatherum hymenoides)*, galleta *(Hilaria jamesii)*, western wheatgrass *(Pascopyrum smithii)*, and cheatgrass *(Bromus tectorum)*. Common forbs on the mid and lower upland slopes include mule's ear (*Wyethia amplexicaulis)*, cinquefoil *(Potentilla hippiana* and *P. pulcherrima)*, yarrow *(Achillea millefolium)*, redroot buckwheat *(Eriogonum racemosum)*, and ragweed sagebrush *(Artemisia franserioides)*. Common grasses in these areas include western wheatgrass, Indian ricegrass, needle-and-thread grass *(Hesperostipa comata)*, bottlebrush squirreltail *(Elymus elymoides)* and smooth brome *(Bromus inermis)*. Western wheatgrass is particularly prominent on many of the lower slopes in the grassland community. In addition to the native vegetation occurring in the upland grassland areas, a number of non-native species were identified during site surveys. These included scattered infestations of Colorado Class 2 noxious weed species: musk thistle *(Carduus nutans)*, Russian knapweed *(Rhaponticum repens)*, whitetop *(Cardaria draba)*, and occasional patches of Canada thistle *(Cirsium arvense)* in some moister areas in proximity to the drainage channels.

Upland Forest Community

Forests and woodlands occupy approximately 48 acres (25%) of the Federal parcel. These are predominantly ponderosa pine forests with occasional juniper *(Juniperus osteosperma and J. scopulorum)* occurring in the understory of the pine or in small pure patches on drier sites. Forested areas occur mainly on the relatively moister, northerly-facing sides of ridges. However, the largest contiguous stand within the parcel occurs on its northern edge on mostly south-easterly-facing slopes. The pine forests range in structural condition from open to relatively dense stands. Most of these forest stands are either in a late successional ("old-growth") stage of development or in a mid-successional stage with a scattered older component. Although no increment cores were taken from the older trees, many approach or likely exceed 200 years of age.

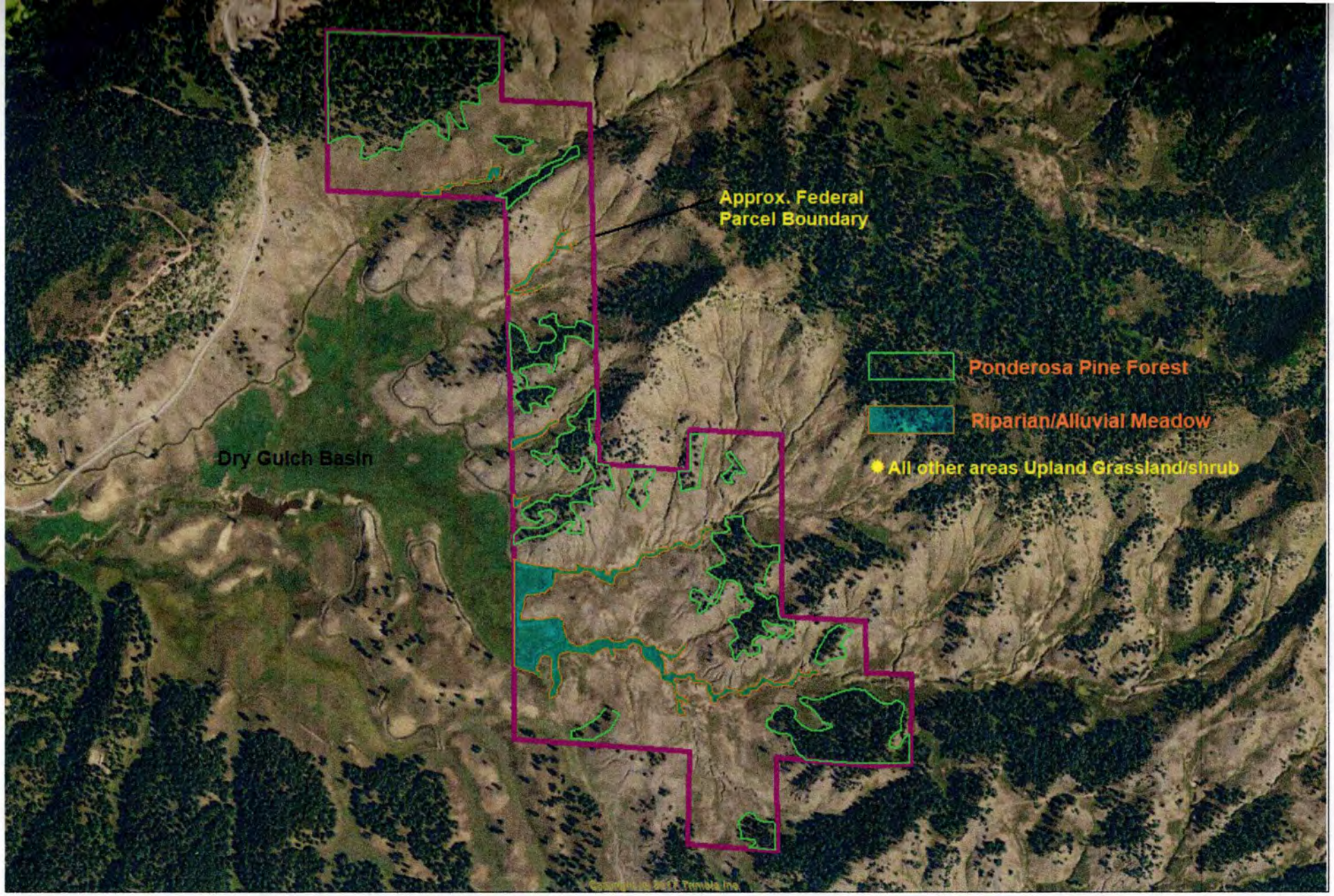

Figure 1. Federal parcel showing general vegetation cover types

Forest stands in the northern and southern ends of tract have relatively dense oak-dominated shrub understories, while those in the central portion of parcel tend to have more open understories resulting from their drier ridgetop and upper slope positions. Other common shrubby plants in addition to Gambel oak *(Quercus gambelii)* beneath the forest canopy include snowberry *(Symphoricarpos rotundifolia)*, mountain serviceberry *(Amelanchier alnifolia)*, bitterbrush, Wood's rose, Oregon grape *(Mahonia repens)*, and barberry *(Berberis fendleri)*. The herbaceous layers also tend to be more well-developed in the southern and northern ends of the parcel for both grasses and forbs. Common forbs occurring in the forested understories include yarrow, horse cinquefoil, mountain parsley *(Pseudocymopterus montanus)*, lupine *(Lupinus sp.)*, ragweed sagebrush, red root buckwheat, Louisiana sagewort, fleabane *(Erigeron spp.)*, northern bedstraw (*Galium septentrionale),* mule's ear, and American vetch *(Vicia americana)*. Common grasses noted in the forested habitats included western wheat, smooth brome, muttongrass *(Poa fendleriana)*, junegrass *(Koeleria macrantha)*, Kentucky bluegrass *(Poa pratensis)* and Ross's sedge *(Carex rossii)*.

Riparian/Alluvial Meadow Community

These areas are found along the bottoms of the ephemeral drainages that pass through the Federal parcel, as well as in their outflow areas in proximity to the irrigation canal that flows along the western edge of the parcel. These ephemeral drainages generally carry water only during spring snowmelt and for a short time after significant precipitation events. The soils in these areas are alluvial and relatively deep. They are moist through much of the early growing season but tend to dry out by early summer. While the soils may be re-hydrated periodically during run-off from later summer and fall precipitation, they do not (with some exceptions) retain adequate moisture to support hydrophytic vegetation, an indicator of hydric soils (wetlands). Foxtail barley tends to dominate the vegetation cover in these areas, forming dense pure stands in association with occasional patches of artic rush. Other plant species occurring in these areas include western wheat, smooth brome, junegrass, and timothy *(Phleum pretense)*. Some occasional small (<0.05 acres) pockets within the two southern-most drainages support some limited wet obligate plant species, predominantly sedge grasses *(Carex spp.)*, indicating areas with more persistent moisture retention.

The meadow areas along and below the irrigation canal appear to remain moist through most of the growing season due to constant recharge from seepage from the Park Ditch. This ditch appears to carry water throughout the growing period. Areas at the margins or in close proximity to the canal support dense stands of water sedge *(Carex aquatilis)* and beaked sedge *(Carex utriculata)* and seepage collection areas below the ditch support other sedge species, as well as other moist site species including artic rush, tufted hairgrass and orchard grass *(Dactylis glomerata)*. Isolated infestations of Canada thistle were noted in some of the ephemeral drainage bottoms, as well as in areas along the irrigation ditch.

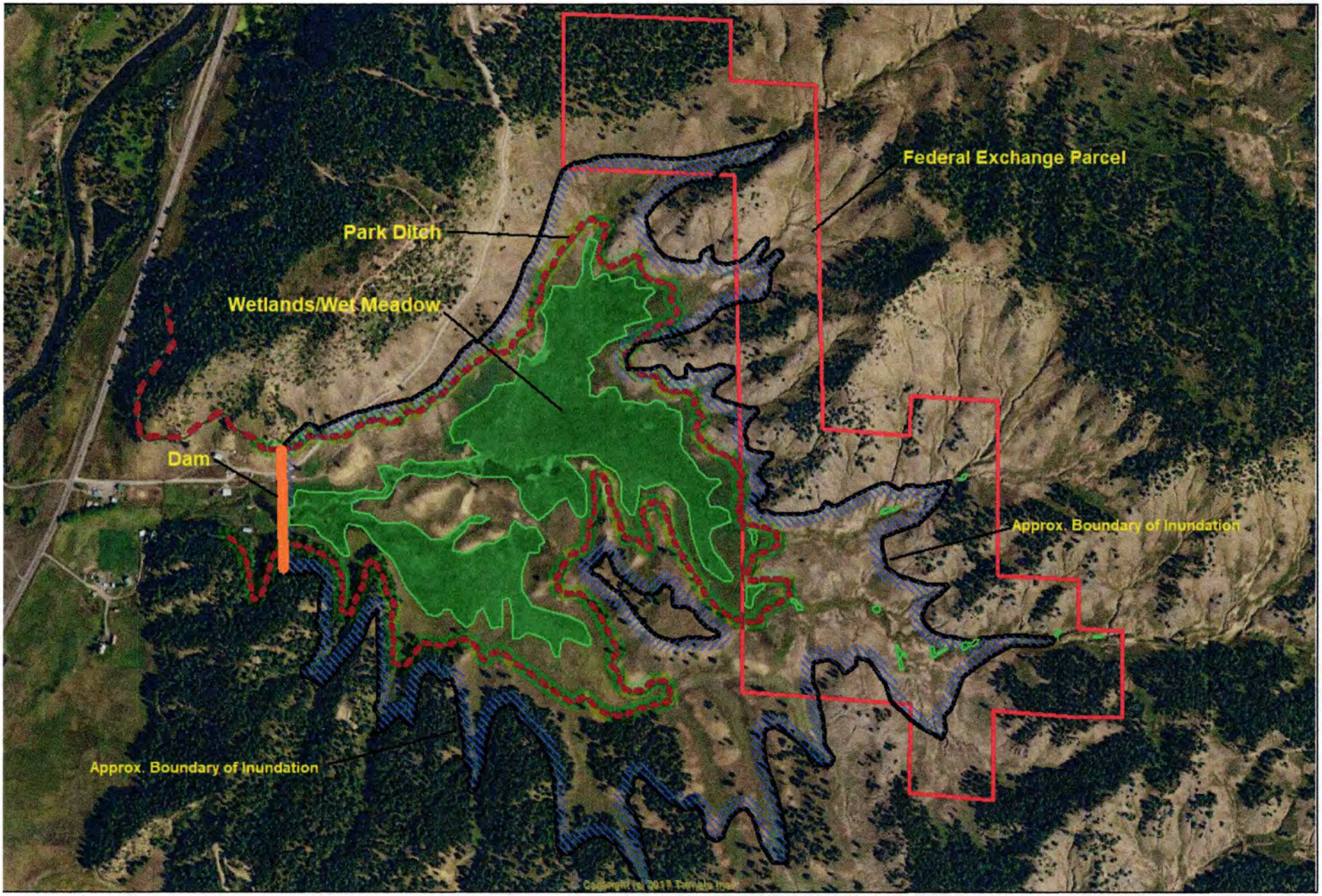

Figure 2. Project area map showing proposed reservoir inundation area, Federal parcel location and wetlands/wet meadows.

General Description of the Non-Federal Lands Associated with the Proposed Reservoir Project

The non-federal lands associated with the proposed reservoir lie predominantly west of the Federal parcel in an area locally known as the Dry Creek Basin (Figure 2). Most of these lands are owned by the SJWCD, although a small portion on what would be the southeastern end of the reservoir is owned by another private entity. The reservoir would inundate approximately 272 acres within the basin excluding the estimate 58 acres of inundation associated with Federal parcel. The Park Ditch contours the edge of the basin intercepting all of the intermittent and ephemeral drainages that flow into the area. This ditch originates from diversions of the San Juan River approximately 4 miles upstream. Waters from this ditch are used for irrigating the pasturelands in the basin using flood irrigation techniques. Seepage from channel also contributes to the overall hydrology of the area. Irrigation and seepage create moist to saturated conditions in lower lying areas and also provide water to small reservoirs located in the west central part of the basin and in the southwestern corner of the area. The reservoirs and connecting channels likely represent the natural drainage corridor within the basin.

The primary current use of the basin is livestock grazing. Fencing is present along the western edge of the basin and along the boundary between the private and public lands to manage livestock. It should be noted that these fences do not accurately define the surveyed boundaries between public and private lands. A two-lane gravel surfaced road runs along the western boundary of the project area. This road provides access to a gravel mining and processing operation located ¼-mile north of the northern end of the proposed reservoir. Haul traffic on this road can be relatively heavy during the daytime operating hours of the facility.

Vegetation Cover- Much of the proposed inundation area on the private lands consists of moist meadowlands with some drier grasslands occurring on the higher ground. Since the Park Ditch intercepts all of the natural drainages that flow into the basin, the moisture in the wetter areas originates primarily from the ditch as direct irrigation or from seepage from the ditch. Ponderosa pine forests are present along the southern edge of the area extending from low ridges into proposed reservoir site. Some individual trees are also scattered in drier open areas of the lower basin.

The open grassland areas within the basin are a mix of saturated wet meadow and marsh, moist mesic meadow and dry meadow. The boundaries of these vegetation zones are not always distinct and tend to merge as moisture regimes shift from saturated to drier conditions. The areas that are permanently saturated (at least during the growing season) are occupied predominantly by wet obligate plant species. These wet meadow areas include the vegetation lining the irrigation canal, low-lying water collection areas in the open grasslands, the immediate area around the pond and its outflow, as well as a marsh area situated (west) of the central reservoir. The Park Ditch is lined by dense stands of water sedge and beaked sedge through much of its course through the area. Vegetation in the saturated wet meadows also

include other sedges *(Carex spp.)*, horsetail *(Equisetum arvense)*, Arctic rush, spike-rush *(Eleocharis palustris)*, and tufted hairgrass. The marsh area includes these species, as well as cattail *(Typha latifolia)*. A few cottonwoods *(Populus angustifolia)* and patches of coyote willow *(Salix exigua)* occur along the irrigation ditch but are generally a minor component of the vegetative cover. Infestations of Canada thistle were noted as occurring intermittently within some of the wetter areas.

The mesic meadows tend to be moist but not necessarily completely saturated during the growing season. These areas are occupied by a mix of native vegetation and non-native vegetation but are dominated by introduced grasses including smooth brome, orchard grass, Kentucky bluegrass, and timothy *(Phleum pretense)*. Sedges and Arctic rush are common in the moister areas. While livestock graze through all of the pasture areas, the mesic meadows appear to receive some of the heaviest grazing pressure. Scattered drier areas occur on the low ridges and slightly higher ground on the basin floor. These dry areas support relatively sparse vegetation as a result of limiting soil moisture and livestock concentration. Common plant species in these drier areas included blue grama, Indian ricegrass, smooth brome, fescue *(Festuca sp.)* and pussytoes. Musk thistle and cheatgrass were becoming established on some of the drier round in the southern portions of the project area.

There are an estimated 33 acres of forest that occur within the inundation area on the private lands. These forested areas are located mainly along the southern edges of the proposed reservoir site and are comprised of a mix of mid-late successional ponderosa pine. These forests are moderately dense with well-developed oak-dominated shrub understories. Other understory vegetation is similar to that described for the similar forested areas on the Federal parcel.

Overview of Resources Requiring Detailed Consideration in the Federal Assessment Process for the Proposed Land Exchange & Future Reservoir Development

This section identifies the specific resources associated Federal exchange parcel that would likely have to be addressed through NEPA analysis for the proposed land exchange. It also identifies those affected resources on the private lands that would likely have be evaluated due to a connected action to the proposed exchange. Additionally, this section identifies resources associated with the private lands that may have to be addressed through the regulatory processes with agencies, such as the U.S. Army Corp of Engineers and the U.S. Fish and Wildlife Service (USFWS).

Wetlands

The Clean Water Act, under the jurisdiction of the EPA, establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include filling wetlands

for development, water resource projects such as dams and levees, infrastructure development such as highways and airports, and mining projects. Section 404 of the act requires that a permit be issued before dredged or fill material may be discharged into waters of the United States. Since it appears that jurisdictional wetlands do occur within the project area and that these would be affected by the proposed reservoir, the SJWCD would have to apply for a 404 permit through the Army Corp of Engineers.

Wetlands were identified as occurring on both the Federal and private lands associated with the proposed reservoir project. Some of these wet areas appear to be directly associated with irrigation and the Park Ditch, while others appear to be naturally-occurring wetlands that likely pre-dated irrigation activities. Generally, those wetland areas that exist solely due to irrigation would not be considered jurisdictional. However, since these areas tend to merge with natural wetlands, it would be the responsibility of applicant to determine the actual extent of the jurisdictional wetlands. Basically, this may require that irrigation activities be curtailed for at least two growing seasons to assess the natural hydrology of the area. This process would be complicated, to a degree, by the presence of the Park Ditch, which would intercept the natural flow of waters into the basin. The SJWCD will need to consult with the U.S. Army Corp of Engineers on what steps specifically need to be taken in the 404 permit application process.

Federal Parcel

Approximately 1.5 total acres of wetland were identified within the Federal exchange parcel. An estimated 0.6 acres was associated with the ephemeral drainages in the southern part of the parcel (Figure 2). These areas were generally small patches less than 0.1 acre in size, typically occurring in areas immediately below the confluences of the main drainage with side drainages, or in one case, in association with a small seep in the upper end of the drainage. Due to their small size and isolation, these wet areas would generally be considered low-functioning wetlands offering little in the way of significant water retention, sediment retention or wildlife habitat.

Approximately 0.5 acres were associated with the Park Ditch and the riparian/wetland conditions that have developed along its margins as it passes through the Federal parcel. The remaining areas were wet meadows located in the open grasslands below the ditch. The hydrology of these areas appear to be strongly influenced by seepage from the ditch. Considering the obvious association of these areas with the irrigation ditch, these would likely not be considered jurisdictional wetlands.

The exchange process should be independent of the wetlands permitting process, since the exchange, alone, would have no physical impact on any wetlands. However, wetlands occurring on the Federal exchange parcel are required to be balanced through the exchange in a manner such that no net loss of wetlands within federal jurisdiction occurs. This is typically accomplished by the proponent offering lands in the exchange that also have wetland components.

There are an estimated 5 acres of floodplain within the Federal parcel associated primarily with the two ephemeral drainages in the southern portion of the parcel. These floodplains occur within the drainage corridors and in their run-out areas into the basin. These are generally low-functioning floodplains due to the small volumes of water that are carried by their associated drainage systems. This is evidenced by the absence of defined channels along much of the lower reaches within either of the drainages. The primary functions of these floodplains include sediment retention and streamflow moderation during exceptionally high runoff events. Due to the relatively small floodplain area and small peak flows in their associated drainages, they play little or no role in the protection of downstream features or human-related structures.

Private Lands

A significant part of the basin is saturated during much of the growing season. Since all of the drainages that naturally flow into the basin are intercepted by the Park Ditch, the hydrology within the area is significantly influenced by irrigation and seepage from the ditch. This is augmented by a relatively small amount of occasional moisture from precipitation.

A detailed ground delineation of the wetlands within the inundation area of the reservoir on the private lands was outside the scope of this report. However, an attempt to identify those areas using aerial photo interpretation and ground-truthing was undertaken to approximate the wetland resource within the project area. Photos from 2005, 2009, 2013 and 2015 were used in this effort. Since all of the available photos represent imagery created during the irrigation season, it was difficult to distinguish seasonally moist areas associated directly with irrigation from those areas that are more perpetually saturated or areas more likely to fall into the classification of jurisdictional wetlands. From this exercise, it is estimated that up to 65 acres within the basin may exhibit the characteristics of wetlands. However, it is probable that much of this area would not be considered jurisdictional according to U.S. Army Corp of Engineers standards. Guidance from that agency will be required to determine what level of analysis would ultimately be needed to address the wetland resource likely to be impacted by the proposed reservoir project.

Threatened and Endangered Species

The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Section 7 of the Act, called "Interagency Cooperation," is the mechanism by which Federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species. This process usually begins as "informal" consultation in the early stages of project planning between the Federal agency (in this case, the USFS) and the U.S. Fish and Wildlife Service (USFWS). Discussions between the two agencies would include what types of listed species might occur in the proposed action area, what effect the proposed action may have on those species, and what steps may be required by the requesting agency in order to make an "effects" determination. If it is determined that the proposed action is likely

to adversely affect a listed species, the agency submits to the USFWS a request for formal consultation. During formal consultation, the USFWS and the requesting agency share detailed information about the proposed project and the species likely to be affected, after which the USFWS issues a Biological Opinion.

Effects to federally-listed threatened and endangered (T&E) species occurring on the Federal parcel must be examined during the environmental analysis of the proposed land exchange. In addition, potential effects to T&E species must also be considered for the private lands, when future actions on the private lands are connected to the land exchange. Effects to T&E species must also be considered in an application for a U.S. Army Corp of Engineers 404 permit, regardless of land ownership status. In NEPA analysis potential effects to these species are examined through a Biological Assessment (BA).

Table 1 lists the listed T&E plant and wildlife species for the San Juan National Forest with a brief description of typical habitat. It also identifies those species that may be affected by the proposed reservoir project and would likely require detailed analysis in the Biological Assessment.

Table 1.

T&E species that could potentially be affected through implementation of the proposed action.

Species & Status	Habitat	Need For Detailed Analysis & Rationale
AVIAN		
Mexican Spotted Owl *(T)* *(Strix occidentalis lucida)* (Threatened)	Cool forested canyons	No. Habitat not present within the project area
Southwestern willow flycatcher *(E)* (Empidonax tralii extimus) (Endangered)	Dense riparian shrub habitats	No. Habitat not present within the project area
Western Yellow-billed Cuckoo *(T)* *(Coccyzus americanus)*	Riparian cottonwood woodlands	No. Habitat not present within the project area
MAMMALS		
Canada Lynx (T) *(Lynx canadensis)*	High elevation mixed conifer & spruce/fir	No. Habitat not present within the project area
New Mexico Meadow Jumping Mouse (E) *(Zapus hudsonius luteus)*	Sedge-dominated riparian & wetlands	Yes. Potential habitat present on both Federal & private lands
FISH		
Bonytail (E) *(Gila elegans)*	Tributaries to the Colorado River	No. Not present in the San Juan River below project area
Colorado Pikeminnow (E) (Ptychocheilus Lucius)	Tributaries to the Colorado & San Juan R.	Yes. Sensitive to water depletions in the San Juan R.
Razorback Sucker (E) (Xyrauchen texanus)	Tributaries to the Colorado & San Juan R.	Yes. Sensitive to water depletions in the San Juan R.

Humpback Chub (E) *(Gila cypha)*	Tributaries to the Colorado	No. Not present in the San Juan River below project area
INSECTS		
Uncompahgre fritillary butterfly (E) *(Boloria acrocnema)*	Snow willow above 13,000 feet elevation	No. Habitat not present within the project area
PLANTS		
Pagosa gilia (Pagosa skyrocket) (E) *(Ipomopsis polyantha)*	Rocky Mancos shale 6,800-7200 feet elev.	Yes. Project area proximity to known populations.

New Mexico Meadow Jumping Mouse *(Zapus hudsonius luteus)*
The endangered New Mexico meadow jumping mouse inhabits areas with a substantial dense, tall wetland/riparian graminoid component, such as taller sedges, often in association with other wet site shrubs and herbaceous plants. These areas are critical for foraging, while adjacent drier habitats are used for breeding and hibernation (USFWS 2014). The presence of flowing water through during the growing season appears to be another important component of habitat. Livestock grazing appears to be incompatible with this species through the loss of taller vegetation from forage consumption and trampling. Recent surveys for this species were conducted in a range of habitats across the Pagosa Ranger District by a small mammal specialist resulting in no evidence of presence of the jumping mouse (Frey 2011). However, more recent surveys have identified the species occurring on the nearby Southern Ute Reservation.

Potential habitat for this species occurs intermittently along the roughly 1650 lineal feet of irrigation channel that passes through the Federal parcel. The channel is lined by dense, but generally narrow, stands of water sedge and beaked sedge, a key component to habitat. The private lands include approximately 14,100 feet of channel (excluding the public lands) with similar habitat conditions. Sedge meadows extend from the channel in some areas, expanding potential areas of foraging habitat. Additional potentially suitable habitats occur around the reservoirs and the associated drainage channel. Livestock grazing occurs across the private and the public lands during the growing season, which is the active season for the mouse. This would likely represent a negative influence on these habitats, reducing overall habitat quality, as well as the likelihood of habitation by this species.

All of the potentially suitable habitat for this species would be inundated by the proposed reservoir. Representative photographs of the habitat on the Federal parcel were shown to a small mammal specialist with extensive experience with this species. The opinion, based on the photos, was that this would likely not represent optimal habitat for the jumping mouse. However, since more extensive potential habitat is present on the private lands, it is recommended that the area be examined in the field by a specialist to definitively determine if the project area contains habitat that might be considered suitable for the jumping mouse. A determination by a specialist that suitable habitat was not present would substantiate that fact for the analysis process and should satisfy USFWS that the proposed action would not likely adversely affect this species or necessitate formal consultation with that agency (pers.

conversation, Terry Ireland, USFWS). However, if a determination was made that suitable habitats were present for this species, it is likely that trapping surveys by a small mammal specialist (with a USFWS permit to perform such surveys) may be required to support a final biological opinion by the agency. (The survey period for the meadow jumping mouse is from mid-June through mid-September).

Colorado Pikeminnow (Ptychocheilus Lucius) & **Razorback Sucker** (Xyrauchen texanus)
Even though these endangered fish species occur far downstream from the planning area, cumulative water depletions throughout the drainage system have been identified as a key contributing factor in reductions of the populations of the Colorado pikeminnow and razorback sucker in the San Juan River basin. These depletions interfere with the creation and maintenance of important habitats and reduce the frequency and duration of their availability. Lower flows also contribute to altered flow regimes that may favor non-native fish that compete or prey on these endangered fish species. Water depletions to the San Juan River attributable to the proposed reservoir would have to be quantified and addressed in the assessment for the land exchange and would also have to be considered in the 404 permitting process with the U.S. Army Corp of Engineers. Addressing these fish species would likely require formal consultation with the USFWS and the issuance of a biological opinion by that agency.

Pagosa Gilia *(Ipomopsis polyantha)*
The Pagosa gilia or Pagosa skyrocket is a rare plant known only to occur in the Pagosa Springs area and is considered one of Colorado's most imperiled plants. It is found on rocky, clay soils derived from Mancos shale at elevations between 6,800-7,200 feet, often where soils have been disturbed. The densest populations appear to occur beneath ponderosa pine forests with grassland understories. The Colorado Rare Plant Conservation Initiative, a partnership of public and private organizations joined together several years ago to develop a conservation strategy for this species (Neely, et.al. 2011). In the process they identified an area (Pagosa Priority Action Area) that covered the known distribution of the Pagosa skyrocket, as well as areas within the vicinity of Pagosa Springs that exhibited the known characteristics of suitable habitat for this species. According to their mapping, the Federal lands and the Dry Gulch Basin lie immediately east, but outside of, the identified priority action area. Apparently this area was excluded due to the absence of suitable soils that support this species.

Populations of Pagosa skyrocket have been identified approximately 2¼ miles from the project area. While NRCS general soil surveys indicate that the Mancos shale-derived soils are absent from the project area, there are areas that appear to exhibit some of the physical characteristics of these soils, as well as other characteristics of suitable habitat. These areas occur along the ridges between the drainages within the Federal parcel in general proximity to the interior ponderosa pine stands. It should be noted that none of these areas would actually be inundated by the proposed reservoir. Site surveys during the summer of 2017 failed to identify any occurrence of Pagosa skyrockets on the Federal parcel. However, these were not intensive surveys of the project area. Earlier surveys of the project area conducted in 2007 also failed to identify the occurrence of this species (Ecosphere 2007).

Since the project area falls outside of the Priority Action Area and apparently no Mancos shale soils area present, it is not clear that formal consultation with the USFWS would be necessary. While specific habitat requirements may not be optimal for this species, considering the proximity of the project area to known populations, the USFS may want additional and more intensive surveys to be conducted for this species as a part of project analysis. Any surveys should focus on upper slope and ridgetop areas in proximity to the open ponderosa pine stands on the Federal parcel. No reasonably suitable habitat for this species is present within the affected area on the private land. Therefore, no survey effort on these lands is recommended.

San Juan National Forest Sensitive Species

The Forest Service defines a *sensitive species* "as a plant or animal species identified by the Regional Forester that are not listed or proposed for listing under the Federal Endangered Species Act for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce the species' existing distribution". The Regional Forester's list of sensitive species is refined at the Forest level to include only those species likely to occur on the Forest. The list is further refined at the project level based on the likelihood that the species would inhabit the project area or could be potentially impacted by management activities or direction. Potential impacts to these species are addressed in NEPA analysis through a Biological Evaluation (BE). Table 2 lists the sensitive species identified for the San Juan National Forest and indicates those species that could potentially be impacted by the proposed reservoir project. These species would require detailed analysis in the BE.

Table 2.
SJNF Sensitive Species with Potential Impacts Related to the Reservoir Project

Common Name	***Scientific Name***	***Federal***	***PVT***
Wildlife Species *Mammalian Species*			
Fringed myotis	*Myotis thysanodes*	X	X
Gunnison's prairie dog	*Cynomys gunnisoni*	X	X
Hoary bat	*Lasiurus cinereus*	X	X
Townsend's big-eared bat	*Corynorhinus townsendii*	X	X
Avian Species			
American bittern	*Botaurus lentiginosus*	X	X
Bald eagle	*Haliaeetus leucocephalus*	X	X
Ferruginous hawk	*Buteo regalis*	X	X
Flammulated owl	*Otus flammeolus*	X	X
Lewis' woodpecker	*Melanerpes lewis*	X	
Loggerhead shrike	*Lanius ludovicianus*	X	X
Northern goshawk	*Accipiter gentilis*	X	X

Northern harrier	*Circus cyaneus*	X	X
Short-eared owl	*Asio flammeus*	X	X
Amphibious Species			
Northern leopard frog	*Lithobates pipiens*	X	X
Fish Species			
Bluehead sucker	*Catostomus discobolus*	X	X
Flannelmouth sucker	*Catostomus latipinnis*	X	X
Roundtail chub	*Gila robusta*	X	X
Insect Species			
Great Basin silverspot butterfly	*Speyeria nokomis nokomis*	X	X
Monarch butterfly	*Danaus plexippus plexippus*	X	X
Western bumblebee	*Bombus occidentalis*	X	X

Common Name	***Scientific Name***	***Federal***	***PVT***
Plant Species			
Violet milkvetch	*Astragalus iodopetalus)*	X	X
Missouri milkvetch	*Astragalus missouriensis* var. *humistratus*	X	X
Aztec milkvetch	*Astragalus proximus*	X	X
Frosty bladderpod	*Lesquerella pruinosa*	X	
Cushion bladderpod	*Physaria pulvinata*	X	

The following is a brief description of the habitat for the sensitive species that may occur within the project area on the Federal parcel and on the private lands. While suitable habitat is considered for the entirety of the Federal parcel, only those areas on the private lands falling within the footprint of the reservoir are discussed. In the Biological Evaluation the analysis for impacts to sensitive species will have to assume that the Forest Service will relinquish all controls over management of the habitats occurring within the Federal parcel, regardless of whether they fall within or outside of the footprint of the proposed reservoir.

Fringed Myotis *(Myotis thysanodes)*
This bat forages over desert, grassland, woodland, and ponderosa pine forest habitats. It uses caves, mines, old buildings for roost sites and hibernacula and may use other structures, such as bridges and rock crevices for daytime roosts. The entire project area would provide foraging habitat for this species but roosting habitat is absent on both the Federal parcel and private lands. Most of the 330 acres of grassland and limited forestland to be inundated by the proposed reservoir would represent suitable foraging habitat for this species.

Gunnison's Prairie Dog (*Cynomys gunnisoni)*
The Gunnison's prairie dog inhabits open, typically dry grassland areas. Habitat is available for this species in much of the upland grasslands on both the Federal and private lands. It is estimated that most of 134 acres upland grassland areas on the Federal parcel would provide suitable habitat for this species, although some areas near the ridgetops may have shallow soils

that would interfere with burrowing. Approximately 32 acres of that habitat would be inundated by the proposed reservoir. The wetter areas of the basin would probably be unsuitable for this species due to burrow flooding. An estimate 125 acres of suitable prairie dog habitat would be inundated by the reservoir on the private lands. No colonies of this species were detected during field surveys of the project area.

Hoary Bat (*Lasiurus cinereus)*
This bat is generally considered a species of forested habitats and typically roosts in the dense foliage of deciduous and coniferous trees. It apparently does not overwinter in Colorado. Most of the 48 acres of forested habitat within the Federal parcel would be considered suitable habitat for the hoary bat. None of this habitat would be inundated by the proposed reservoir. Approximately 33 acres of forest habitat on the private lands would be inundated by the reservoir.

Townsend's Big-eared Bat (*Corynorhinus townsendii)*
This bat is found in the dry uplands and mesic forests in Colorado including ponderosa pine, mixed conifer and spruce-fir forest between 6,000 and 10,000 feet elevation. It has a strong preference for cavernous structures, such as caves or mines, for roosting and hibernacula. Summer and bachelor roosts may occur in caves, mines, shallow prospect holes, bridges, buildings or hollow trees. Foraging and travel occur along linear edges such as forest openings and gaps. Large openings are avoided.

There are no known suitable breeding structures for hibernacula within or in proximity to the project area. Some foraging habitat along the edges of forest openings could be altered by the proposed reservoir. Some potential summer roosting habitat is present within the forested portions of the Federal parcel. However, none this habitat would be impacted by the reservoir. Approximately 33 acres of forested habitat with potential summer roosting sites on the private lands would be inundated by the reservoir.

American Bittern *(Botaurus lentiginosus)*
The American bittern is known to utilize wetlands of all sizes ranging from 0.2-2,000 acres, but it prefers larger wetlands and tends to prefer shallow water less than four inches in depth. Foraging habitat is often vegetation fringes and shorelines. Breeding habitat is tall, dense, emergent vegetation in wetlands, which may be shallow or deep.

There is some limited foraging habitat for this species intermittently along the edges of the 1600 feet of the Park Ditch as it passes through the Federal parcel. This habitat would be inundated by the proposed reservoir. There is no breeding habitat within the Federal parcel. Foraging habitat is present intermittently along the approximately 14,000 feet of the Park Ditch on the private lands, as well as in some of wet meadows and small marsh in the basin. The marsh area would also represent some limited breeding habitat for the bittern. All of these areas would be inundated by the proposed reservoir.

Bald Eagle *(Haliaeetus leucocephalus)*
The bald eagle uses areas around lakes, streams, rivers and reservoirs, and adjacent areas for nesting and foraging habitat. These are also favored for foraging, roosting and concentration areas during the non-breeding season. Generally, the project area would not be considered primary habitat for this species in its current condition, although it would represent potential foraging habitat, especially outside of the breeding season. Eagles are known to overwinter along the San Juan River and nesting sites along the river in relative proximity to the project area have been reported.

All of the open areas on the Federal lands would provide foraging habitat for the bald eagle and the edges of the forested habitat would provide perches from which to pursue these activities. Similarly, all of the areas associated with the reservoir on the private land would also provide potential foraging habitat. However, assuming that the future reservoir would be stocked with fish, the proposed action could represent an overall beneficial impact to this species by creating 330 acres of favored foraging habitat, as well as nesting habitat in the forested areas in proximity to the reservoir.

Ferruginous Hawk *(Buteo regalis)*
This hawk is not known to nest on the San Juan National Forest but may occur here during the non-breeding season for overwintering or during migration. The ferruginous hawk hunts in grasslands or shrub steppe habitats. It tends to avoid areas with high levels of human occupation or activity.

Approximately 144 acres of upland grassland/shrub and low-lying meadow on the Federal parcel would provide winter or transitory foraging habitat for this species. Approximately 58 acres of this habitat would be inundated by the proposed reservoir. Much of the open grasslands on private lands would also provide potential foraging habitat for this species. Roughly 240 acres of this habitat would be inundated by the reservoir.

Flammulated Owl *(Otus flammeolus)*
The flammulated owl is a breeding season resident of Colorado's foothills and mountains. It occurs throughout the ponderosa pine and warm-dry mixed conifer zones across the Forest. This species shows a preference for mature and late successional forest structures and the presence of at least some older trees appears to be highly desirable in its breeding territory. It is a secondary cavity-nester, using predominantly abandoned woodpecker cavities for nesting. Therefore, standing dead trees are an important component of habitat.

Habitat for this species is present in most of the 48 acres of forested area within the Federal parcel, none of which would be inundated by the proposed reservoir. On the private lands, approximately 33 acres of potentially suitable forested habitat along the southern edge of the reservoir site would fall within the footprint of the reservoir.

Lewis' Woodpecker *(Melanerpes lewis)*
This woodpecker is generally considered an inhabitant of lower to mid-elevational areas. It occurs in Colorado up to an elevation of approximately 9,000 feet, but most commonly below 8,000 feet. Nest sites are associated with the presence of abundant free-living insects, open canopy forests or tree clusters, standing dead trees, and dense ground cover in the form of downed material, grasses and shrubs. Snags are important to the Lewis's woodpecker as nesting sites and as perching sites from which to hawk insect prey. A shrub crown cover of 50% is considered optimal and habitat featuring no shrub cover is considered unsuitable.

Some of the forested habitat within the Federal parcel would be suitable for this species. However, those open stands in the middle of the parcel that would otherwise offer optimal habitat tend to have a marginal shrub components. The interior portions of the northern and southern stands may be too dense for favorable habitat. It is estimated that roughly 20 acres of ponderosa pine within the Federal parcel would represent suitable habitat for the Lewis's woodpecker, none of which would be directly affected by the proposed reservoir. Due to canopy densities, only 15 of the 33 acres of ponderosa pine forest that would be inundated by the reservoir on the private lands would likely be considered suitable habitat for this species.

Loggerhead shrike (*Lanius ludovicianus)*
The loggerhead shrike is an uncommon nester in southwest Colorado and is most often seen in transition between its breeding sites and wintering grounds. It is generally associated with upland grasslands with a scattered shrub and/or small tree component. These serve as hunting perches, as well as potential nesting sites. Fences are also used as perching structures. Isolated junipers have been identified as preferred nesting sites, along with other small tree species. Grassy pastures that are well grazed provide preferred hunting areas.

Much of the 134 acre upland areas on the Federal parcel would provide foraging habitat for the shrike, although shrubs for perching are lacking in many areas. Nesting sites are available in the scattered juniper that occur on the upper slopes. Little if any potential nesting sites on the Federal parcel would be inundated by the proposed reservoir. Generally, most of the private land associated with the reservoir would not represent suitable habitat for this species.

Northern Goshawk *(Accipiter gentilis)*
The northern goshawk is considered a forest generalist because it occurs in all major forest types (coniferous, deciduous, and mixed). Mature forest structures appear to be an important component in the goshawks nesting home range. Nests are typically located in dense forests on slopes with northerly exposures or in drainages or canyon bottoms protected by such slopes. Nesting sites are usually within ¼-mile of water. Foraging areas tend to be more open with favored canopy densities of 40-60%, but a mosaic of habitat structures within its foraging territory appears to be important in providing a diverse prey base. Goshawks have high fidelity to their territories and return to these areas in successive years.

The forested habitat on the southern and northern ends of the Federal parcel (approximately 27 acres) would be suitable nesting habitat for the goshawk. Due to natural fragmentation the

other forest areas in the parcel would generally be unsuitable for nesting but may offer suitable foraging habitat. None of the habitat on the Federal parcel would be directly affected by the inundation from the proposed reservoir. The 33 acres of forested habitat on the private land along the southern edge of the reservoir would be suitable nesting and foraging habitat for the goshawk. While no nest sites for any raptor species were detected during field surveys for this phase of the project, the Forest Service may want surveys conducted for raptors as part of the NEPA process.

Northern Harrier *(Circus cyaneus)*
The northern harrier requires open grassland areas for nesting and foraging. It appears to have an affinity to wet meadows for nesting and, even when using dry grasslands for this purpose, these sites are often located in proximity to wet meadows. Nesting areas require taller grasses for cover. Areas with higher herbaceous cover are also preferred for foraging, presumably because these areas tend to support denser rodent populations.

Suitable nesting and foraging habitat is present intermittently within the upland grassland/shrub cover, most of which occurs on the mid-lower slopes, where vegetation tends to be more well-developed. Some of the riparian/alluvial meadow may also offer potential nesting habitat, as well as foraging areas. Portions of the lower slopes of the upland areas fall within the footprint of the proposed reservoir, as would all of the low-lying alluvial areas. Potential nesting and foraging habitat is present across the basin on the private lands, although the grass height may be limiting due to grazing. All of this potential habitat would be inundated by the reservoir.

Short-eared Owl *(Asio flammeus)*
The short-eared owl is an uncommon breeder in southwest Colorado. It nests in open habitats including grasslands, marshes, and wet meadows with relatively high grass. It is also known to nest in sagebrush adjacent to open grasslands. Foraging habitat is similar to nesting habitat. Voles make up the primary prey species. Heavily grazed lands tend to be avoided, but when these areas are used by the owl, they result in low nest productivity.

Suitable habitat for this species is present within the upland grassland habitats within the Federal parcel, although sparse herbaceous cover in many areas would be considered unsuitable for both nesting and foraging. It is estimated at least a third of the 134 acres of grassland habitat would be unsuitable or marginally suitable for nesting. A portion (4-5 acres) of the riparian meadow would be considered potentially suitable for nesting. An estimated 40-45 acres of potentially suitable habitat on the Federal parcel would be inundated by the reservoir. Since this area is grazed during the nesting season, the overall quality of this habitat would be considered marginal for the owl. Approximately 200 acres of the private lands within the reservoir site would be considered suitable for foraging by this species. However, due to grazing, only a small portion of the area would likely be considered suitable for breeding activities.

Northern Leopard Frog *(Lithobates pipiens)*
The northern leopard frog uses a range of moist habitats including wet meadows and the banks and shallows of marshes, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams and

irrigation ditches. It occurs in areas up to 11,000 feet in elevation. Breeding habitat consists of ponds, marshes, lakes, streams and glacial kettle ponds that have enough permanence to allow development of larvae into sub-adults. Favored sites are shallow with emergent vegetation and good solar exposure. Foraging habitats include aqueous environments and wet meadows.

There is no breeding habitat for the leopard frog on the Federal parcel. However, the 1,600-foot linear course of the Park Ditch and wet meadows below the ditch within the parcel would provide foraging habitat, all of which would be inundated by the proposed reservoir. The ponds, marsh and permanently saturated wet meadows occurring on the private lands would provide an estimated 5 acres of breeding habitat for the leopard frog. The roughly 3¼ miles of the Park Ditch and the wet meadows within the basin would provide an estimated 65 acres of foraging habitat. All of the breeding and foraging habitat on the private land would be inundated by the reservoir.

Bluehead Sucker *(Catostomus discobolus)*, **Flannelmouthed Sucker** *(Catostomus latipinnis)* & **Roundtail Chub** *(Gila robusta)*
These fish species occur within the San Juan River and its tributaries. They do not occur within the project area. However, impacts from the development of the proposed reservoir and subsequent depletions to the river associated with reservoir operation could have impacts to downstream habitats.

Great Basin Silverspot Butterfly (*Speyeria nokomis Nokomis)*
This butterfly is found in spring fed and/or subirrigated wetlands at low (<7500 feet) elevation. The primary larval food is the violet plant *(Viola nephrophylla),* which typically occurs in wet meadows interspersed with willows and other woody wetland species. The adult nectar sources are plants with mostly composite flowers.

The project area lies at the upper elevational range for this species. While wet meadows are present on the Federal parcel, no areas supporting violets were specifically noted during site surveys. Most of these areas are dominated by graminoids. Some plants that have composite flowers were present but generally not in proximity to wetter areas. Potential habitat is present on the private lands in wetter areas, but most of these areas tend to be dominated by graminoids, as well. All of the wet meadows and other saturated areas on both the Federal and private lands would be inundated by the reservoir.

Monarch butterfly *(Danaus plexippus plexippus)*
This migratory butterfly depends solely on milkweed *(Acslepias spp.)* for its larval food source. Three species of milkweed have the potential to occur within the project area, although none were specifically noted during field surveys. One of these species, showy milkweed *(A. speciosa)* occurs in moist areas, while the other two, whorl milkweed (*A. subverticillata*) and capricornul *(A. asperula)*, generally occur on drier sites. Favored adult nectar plants, such as goldenrod *(Soldago spp.)*, clover *(Trifolium spp.)*, and aster *(Aster spp.)* are fairly common on both the Federal parcel and adjacent private lands, including areas that would be inundated by the proposed reservoir.

Western bumblebee *(Bombus occidentalis)*
The western bumblebee is a generalist pollinator and will collect pollen from a wide variety of flowering plants in upland and low-land grasslands, as well as forested habitats. This species is also somewhat of a generalist when selecting nesting sites. It will often use rodent burrows for this purpose, but may also utilize hollow trees, logs, buildings, etc. The reservoir would inundate approximately 58 acres of potential pollen collection areas on the Federal parcel and approximately 268 acres on the private lands. The reservoir would also have the potential to flood similar acres of ground-nesting habitat.

Violet Milkvetch *(Astragalus iodopetalus)*
This plant species occurs on dry, stony hillsides and benches, commonly on granite or granitic soils. It often grows in association with oak thickets, oak/pinyon woodlands or sagebrush. The project area would be considered near the upper elevational limits for this milkvetch. Although the soils and vegetation communities on the Federal parcel would not be considered typical habitat for this species, some limited areas on upper slopes could provide some potential habitat. None of the potential habitat would fall within the footprint of the proposed reservoir.

Missouri Milkvetch *(Astragalus missouriensis var. humistratus)*
This species occurs in flat, shale meadows and on shallow slopes often in disturbed areas, such as roadsides at elevations of 6,200-8,500 feet. Some isolated sites in the upland grassland areas on the Federal parcel could provide potential habitat for this plant. Most of this areas would fall outside of the inundation area of the proposed reservoir. No potential habitat for this species is present on the private lands within the reservoir site.

Aztec Milkvetch *(Astragalus proximus)*
This species occurs on mesas, bluffs, and low hills in sandy, often alkaline, clay soils including Mancos shale. It commonly grows in association with sagebrush and pinyon juniper at elevations ranging from 5,400-8,700 feet. Potential habitat for this species may occur in the upland grassland areas on the upper slopes and ridges between the ephemeral drainages. Little, if any, of the potential habitat would fall within the footprint of the proposed reservoir. No potential habitat for this species is present on the private lands within the reservoir site.

Frosty Bladderpod *(Lesquerella pruninosa)*
This species occurs on hillsides in grasslands and shrublands on soils derived from Mancos shale. The critical range for this species was included within the previously-mentioned Pagosa Priority Action Area (PPAA) due to the habitat similarities it shares with the endangered Pagosa skyrocket. Although, according to NRCS soil information, these soils do not occur within the project area, some areas sharing some of the physical characteristics of these soils do occur on some upper slope areas within the Federal parcel. Considering the proximity of the project area to known populations of this species, these areas might be considered potential habitat for the frosty bladderpod. None of these areas would be within the inundation area of the proposed reservoir. No potential habitat for this species occurs on the private lands.

San Juan National Forest Management Indicator Species

Management Indicator Species (MIS) are species selected for use as a planning tool in accordance with 1982 National Forest Management Act (NFMA) regulations. These species are used to help set objectives, analyze effects of alternatives, and monitor plan implementation. They are chosen because their populations can be monitored and changes in populations are believed to be potential indicators of the effects of management on selected biological components.

MIS would only have to be evaluated on the Federal parcel. While the aquatic species don't occur on the Federal parcel, they may have to be examined in the environmental assessment due to potential effects to downstream habitats on the San Juan River.

Table 3.
SJNF Management Indicator Species with Potential Effects from the Reservoir Project

Common Name	*Scientific Name*	*Federal*
Terrestrial		
Abert's squirrel	*Sciurus aberti*	X
Hairy woodpecker	*Leuconotopicus villosus*	X
Rocky Mountain elk	*Cervus canadensis nelsoni*	X
Aquatic		
Rainbow trout	*Oncorhynchus mykiss*	X
Brook trout	*Salvelinus fontinalis*	X
Brown trout	*Salmo trutta*	X

Abert's squirrel (Sciurus aberti)
This species inhabits ponderosa pine forests and is a ponderosa pine obligate. Approximately 48 acres of pine forest occur on the Federal parcel. However, some isolated stands in the parcel would likely not provide suitable habitat due to fragmentation and overall stand density. It is estimated that 28 acres within the parcel would provide suitable habitat for this species. None of this habitat would fall within the footprint of the proposed reservoir.

Hairy Woodpecker *(Leuconotopicus villosus)*
This species uses a variety of forest and woodland habitats for nesting and foraging. As a primary cavity-nesting species, it prefers older stands with standing dead or declining trees for cavity sites. All 48 acres of ponderosa pine forest within the Federal parcel would provide suitable habitat for the hairy woodpecker. None of this habitat would be inundated by the reservoir.

Rocky Mountain Elk *(Cervus canadensis nelson)*
The Rocky Mountain elk is a habitat generalist using a range of habitats to meet its life requisites. Almost all of Federal parcel would be considered suitable habitat for this species. Due to the southerly and southwesterly orientation of the landform and its relatively low elevation, the Federal parcel would also be considered important winter habitat for this species, especially

during severe winters. Approximately 58 acres of elk habitat would be inundated by the proposed reservoir.

Rainbow Trout *(Oncorhynchus mykiss),* **Brook Trout** *(Salvelinus fontinalis), &* ***Brown Trout*** *(Salmo trutta)*

These fish species generally do not occur within the Federal parcel except for incidental populations that may occur within the Park Ditch. However, populations occurring in the San Juan River could experience effects associated with water depletions related to the proposed reservoir project.

Colorado State Wildlife Action Plan

Colorado is a participant in the State wildlife action plan (SWAPs) program. This program was originally developed in 2005 by all 50 states and five U.S. territories as a prerequisite for obtaining federal funds through the Wildlife Conservation and Restoration Program and the State Wildlife Grants Program. The intention of SWAP is to assess the health of the state's wildlife species and their habitats, identify potential problems, and outline the actions that would be needed to conserve those species over the long term. The SWAPs develop steps and strategies necessary to conserve wildlife species and their habitats before federal action under the ESA may be required to address species viability. Through this process wildlife biologists with the Colorado Parks and Wildlife Department (CPW) have identified species of high conservation concern or Tier 1 species. Table 4 lists the Tier 1 species that likely inhabit the project area or those whose habitats might be influenced by the proposed action. It should be noted that most of the Tier 1 species likely to occur or be influenced by actions in the proposed project area are either federally-listed species or species designated as sensitive by the USFS in Region 2. The golden eagle is protected under the Bald Eagle and Golden Eagle Protection Act.

Table 4
Tier 1 SWAP species that may be influenced by the proposed reservoir project

Species	General Habitat Description
Bluehead Sucker	Upper Colorado River basin including the San Juan River & its tributaries in lower reaches of SJNF. Sensitive to upstream water depletions.
Colorado Pikeminnow	Colorado River and lower San Juan River and its tributaries. Sensitive to upstream water depletions.
Flannelmouth Sucker	Upper Colorado River basin including the San Juan River & its tributaries in lower reaches of SJNF. Sensitive to upstream water depletions.
Fringed Myotis	Forages over desert, grassland, woodland, and ponderosa pine forest habitats. It uses caves, mines, old buildings for roost sites and hibernacula and may use other structures, such as bridges and rock crevices for daytime roosts.

Golden Eagle	Forages in primarily upland grassland and shrubland habitats. Nests in larger trees and cliffs.
Gunnison Prairie Dog	Generally an inhabitant of dry upland grassland habitats
Little Brown Myotis	This is a species of wooded areas including riparian woodland in the mountains and lower valleys, urban areas, woodlots and shelterbelts. Night roosts are located in tree hollows, beneath tree bark, in or under buildings, bridges, crevices in rock. Winter habitats are poorly known in Colorado.
New Mexico Meadow Jumping Mouse	Sedge-dominated riparian & wetlands typically along live streams and irrigation channels
Northern Leopard Frog	Moist habitats including wet meadows and the banks and shallows of marshes, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams and irrigation ditches up to 11,000' elevation
Razorback Sucker	Colorado River and lower San Juan River and its tributaries. Sensitive to upstream water depletions.
Roundtail Chub	Lower San Juan River and its tributaries. Sensitive to upstream water depletions.
Townsend's Big-eared Bat	Forages over dry uplands and mesic forests in between 6,000' & 10,000'. Roost in cavernous structures, such as caves or mines & may use trees for summer roosts.

Beneficial Environmental Effects of the Proposed Reservoir

In addition to the public benefits to be offered by the proposed reservoir, there will likely be some beneficial environmental effects. Open water situations, such as those that would be created by the reservoir, are relatively rare features in southwest Colorado. The reservoir and its surroundings would provide nesting habitat for species, such as the bald eagle and osprey, as well as a variety of waterfowl. It would also provide stopover habitat for migratory waterfowl species that don't nest normally nest in this part of the state but pass through the area on their way to and from their breeding grounds. While some wetlands or wet meadows would be inundated by the proposed reservoir, other wet site conditions will be created along the margins of the reservoir, as well as in the ephemeral drainage corridors. There may even be opportunities to enhance or create wetlands to help mitigate the loss of wetlands associated with reservoir development.

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